

---

# Vital and Health Statistics

---

## Evaluation of 2-week Doctor Visit Reporting in the National Health Interview Survey

Series 2:  
Data Evaluation and Methods  
Research  
No. 122

This report includes a review of previous research on the reporting of ambulatory medical visits in household surveys, describes the methods used in the Health Interview Evaluation Survey, and presents results relating to the reporting of 2-week doctor visits.

---

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

Hyattsville, Maryland  
August 1996  
DHHS Publication No. (PHS) 96-1396

#### Copyright Information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

---

#### Suggested Citation

Edwards WS, Winn DM, Collins JG. Evaluation of 2-week doctor visit reporting in the National Health Interview Survey. National Center for Health Statistics. *Vital Health Stat* 2(122). 1996.

---

#### Library of Congress Cataloging-in-Publication Data

Edwards, W. Sherman.

Evaluation of 2-week doctor visit reporting in the National Health Interview Survey.

p. cm. — (Vital and health statistics. Series 2, Data evaluation and methods research ; no. 122) (DHHS publication ; no. (PHS) 96-1396)

Written by W. Sherman Edwards, Deborah M. Winn, and John Gary Collins.

"August 1996"

Includes bibliographical references.

ISBN 0-8406-0515-3

1. Ambulatory medical care —Utilization—Reporting—United States. 2. National Health Interview Survey (U.S.) I. Collins, John Gary. II. National Health Interview Survey (U.S.) III. National Center for Health Statistics (U.S.) IV. Title. V. Series. VI. Series: DHHS publication ; no. (PHS) 96-1396.

[DNLM: 1. Ambulatory Care Facilities—utilization—United States.

2. Data Collection—methods. W2 A N148vb no. 122 1996]

RA409.U45 no. 122

[RA408.5]

362.1'0723 s—dc20

[362.1'2]

DNLM/DLC

for Library of Congress

96-16763

CIP

---

For sale by the U.S. Government Printing Office  
Superintendent of Documents  
Mail Stop: SSOP  
Washington, DC 20402-9328

## **National Center for Health Statistics**

Edward J. Sondik, Ph.D., *Director*

Jack R. Anderson, *Deputy Director*

Jacob J. Feldman, Ph.D., *Associate Director for Analysis, Epidemiology, and Health Promotion*

Gail F. Fisher, Ph.D., *Associate Director for Planning and Extramural Programs*

Jack R. Anderson, *Acting Associate Director for International Statistics*

Stephen E. Nieberding, *Associate Director for Management*

Charles J. Rothwell, *Associate Director for Data Processing and Services*

Monroe G. Sirken, Ph.D., *Associate Director for Research and Methodology*

## **Division of Health Interview Statistics**

Owen T. Thornberry, Jr., Ph.D., *Director*

Gerry E. Hendershot, Ph.D., *Assistant to the Director for Data Analysis and Dissemination*

Ann M. Hardy, Dr.P.H., *Chief, Illness and Disability Statistics Branch*

John W. Horm, *Chief, Survey Planning and Development Branch*

Robert S. Krasowski, *Chief, Systems and Programming Branch*

Robert A. Wright, *Chief, Utilization and Expenditure Statistics Branch*

# Contents

Introduction . . . . .	1
Highlights . . . . .	2
Previous research and design of record-check studies for ambulatory medical care visits. . . . .	3
Methods. . . . .	6
Sample design . . . . .	6
Data collection . . . . .	8
Matching interview and medical record reports . . . . .	9
Results . . . . .	11
Overview of presentation of results . . . . .	11
2-week contacts in the interview and medical record . . . . .	11
Person-level results of matching . . . . .	12
Contact-level match . . . . .	13
Reporting number of visits in 2-week period. . . . .	13
Effects of timing of interview and physician contact on reporting accuracy . . . . .	14
Differences in reporting by respondent characteristics. . . . .	16
Discussion . . . . .	17
References. . . . .	19
List of detailed tables . . . . .	20
 <b>Appendix</b>	
Health Interview Evaluation Questionnaire. . . . .	29
 <b>Text tables</b>	
A. Marquis' basic record-check matrix for binary variable with no missing data, by survey response and notation of condition in medical records. . . . .	3
B. Comparison between National Health Interview Survey procedures and Health Interview Evaluation Survey design elements . . . . .	6
C. Analytic sample by age and sex . . . . .	7
D. Planned allocation of list-sample persons cooperating in the Health Interview Evaluation Survey, by event history, age, and sex . . . . .	7
E. Planned allocation of list-sample persons cooperating in Health Interview Evaluation Survey, by event history revised to analyze telescoping, age, and sex . . . . .	7
F. Actual number of list-sample persons available for analysis by event history, according to the medical record, age, and sex . . . . .	8
G. Actual number of supplementary-sample persons available for analysis, by event history according to the medical record, age, and sex . . . . .	8
H. Number and percent of initial draw and response rates for Health Interview Evaluation Survey, by utilization group . . . . .	8
J. Results of matching interview and medical record reports, by steps . . . . .	9
 <b>Text figures</b>	
1. Agreement on number of visits . . . . .	14

# Evaluation of 2-week Doctor Visit Reporting in the National Health Interview Survey

by W. Sherman Edwards, M.B.A., Westat, Inc.; Deborah M. Winn, Ph.D., and John Gary Collins, M.B.A.,  
National Center for Health Statistics

## Introduction

The National Health Interview Survey (NHIS) is a continuous, cross-sectional survey of the civilian noninstitutionalized population of the United States, conducted by the National Center for Health Statistics. The NHIS core interview provides national estimates of, for example, the use of physician and hospital services, and of functional limitations and restrictions of everyday activities for health reasons. Annual supplements provide timely information on other topics of health policy interest.

This report describes the study methodology and presents findings for an evaluation of the reporting of ambulatory medical care visits in the NHIS 2-week reference period, part of a larger evaluation effort called the Health Interview Evaluation Survey (HIES). The HIES had two purposes, the first of which was to examine the reporting of chronic conditions by household respondents and the second to evaluate the reporting of medical care visits, which is the focus of this report. Findings from the reporting of chronic conditions may be found in the NCHS report, "Evaluation of National Health Interview Survey Diagnostic Reporting" (1). Comparing household interview reports and medical records can improve our understanding of data from both sources and may also shed light on people's understanding of their own health and how well the health care system meets their needs for information.

Evaluations using record-check designs are difficult; if one simply interviews persons and checks the sources they mention, it is likely that sources will be missed. Similarly, a design starting with medical records and following up with interviews will miss persons who have not sought professional medical care. Like the previous studies of the reporting of chronic conditions in the NHIS (2-4), the HIES drew its subjects from the membership of a health maintenance organization (HMO) to allow as complete a verification of reports of chronic conditions as possible. The selection of an HMO as a source of the sample has its limitations, however. The evaluation cannot examine differences by provider in the phenomena under study, since there is in essence only one provider, nor can it examine the effects of variations in persons' access to care. Further, persons belonging to an HMO may exhibit different care-seeking behavior from the general population, and they may differ in other ways as well.

The HIES was designed to meet multiple research objectives. Because of interest in possible reporting differences by race, the study population included a larger proportion of black persons than the U.S. population as a whole. The sample design included stratification by age and sex, with oversamples of older persons. Because chronic conditions generally are far less prevalent among children than among adults, the selection of list sample persons was limited to persons 18 years of age or older. To accommodate the examination of doctor visits within 2 weeks of the interview and hospitalizations within 13 months, persons identified in the medical record as having recent utilization were oversampled. The questionnaire comprised a slightly modified core NHIS, with a composite condition list including the most prevalent chronic conditions and impairments. To avoid confounding examination of data on list-sample persons by whether a self- or proxy report was obtained, all list sample persons responded for themselves.

In addition to collecting data on the sample persons, data were also collected on other members of the sample persons' household, including children. These members were identified by the sample person on the household composition page of the HIES questionnaire, paralleling procedures used in the NHIS. Data on other household members are useful since they allow some comparisons between self-respondents (the sample persons) and other household persons for whom both self- and proxy responses are included as in the NHIS. To the extent that these persons were members of the HMO and permitted access to their medical records, they are included in some analyses. Other survey procedures were modeled as closely as possible to the NHIS.

This report includes a review of previous research on the reporting of ambulatory medical visits in household surveys, describes the methods used in the HIES, and presents results relating to the reporting of 2-week doctor visits.

The HIES was conceived and mandated by NCHS. It was conducted by Westat, Inc.; the Project HOPE Center for Health Affairs shared the design and analysis responsibilities. The study sample was drawn from the membership rolls of the Group Health Association (GHA), whose staff provided essential assistance in identifying the sample and in making available participants' medical records.

# Highlights

The HIES is one of many research studies that have examined the accuracy of household survey reports of ambulatory medical visits through record checks. Two aspects of reporting errors have been examined: failure to report visits present in the medical record (underreporting relative to the medical record) and reporting visits not present in the medical record (relative overreporting). Although medical records are not without error and almost every study examined in this research noted some difficulties in the process of matching interview reports and medical records, this report generally assumes that the medical record is “truth” and survey responses that do not agree with the record are in error.

At the person level, the HIES found that about 78 percent of list-sample persons with one or more GHA visits in the medical record reported at least one visit in the interview, with almost the same proportion (80 percent) of list-sample persons reporting visits having them confirmed by the medical record. (“List-sample persons,” those selected from the GHA records, all responded for themselves. Other persons included in the interview are referred to as “household members,” some of whom reported for themselves and some of whom had proxy respondents.) For list-sample persons, there was virtually no net difference between the interview and medical record in the number of people with visits. For adult household members not present for the interview, however, less than one-half of the persons with visits in the medical record had visits reported in the interview. This finding suggests poorer reporting by proxy respondents but should be viewed with caution because of design limitations.

Compared with the findings for visits, the findings for telephone calls show a considerable net underreport of GHA telephone calls by all participants. Only about one-third of list-sample persons with calls in the record reported a call in the interview, while about 60 percent of persons with telephone contact reported in the interview had it confirmed by the medical record. The pattern was the same for household members, although the percentages were all lower.

The overall rates of agreement for visits were relatively consistent with the findings of previous studies, given that these studies varied in sample design, question wording, and reference period length. Little previous research had examined the reporting of telephone calls to doctors.

The HIES, like several previous studies, examined the reporting of visits with respect to when the interview occurred, and when in the 2-week reference period the visit occurred. Interview reporting was better for the week preceding the interview (77 percent of medical record visits reported in the interview) than for the prior week (63.5 percent), a finding similar to that of an earlier study. Within weeks, there was little difference for different days of the week. Underreporting was constant for interviews conducted Monday through Friday but higher for interviews conducted on a Saturday or Sunday, with more time elapsed since the reference period and perhaps more confusion about which weeks composed the reference period. Finally, an analysis of overreporting suggested that between one-quarter and one-half of overreported visits were “telescoped” into the reference period from an earlier date.

The HIES found differences in reporting by respondent characteristics. Younger people were less likely to underreport and more likely to overreport than older people, leading to a net overreport of about 14 percent as compared with the medical record for persons 18–44, while all other age groups had a net underreport of between 4 and 9 percent. Men were more likely to underreport than women. College graduates were less likely to underreport and more likely to overreport than persons with less education, leading to a net overreport of almost 11 percent against the medical record for persons with college degrees as compared with a net underreport of about 9 percent for persons with a high school education or less. The only one of these findings clearly confirmed by previous research was that men underreport more than women.

# Previous research and design of record-check studies for ambulatory medical care visits

Survey reports of behavior are subject to various types of error. Generally, randomly distributed reporting error can affect the variance of estimates made from survey data, while systematic error can bias survey estimates.

As examples of systematic error for survey reports of behavior, respondents may forget relevant episodes or they may report an episode from outside the period of interest as if it had happened within the period (telescoping); they may report episodes that do not meet the survey definition or they may fail to report relevant episodes because they decide that these do not meet survey criteria; they may fail to report socially undesirable or embarrassing episodes or they may report socially desirable episodes that did not occur. Surveys that collect reports of behavior sometimes seek verification of these reports from other sources, either at an episode level or in some aggregated form. Administrative records are often used in both ways in what is called "record-check studies." While some researchers consider such record data as "truth," considerable evidence suggests that this view oversimplifies the relationship between data from sample surveys and from administrative records. For example, administrative records are maintained for purposes other than verification of survey data, and therefore may use different rules for inclusion or exclusion of events than the survey with whose data they are being compared. Even if administrative records did represent "truth," record checking does not explain why respondents give incorrect answers.

Marquis (5) described limitations of particular record-check methodologies, illustrating his arguments with a review of record-check studies of reports of hospitalizations and ambulatory health care visits. Marquis was particularly concerned with response bias, the systematic overreporting or underreporting of some behavior—such as health service use. He described a basic record-check typology in terms of the values obtained for a binary variable (that is, a variable with two possible values) from two different sources, specifically household interviews and medical records. This typology is reproduced as table 1. Cells A and D represent agreement between the two sources—positive match and negative match, respectively. Cells B and C represent disagreement; if the record is taken as truth, cell B would be considered a false positive or overreport, while cell C would be a false negative or underreport.

Note that survey response error, according to this model, comprises both underreporting and overreporting. A more simplistic model might compare only A and B (survey reports)

**Table A. Marquis' basic record-check matrix for binary variable with no missing data, by survey response and notation of condition in medical records**

Condition noted in medical record	Survey response		
	Yes	No	Both responses
Yes . . . . .	A	C	A+C
No . . . . .	B	D	...
All conditions . . . . .	A+B	...	A+B+C+D

... Category not applicable.

NOTES: A is positive match, B is false positive, C is false negative, and D is negative match.

and A and C (record reports) and derive a single error term, either overreporting or underreporting, that represents the net effect of both kinds of response error. This comparison could lead to an unduly optimistic view of reporting error if, for example, both underreporting and overreporting were high but of relatively equal magnitude. In such a case, estimates of population totals would be relatively accurate but subpopulation estimates or multivariate analyses might be biased.

Marquis extended this model to describe the design of record-check surveys overall. He labeled "AC" a design in which a sample of persons with a particular characteristic (such as the presence of a doctor visit within a specified reference period) is drawn from records. The characteristic is then tested for in a survey, noting that such a design would not capture overreports (that is, responses in cell B). On the other hand, a design in which a survey is conducted first and record checks are performed on persons reporting a characteristic of interest ("AB" design) would fail to capture underreports (that is, responses in cell C). Record checks of either AB or AC design would thus not measure response bias accurately; estimates of bias would be skewed by the limitations of the design. Fully designed record checks (ABCD designs) identify a population and sample from it independently of records, obtain survey and record information for each sampled element, and compare the two data sources. Thus, Marquis believes that cognitive research on health surveys should contain external validation features, such as fully designed record checks or other careful strategies, to measure the correlation of survey responses with true values. Furthermore, because of the problems inherent with certain types of record checking, it cannot be assumed that respondent forgetfulness is the dominant response problem in health surveys.

Marquis cited a number of prior record-check studies that examined the reporting of ambulatory medical care visits. These and other related studies are introduced in the following paragraphs. These studies include some with incomplete designs, where either the medical providers reported by a household sample composed the record source or individuals selected from medical records composed the interview sample. A full-design record check with an area probability sample in any substantial portion of the United States would be prohibitively expensive, if not impossible, because of the need to include either all providers or all population members (depending on the direction of the study) to ensure the accuracy of negative reports. In general, full-design record-check studies of ambulatory care use have had to rely on relatively closed systems of care, such as HMOs, or on small communities with a manageable number of medical providers to include all in the record check, or on a closed payment system, such as the Canadian national health plan.

In addition to variations in record-check design, the studies varied in many other ways:

- in question wording and approach
- in the length of the reference period
- in the number of interviews (and consequently whether recall was “bounded” by a previous interview or not)
- in the composition of the sample (age, race, urban/rural location, etc.)

These differences make all direct comparisons across studies risky at best. Those studies that most resemble the NHIS will be given greater emphasis in subsequent discussion of findings. However, to the extent that patterns persist across the dissimilar studies, these patterns are useful in drawing conclusions about the NHIS.

In an evaluation of the National Health Survey, predecessor to the NHIS, Cannell and Fowler (6) examined the reporting of doctor visits in a 2-week reference period. Using a modified “AC” design, according to Marquis’ terminology, the Cannell and Fowler study interviewed persons identified from medical records at an urban hospital as having recent doctor visits. Most of the hospital’s patients were members of a subscription medical plan and about 50 percent of the study sample were black persons. Persons with visits in the 2 weeks preceding the interview week and persons with visits in the prior 2 weeks (third and fourth weeks before the interview) were included in the study. Cannell and Fowler matched individual visits to the hospital clinic between interview reports and administrative records, using doctor’s name, visit date, and reason for visit as match criteria.

Cartwright (7) reported on record-check results in the Hertfordshire Morbidity Survey, which was conducted in a post-war housing estate just outside London. Adults were interviewed about themselves and their children in two in-person interviews. The second of these interviews asked about “medical consultations” since the previous interview, a period ranging from 3 to 6 weeks. Independent reports of medical consultations were obtained from physicians in the estate for all persons in the interview sample. Thus, this study is a full-design record check. (Cartwright does not specifically

address the question of out-of-estate medical care use in the cited article; the implicit assumption is that such use was nonexistent or trivial.) Unlike the Cannell and Fowler study, Cartwright’s work did not match interview and record reports at the event level; rather, her study compared reports at the person level, comparing the number of visits reported for each person by each source.

Balamuth (2) reported on a study of Health Insurance Plan (HIP) members, an HMO based in New York, in an evaluation of reporting on the National Health Survey. Like the Cannell and Fowler design, this study could only measure underreporting, since it sampled only persons with visits from the HMO records. The HIP study matched only on whether a visit was reported within the 2-week period from both sources. No attempt was made to match specific reports or the number of reports during the 2-week period.

Loewenstein (8) reported on a record-check study in the Washington Heights area of New York City, whose primary purpose was to compare two approaches to collecting health care utilization data. The community sample for this survey included persons seeing private doctors, persons going to clinics, and HMO members. Respondents were asked about ambulatory visits in the past year, and verification data were obtained from providers mentioned in the interview. Marquis termed this record check an “ABC” design, although it approached a full design for the HMO members; the study collected information from providers about medical visits not reported in the interview (“C” visits) but only from providers mentioned in the interview. There was no verification of negative interview reports, so the record check includes no “D” component and an incomplete “C” component. Matching was done at the person-provider level, comparing numbers of visits reported, but not at the visit level. Feather (9) reported on a study of 3,727 Saskatchewan residents selected from the rolls of the government-operated health insurance plan, which covered 99 percent of residents. An interview very similar to the NHIS was conducted, including questions about doctor visits in the 2 weeks before the interview week. Record-check data were obtained for all persons interviewed.

This study thus employed a full ABCD design and matched reports of doctor visits at the visit level. However, the records appear to have been difficult to disaggregate, affecting their completeness as verification data.

The RAND Health Insurance Experiment, as described by Marquis et al. (10), included a record check of dental visits reported in a 1-year-recall interview. The record check was of dentists named by survey participants as having been seen during the year, as a “usual” dentist, or as seeing someone else in the family. Thus, the design is nearly of the full “ABCD” type. Visit reports were matched at the person-dentist pair level not at the event level.

The 1970 Center for Health Administration Studies—National Opinion Research Center of the University of Chicago (CHAS/NORC) survey collected information from a national household sample on medical care utilization and expenditures for a calendar year, using a single retrospective interview (Andersen et al. (11)). The medical providers named by interview respondents were subsequently contacted for



verification data. Like the Loewenstein study, Marquis termed this an "ABC" design. Matching of visit reports was at the person-provider pair level not at the visit level.

The Medical Economics Study (12) examined the reporting of outpatient medical visits as well other utilization measures using a variety of procedures. The procedures included a series of interviews, either in person or over the telephone, monthly or bimonthly over a 6-month period. The interviews used the basic NHIS questions but added additional probes for utilization and a diary after the first interview. Medical providers mentioned in the interview for which permission forms were obtained were contacted for verification data. This design is similar to the "ABC" type of the CHAS/NORC study described previously. It is not clear from the cited article whether data were matched at a person or visit level.

Cleary and Jette (13) employed a full design to evaluate self-reports of ambulatory medical care utilization over a 1-year recall period. Their sample was drawn from a rural area, and nearly all possible medical providers in the area were included in the verification. Medical providers outside the area were excluded, as were some local providers mentioned by very few survey participants. The sample included both HMO members and fee-for-service patients. The design approaches a full "ABCD" type. Visit reports were matched at a person level not a visit level.

Edwards, Berk, and Ward (14) compared reports of ambulatory medical provider visits from household interviews and a

medical provider verification survey in a 1986 NCHS-sponsored evaluation of medical expenditure surveys. Their primary purpose was to evaluate different verification and matching strategies. The survey included two interviews, covering a total reference period of about 6 months. Like the preceding two studies, the design would be classified as "ABC." Visits were matched both at a person-provider pair level and at a visit level within person-provider pairs, using only reported visit dates as an additional match criterion.

In examining the processes survey respondents use to recall events and the effects of an experimental procedure intended to improve recall, Means and Loftus (15) conducted two studies of HMO members with three or more medical visits in the year preceding an interview. For this population, the study would constitute a full design for care received at the HMO; however, appropriate to the purposes of the study, the design would not capture overreports by persons without visits in the record. Matching of visit reports was done at the visit level for HMO office visits and emergency room visits, using criteria similar to those of Cannell and Fowler described earlier.

The next section describes the sample design and procedures for the HIES. Some results from the studies described previously are interspersed with results from the HIES in the section that follows. Finally, the last section discusses the HIES findings comparatively with previous studies and their implications for the NHIS.

# Methods

This section describes the methodology used to conduct the Health Interview Evaluation Survey (HIES). A complete description of the study design and the questionnaire may be found in the NCHS Series 2 report, "Evaluation of National Health Interview Survey Diagnostic Reporting" (1). Generally, the evaluation was designed to mimic the content and procedures of the NHIS as closely as possible within certain design and analytic constraints. The differences in design and conduct between the HIES and the NHIS are presented in table B.

## Sample design

The HIES was conceived as a full-design records check study. That is, following Marquis' (5) typology described earlier, the intent was to examine the reporting of chronic medical conditions and medical utilization by interview respondents so both apparent interview overreports (cell B in table A) and underreports (cell C in table A) could be detected. Further, the design was to allow interpretation of the absence of report of a visit from both sources as agreement that no visit had occurred. The study universe was members of Group Health Association (GHA), a staff model health maintenance organization (HMO) in the greater Washington, D.C., area. The sample was selected from persons associated with one urban and one suburban medical center, and was restricted to individuals who had been GHA members for at least 3 years before selection to maximize the completeness of participants' medical records for the chronic condition analysis.

Because of cost considerations early in the planning of the HIES, the target sample size was 1,000 self-responding adults

selected from the GHA membership rolls. Children were omitted from this list sample because of their relatively low prevalence rates of chronic conditions. Since the NHIS is a household interview, HIES interview data were also collected for other household members, including children, as well as the list-sample persons. Many of these household members were also GHA members. The total sample available for analysis thus includes, in addition to the list sample, all such household members who signed permission forms allowing access to their GHA medical records and for whom records were located. This group is called the "supplementary" sample or "household members," as distinguished from the "primary" sample or "list sample persons." The study design was further guided by the desire to evaluate interview reporting by age, race, and sex.

The number of Federal employees in the list sample was limited, and employees of GHA, Westat, NCHS, and the U.S. Bureau of the Census were excluded from the list sample.

List-sample persons came from two sources within GHA: from the membership rolls, a general sample of members was selected as well as a sample of persons with records of hospital stays; from the ambulatory care appointment records, persons with recent doctor visits were selected. These samples were stratified by age, sex, and employer group (Federal Government or not). Although some separate analyses were planned for each of these subgroups, the intent was not to create a fully crossed design for analysis but to ensure that the distribution of list-sample persons would be uniform within subgroups by other key characteristics.

Persons in older age groups were oversampled. The sample was divided between two major age groups (persons

**Table B. Comparison between National Health Interview Survey procedures and Health Interview Evaluation Survey design elements**

<i>Area</i>	<i>National Health Interview Survey Practice</i>	<i>Health Interview Evaluation Survey Procedure</i>
Sample frame	Area probability; nationally representative	List of members of Washington, D.C., area health maintenance organization
Sample design	Multistage selection, oversampling of areas with higher proportion of black residents	Disproportionate sampling by age, whether recent doctor visit or hospital stay
Interview selection	Census staff; mostly experienced	Westat staff; many new hires
Interview training	Verbatim training by Census staff	Verbatim training by Census staff
Data collection period	Continuous survey; cases targeted for 2-week field period	Field work lasted 6 months; cases targeted for 2-week field period
Contact procedures	In person; seek household informant	Telephone appointment allowed; sample person only
Respondent selection	Knowledgeable adult in household	Sample person only
Questionnaire content	Core and supplement(s)	Modified core only
Data preparation	Census/NCHS staff rules for resolving discrepancies	Westat staff; same procedures except: refer to questionnaire for resolving discrepancies

**Table C. Analytic sample by age and sex**

Age	List sample		Supplementary sample	
	Male	Female	Male	Female
	Number of persons			
All ages . . . . .	460	545	310	393
0-17 years . . . . .	-	-	147	138
18-44 years . . . . .	145	164	69	104
45-64 years . . . . .	171	202	50	88
65-74 years . . . . .	85	108	30	41
75 years and over . . . . .	59	71	14	22

- Quantity zero.

18-64 years and persons 65 years and over) so that each subsample would be expected to yield at least 40 reports of the 10 most prevalent chronic conditions for that age group. Within the younger group, persons 45-64 years of age were selected at a higher rate than those in the general population to increase the number of chronic condition reports expected for the overall group. Equal numbers of males and females were selected in each age group. Table C presents the actual distribution of the analytic sample by age and sex. The first two columns represent list-sample persons, and the second two represent household members.

Since a random sample of the GHA membership would be unlikely to yield sufficient reports of doctor visits within the 2-week NHIS reference period for meaningful analysis, the study design oversampled persons with recent ambulatory visits. To identify persons with recent doctor visits, a sample was drawn weekly from the encounter forms filled out for each patient visit. GHA's central records system provided the sampling frame for the remaining sample. The sample of persons with recent doctor visits was further stratified so that approximately equal numbers of persons would be recalling visits over given time intervals. Because the sampling groups overlapped and the study was not intended to represent the GHA membership, probabilities of selection were not calculated and the sample was not weighted for analysis.

Table D presents the planned allocation of the list sample by whether the person had a recent doctor visit or whether he/she was selected for another reason (recent hospital stay, general sample). The supplementary sample was expected largely to fall in the "other" category.

The reporting of the number and timing of medical events is subject to recall error of various kinds. Two complementary kinds of recall error are forgetting and "telescoping," or drawing in events from outside a reference period. In the NHIS and HIES, the reference period for reporting of doctor visits is the 2 calendar weeks preceding the week in which the interview is conducted. Thus, telescoping could occur if a visit from before the reference period was reported as within it (forward telescoping), or if a visit during the interview week was reported as occurring during the reference period (backward telescoping). The study design as described so far would allow analysis of forgetting or of misplacing an event within the reference period. It would not allow any meaningful analysis of the extent to which telescoping affects NHIS

**Table D. Planned allocation of list-sample persons cooperating in the Health Interview Evaluation Survey, by event history, age, and sex**

Age and sex	All persons	Persons with recent doctor visits	
		Other	
All age groups, both sexes . . . . .	1,000	600	400
Age			
18-44 years . . . . .	292	175	117
45-64 years . . . . .	375	225	150
65-74 years . . . . .	200	120	80
75 years and over . . . . .	133	80	53
Sex			
Male . . . . .	500	300	200
Female . . . . .	500	300	200

reporting of medical visits. To analyze forward telescoping, the sample of recent doctor visits was extended to include patients who had visits just outside the reference period, in the preceding 2 weeks. This strategy resulted in the allocation presented in table E. Again, the categories are not mutually exclusive, since persons may visit the doctor in both 2-week periods.

The actual analytic sample was affected by practical difficulties in interviewing persons promptly. That is, persons selected because of a doctor visit within the 2-week reference period were often not interviewed in the week for which they were designated. The reference period for such interviews thus might no longer include the visit for which person was selected. However, this problem was offset by adjustments in the sampling procedures (described earlier) and by list-sample persons with visits other than those for which they were selected, so that the recent visit cell targets were virtually all met or exceeded. Tables F and G present, respectively, the actual list and supplementary samples available for analysis, by event history as noted in the medical record.

The list sample cases were selected and fielded over a period of weeks beginning in June 1990. Each week, a sample of recent doctor visits and other samples were fielded. The recent visit cases were stratified so that equal numbers were

**Table E. Planned allocation of list-sample persons cooperating in Health Interview Evaluation Survey, by event history revised to analyze telescoping, age, and sex**

Age and sex	All persons	Persons with recent visits		
		0-2 weeks	2-4 weeks	Other
All age groups, both sexes . . . . .	1,000	400	200	400
Age				
18-44 years . . . . .	292	117	58	117
45-64 years . . . . .	375	150	75	150
65-74 years . . . . .	200	80	40	80
75 years and over . . . . .	133	53	27	53
Sex				
Male . . . . .	500	200	100	200
Female . . . . .	500	200	100	200

**Table F. Actual number of list-sample persons available for analysis, by event history according to the medical record, age, and sex**

Age and sex	All persons	Persons with recent visits		Other
		0-2 weeks	2-4 weeks but not 0-2 weeks	
All age groups, both sexes . . . .	1,005	433	233	339
Age				
18-44 years . . . . .	309	116	77	116
45-64 years . . . . .	373	164	73	136
65-74 years . . . . .	193	86	50	57
75 years and over . . . . .	130	67	33	30
Sex				
Male . . . . .	460	187	114	159
Female . . . . .	545	246	119	180

**Table G. Actual number of supplementary-sample persons available for analysis, by event history according to the medical record, age, and sex**

Age and sex	All persons	Persons with recent visits		Other
		0-2 weeks	2-4 weeks but not 0-2 weeks	
All age groups, both sexes . . . .	703	103	79	521
Age				
0-18 years . . . . .	285	29	35	221
18-44 years . . . . .	173	21	12	140
45-64 years . . . . .	138	27	24	87
65-74 years . . . . .	71	14	6	51
75 years and over . . . . .	36	12	2	22
Sex				
Male . . . . .	310	40	38	232
Female . . . . .	393	63	41	289

from the previous week and from the week before, and equal numbers were from each of the preceding 2 weeks. Thus, each interview wave included members from all sampling cells, with the timing of recent visit groups spread across the reference periods and the extended reference periods for

analysis of telescoping. Interviewers were expected to complete their assignment in each wave within 1 week; however, as described earlier, many cases in each wave slid into the second week or later. NHIS rules show that such "holdover" cases have the reference period updated to the 2 weeks preceding the interview week; the HIES followed this procedure. The adjustment of selection rates during the field period meant that more persons than originally anticipated were selected in the "recent doctor visit" group.

Interviews were conducted with list-sample persons and any household members who happened to be present. Following NHIS procedures, proxy responses were obtained for other household members not present during the interview. At the conclusion of the interview, list-sample persons and any household members also belonging to GHA were asked for written permission to abstract information from medical records.

Table H presents the cooperation rates for list-sample persons at each stage of the locating, interviewing, and permission form process. The refusal rate was higher than anticipated (all interviews were conducted in metropolitan Washington, D.C., a traditionally difficult area in which to interview), but the locating and permission form rates were higher than expected. Ineligible persons included those who had died, moved from the Washington area, or ended their GHA membership.

From the households of the 1,017 "usable cases," an additional 773 household members 18 years of age or over signed permission forms to allow access to GHA records. Of these, 11 were not GHA members, 5 refused to sign second permission forms required by GHA, and medical records were not located for 54 persons. Thus, 703 supplemental sample persons were available for analysis. Other identified household members not included in the analysis are those under age 18, non-GHA members, persons in households where the list-sample person refused to sign a permission form, and persons refusing or unavailable to sign a permission form.

## Data collection

The selected GHA members were administered the NHIS Core questionnaire, with several modifications. Although the sampled GHA members were selected as individuals, the

**Table H. Number and percent of initial draw and response rates for Health Interview Evaluation Survey, by utilization group**

Item	Total	Utilization group		
		Recent doctor visit	Recent hospital stay	No recent utilization
Initial draw . . . . .	1,615	1,132	277	206
Locating rate (in percent) . . . . .	95	96	93	93
Number located . . . . .	1,540	1,090	258	192
Ineligible . . . . .	130	70	34	26
Interview requested . . . . .	1,410	1,020	224	166
Interview response rate (in percent) . . . . .	76	76	78	77
Permission form requested . . . . .	1,077	775	174	128
Cooperation rate for permission forms (in percent) . . . . .	94	94	95	95
Usable cases . . . . .	1,017	728	166	123

NOTE: Twelve additional cases were dropped because they refused to sign a second permission form required by Group Health Association for certain patients.

NHIS questionnaire is a household interview. Thus, the interview included the households of the sampled individuals. Three kinds of changes were made to this core interview for the HIES:

- The six categories under “Condition lists” in Section H were abridged and condensed into one list asked of every respondent
- To assist in matching visits reported by household respondents with visits in the medical records, questions on the location of each visit were added to the “Doctor visits details” section.
- The HIES household composition put the list-sample person in the first column and collected relationships to this person.

The HIES questionnaire may be found in appendix I.

All HIES interviewers were trained as if they were new interviewers for the NHIS. An experienced Census trainer conducted the session, using NHIS materials.

The HIES included two advance contacts by mail. The first was a letter from GHA mailed to all members at the two selected medical centers. It gave a very brief description of the research and included a postpaid return postcard for members to return if they did not want their name released. The second letter, from the Director of NCHS, was sent to persons selected for an interview.

Unlike NHIS procedures, in which interviewers approach addresses from an area probability sampling frame, interviewers contacted HIES sample members directly, having knowledge of their names. The initial contact was made by telephone (when a phone number was available). HIES required the sample person to be present for the interview. Other family members present could respond for themselves; the sample person answered for family members not present.

Following the interview, the interviewer asked all GHA members in the family (and parents for children) for written permission to review their medical records. Medical records were obtained for most list-sample persons and other household members who signed permission forms.

Abstracting of participants’ medical records was done from photocopies of the past 3 years’ hard-copy records. The abstracting identified all doctor visits within the 4 weeks before the interview. Abstracted information included the date

of the visit, the provider (GHA or not), the type of visit within GHA, and conditions reported on the visit encounter form. Telephone calls for advice or prescriptions were also recorded in the medical record and information about them was abstracted. Those forms are shown in NCHS Series 2, No. 120 (1).

## Matching interview and medical record reports

The process for matching interview and medical record reports of 2-week physician contacts included several steps. Table J summarizes the results of these steps, which are described in the following text.

Step 1. Several rules were devised to begin matching reported contacts between the two sources:

- Contacts would be matched only within provider (GHA vs. non-GHA) and type (telephone vs. in-person), that is, GHA visits with GHA visits and so on.
- If one source reported more than one contact of a given type and provider on the same date, only one would be considered for the initial match.
- If the medical record and interview reported the same number of contacts for a given provider and type, all contacts of that provider and type from both sources would be considered matched.
- If one source reported contacts and the other reported none for a given provider and type, all reported contacts of that provider and type would be considered nonmatches.

These rules ignored the date of contact as a match criterion (so long as the contact was within the 2-week reference period), and did not attempt to match contact by contact. That is, if the interview and medical record each reported two GHA visits in the 2-week period, all would be considered matched, but no effort was made to identify matching pairs. These rules were programmed and applied to the interview and medical record files. As shown in table J, 430 contacts were matched in each file, while 353 contacts in the medical record and 389 contacts in the interview file were determined not to match. The remaining visits included those for persons with unequal, nonzero numbers of visits from the two sources, and duplicate visits (the second and any subsequent visit of the same provider and type on the same date).

**Table J. Results of matching interview and medical record reports, by steps**

<i>Steps</i>	<i>Medical record</i>	<i>Nonmatch</i>	<i>Match</i>	<i>Household interview</i>	<i>Nonmatch</i>	<i>Match</i>
Total reported . . . . .	1,072	447	625	1,141	516	625
1. First automated match <sup>1</sup> . . . . .	783	353	430	819	389	430
2. Second automated match <sup>2</sup> . . . . .	179	71	108	168	60	108
3. Manual match . . . . .	110	39	71	154	83	71
4. Crossover match . . . . .	...	-16	16	...	-16	16

... Category not applicable.

NOTE: Seven medical record reports and 31 interview reports were missing information on type of contact.

<sup>1</sup>Remaining first automated match was 305 for medical record and 322 for household interview.

<sup>2</sup>Remaining second automated match was 110 for medical record and 154 for household interview.

Step 2. The second matching pass matched remaining contacts of the same provider and type with the same date in both files. An additional 108 matches were identified, with an additional 71 reports from the medical record and 60 from the interview being classified as nonmatches.

Step 3. The remaining contacts (those not classified as match or nonmatch in the first two passes) were reviewed manually, as were all cases with multiple contacts of the same type on the same day (duplicates). The manual review considered date of contact, reason for contact, and name or type of provider. Fifteen duplicate contacts were matched; that is, both the interview and medical record showed more than one contact on the given day. Three contacts with missing dates in the medical record were matched to interview-reported contacts. In addition, 53 contacts were matched for persons with unequal numbers of contacts from the two sources. The remaining 39 contacts in the medical record file and 83 contacts in the interview file were considered nonmatches.

Step 4. The manual review showed some misclassification of visits by interview respondents; that is, some contacts reported as non-GHA were recorded in the medical record as

GHA contacts. This typically occurred when a person was referred to a GHA provider practicing outside a GHA medical center. About fifteen visits and one telephone call were matched across providers. Also, some visits reported in the interview may have been coded as telephone contacts in the medical record. This would occur when, for example, a person showed up at a medical center for renewal of a prescription. Since there was inadequate documentation to justify individual match decisions of this type, any such misclassification remained as nonmatches.

Step 4 and to some extent step 3 represent tenuous extensions of matching logic. While it is highly likely that the matches made in step 4 are “true” matches, additional “true” matches across visit types may have been missed because of lack of information. Multiple visits on the same day (matched in step 3) may be perceived quite differently by medical staff and patients, so mismatches of this type may not be “fair” to interview respondents. However, the net effect of these matching decisions was small, and does not affect analyses that follow. Hence, all data presented will include matches made at each step.

# Results

## Overview of presentation of results

The HIES sample, as described in the previous section, was not designed to produce estimates for any particular population. The sample is not representative of the GHA membership, nor is the GHA membership representative of the population of the greater Washington, D.C., area. Thus, the data presented in this report are unweighted, that is, there are no adjustments for differing probabilities of selection or for nonresponse. To the extent that idiosyncrasies of the sample are known (for example, universal access to care, over-representation of older persons), these are considered in the analysis and discussion of the results. Care should be taken in making inferences from the study findings to another survey, such as the NHIS, since the methodology is different. However, it still provides a useful guide for the accuracy of doctor visit reporting.

Where tests of statistical significance (Chi-square,  $z$ ) are used, they are applied to comparisons of subgroups within the HIES sample. It is not appropriate to infer from these tests that similar differences would appear in any other survey sample. The analysis presented here draws heavily from previous record-check studies of doctor visit reporting, most of which have similar limitations of generalizability. Where consistent findings occur across studies, one can be more confident in suggesting that a response effect may be present in the NHIS.

## 2-week contacts in the interview and medical record

Physician contacts reported in the HIES interview and recorded in the medical record were classified by provider (GHA or non-GHA) and by type of contact (telephone or in-person), creating four categories. The agreement between interview and medical record reports for each category is examined both at the person level and at the contact (visit and call) level. This section describes aggregate agreement between the data sources, while subsequent sections examine the results of matching, first at the person level and then at the contact level.

Table 1 shows the number of persons with 2-week contacts reported by each source by sample type, the total number of contacts, and the mean number of contacts per person. The sample types comprise the following categories:

- *List-sample persons* are those selected from the GHA membership roles and appointment schedules, as described

in the “Methods section, sample design.” All list-sample persons were self-respondents.

- *Household members, present*, are those persons in the household of list-sample persons who were GHA members present for the HIES interview.
- *Household members, not present*, were GHA members not present for the HIES interview.
- *Household members, under 17*, were GHA members not allowed to respond for themselves by NHIS rules. It should be noted that in these analyses, one list-sample person was categorized as a household member present.

Overall, for 532 persons, or 31 percent of the entire sample, GHA visits within the 2-week reference period were noted in the medical record. The bulk of these persons, and visits, was from the list sample, which is not surprising given that the list included a heavy oversample of persons with visits. Household members under 17 had the fewest visits per person. The medical record indicated about the same rate of visits (18 percent) for adult household members whether present for the interview or not, but in the interview, visits were reported by twice as many household members who were present as for household members not present (23 percent versus 11.5 percent, respectively). The mean number of visits per person in the medical record was also identical (0.25) for household members whether present or not, but in the interview the rate was greater for household members present (0.32) than for those not present (0.18). These differences suggest a proxy reporting effect, which will be explored further in a subsequent section.

Telephone calls to GHA (also shown in table 1) followed very similar patterns to GHA visits: most were for list-sample persons, very few were for children, and interview reporting was noticeably less for adult household members not present during the interview than for those present, although the latter numbers are very small. Overall, fewer telephone calls were reported in the interview than were present in the medical record, suggesting that such calls may be very easily forgotten.

Very few non-GHA visits were recorded in the medical record, particularly compared with the number reported in the interview. In many cases, the record indicated a referral to or ongoing treatment by a non-GHA provider, but specific visit dates were not noted. The medical records included no notations of telephone calls to non-GHA providers and only six were reported in the interview. Because of the lack of documentation of non-GHA visits in the medical record and the

very small number of non-GHA telephone calls, most analyses will examine only GHA contacts (visits and telephone calls).

## Person-level results of matching

Table 2 presents a person-level summary of the match between the medical record and interview report for the GHA visits and telephone calls by four categories of survey participant, according to their sample selection status and their presence during the interview. After a review of other studies' findings on person-level match rates, this section will describe table 2 results in detail.

Most of the previous studies cited earlier with 2-week reference periods present only visit-level data. Balamuth et al. (2), who did present person-level data, found that 64 percent of persons with one or more visits in the medical record had some visit reported in the interview, a lower number than that obtained in the HIES. (The design of the Balamuth et al. study did not permit calculation of the rate of confirmation of interview-reported visits.)

Among studies with longer reference periods reporting person-level data (all studies cover at least one year), Loewenstein (8) found that 89 percent of persons with medical record visits had some visit reported in the interview and Madow (4) found 94 percent of persons in this category. Loewenstein's study showed confirmation in the medical record for 86 percent of persons for whom a visit was reported in the interview; Madow found 95 percent of persons in this category and Andersen et al. (16) 87 percent. Cleary and Jette (13), in contrast, found only 65 percent of persons with visits in the medical record had some interview report and 71 percent of persons with reported visits had confirmation in the medical record. The differences among these studies are in part attributable to differences in sample selection (studies selecting known utilizers tend to have higher rates of agreement at the person level), survey procedures, and the content of and procedures for using medical record data.

## Group Health Association visits

Table 2 shows that between the interview and medical record the number of persons reported as having GHA visits are comparable. Overall, about 78 percent of the persons reported as having one or more visits from the medical record were also reported as having at least one visit in the interview. Almost the same proportion of interview reports were confirmed by the medical record. Thus, there is no evidence of general net over- or underreporting of GHA visits at the person level.

However, some indications of differences appear for other household members (nonsample persons). The most notable departure from the general pattern is for household members not present during the interview, that is, adults with proxy respondents. Although the number of visits is small, less than half of the persons in this group with visits in the medical record had visits reported in the interview. The difference between the proportion of medical record visits reported in the interview for household members present for the interview (84.4 percent) and the proportion for those not present (46.9 per-

cent) is statistically significant ( $z=3.00$ ,  $p<.01$ ). The GHA visit, medical record report table is also significantly different from that expected (Chi-square=19.96,  $df=3$ ,  $p<.001$ ), mainly due to the poorer reporting for household members not present. This difference suggests some underreporting for adults by proxy respondents. The generalizability of this finding is unclear because the proxy respondents (almost all list-sample persons) were not selected according to NHIS procedures and many more of them had visits of their own to report than typical NHIS respondents.

For adult household members present during the interview and for children, on the other hand, the interview shows about 25 percent more people with GHA visits than does the medical record. The proportion of present adult household members with visits is 23 percent from the interview (57 out of 248 persons) versus 18 percent from the medical record (45 out of 248), while for children it is 11.4 percent (31 out of 273) versus 9.1 percent (25 out of 273). These differences are not statistically significant, however.

Other household members reporting for themselves and persons reporting for household members under 17 were more likely than list-sample persons to report having had a GHA visit when the medical record indicated one or more visits (84.4 percent for adult household members and 88.0 percent for household members under 17 versus 78.1 percent for list-sample persons). These members were also more likely to report having had a visit when the medical record did not include one. The difference between list-sample persons and household members reporting for themselves in proportion of interview-reported visits confirmed by the medical record (79.6 percent versus 66.7 percent, respectively) is significant at the .05 level ( $z=2.21$ ).

These differences in reporting between the adult household members and the list-sample persons may be due to the higher rarity, and perhaps greater salience, that physician visits have for the former group. That is, because they had less to report than the list-sample persons, there may have been more of a tendency for household members to "telescope" in visits from outside the reference period. This hypothesis was first advanced by Cannell and Fowler (6) when comparing reports of visits between one group of persons selected because of known visits and a second group of whom about one-third had visits. One may argue that HIES household members are more like the typical NHIS participant than the list-sample persons, and thus these tendencies may be particularly important in interpreting the results for list-sample persons. Further exploration of telescoping will be presented in a later section.

## Non-Group Health Association visits

Only nine persons were reported in the medical record as having non-GHA visits in the 2-week reference period, as opposed to 83 in the interview. As described earlier, about 15 non-GHA visits reported in the interview were "matched" with GHA visits in the medical record, showing a disagreement between the two sources about classifying visits. For other persons, the medical record indicated that they were being treated outside GHA, but did not give specific visit



dates. Other interview reports appeared to indicate out-of-plan use, such as nonphysician specialties and for out-of-town care. Therefore, the medical record does not seem to provide adequate verification for these visits.

### **Group Health Association telephone calls**

The GHA medical record includes notation of telephone calls made about the patient. Only about one-third of the list-sample persons with calls noted in the medical record had calls reported for them in the interview. The numbers of household members with calls are small, but the proportion of interview reports are even lower than for list-sample persons. On the other hand, almost 60 percent of the persons for whom calls were reported in the interview had the reports confirmed by the medical record, with lower proportions for household members. These findings indicate a notable underreport of telephone calls in the HIES interview.

### **Non-GHA telephone calls**

These contacts are not recorded in the GHA medical records, and the interview produced only five reports. No analysis of this contact type will be offered.

### **Contact-level match**

Table 3 presents the match results at the contact (visit and call) level. Whereas table 2 and the previous section examined whether one or more contacts of a particular type (GHA or non-GHA, visit or call) were reported for a person, this section examines the match for all contacts reported. Contacts were matched within type (with certain exceptions described earlier), and globally within person. That is, if both the medical record and the interview showed two GHA visits, all were considered "matched," without regard to which interview report matched with which contact in the medical record.

As shown in table 3, the pattern of reporting for GHA visits is very similar to the person-level figures of table 2: nearly identical levels of reporting between the interview and medical record for list-sample persons, with evidence of underreporting for adult household members not present during the interview, and slight overreporting for other household members. Rates of confirmation for interview reports are lower than those at the person level for all groups, suggesting that visits by persons with multiple reports in either source may be less likely to match than those of persons with one visit in the reference period. This possibility will be examined further in the following section. The similarities between contact-level and person-level figures hold for non-GHA visits and GHA telephone calls as well.

One minus the "percent reported in interview" is also referred to as "percent underreport," and one minus the "percent confirmed by medical record" as "percent overreport." These terms imply that the medical record represents truth, which is contestable. However, the medical record does provide a standard against which to evaluate the interview report, and the measures of overreport and underreport are useful in comparing record-check studies.

Among other studies using a 2-week reference period, Cannell and Fowler (6) found an underreporting rate of 23 percent for adult self-respondents, as compared with that of the HIES for list-sample persons (28 percent) and household members present for the interview (23 percent). Feather (9) found only a 14 percent underreporting rate (16 percent for adult self-respondents and 9 percent for children with adult proxy respondents), but an initial 46 percent overreporting rate (48 percent for adults and 39 percent for children). Further investigation reported by Feather of the apparent overreports showed that nearly half were probably attributable to the nature of the records. Applying this analysis to the rate (not calculated by Feather) of overreporting reduces it to about 26 percent. The HIES overreporting rates are 29 percent for list-sample persons, 41 percent for household members present for the interview, and 32 percent for children. Except for Feather's underreporting rate, which is suspect because of the records, these results are consistent across the 2-week studies.

Cartwright (7), describing a study with a bounded 4-week reference period ("bounded" here means that one interview was conducted at the beginning of the reference period, a second, to obtain the reports of physician contacts, at the end), found both underreporting and overreporting from adult self-respondents to be about 21 percent. Sudman et al. (17), using a combined interview and diary procedure with a 3-month reference period, found an overreporting rate of 24 percent and an underreporting rate of 17 percent. Edwards, Berk, and Ward (14), reporting on a study with two interviews each covering about a 3-month reference period (with a diary used by some respondents between the first and second interviews), found overreporting rates of about 24 percent when comparing only numbers of visits, and of between 30 and 40 percent when individual visits were matched between the interview and medical record. These studies suggest that the expected effects of a longer reference period on accuracy of reporting may be mitigated by using diaries and recall bounding. The Medical Economics Study (12), using repeated interviews with both 1- and 2-month intervals, found an underreporting rate of about 34 percent, with the 1-month interval showing about a 7 percent improvement over the 2-month interval.

Means and Loftus (15), in a pair of studies exploring the cognitive processes of recall of medical visits (including hospital stays), found rates of underreporting and overreporting in excess of 50 percent with conventional questionnaires using a 1-year reference period. When supplementing the traditional questions with a more detailed set of questions, the underreporting rate dropped from 59 to 37 percent, and the overreporting rate from 36 to 27 percent. Persons receiving only the more detailed questions had an underreporting rate of 43 percent and an overreporting rate of 38 percent. This study suggests that the use of cognitively-based questionnaire design may increase the accuracy of reporting of medical visits.

### **Reporting number of visits in 2-week period**

Tables 4 and 5 show the distribution of list-sample persons and household members, respectively, by number of 2-week visits reported from the interview and from the

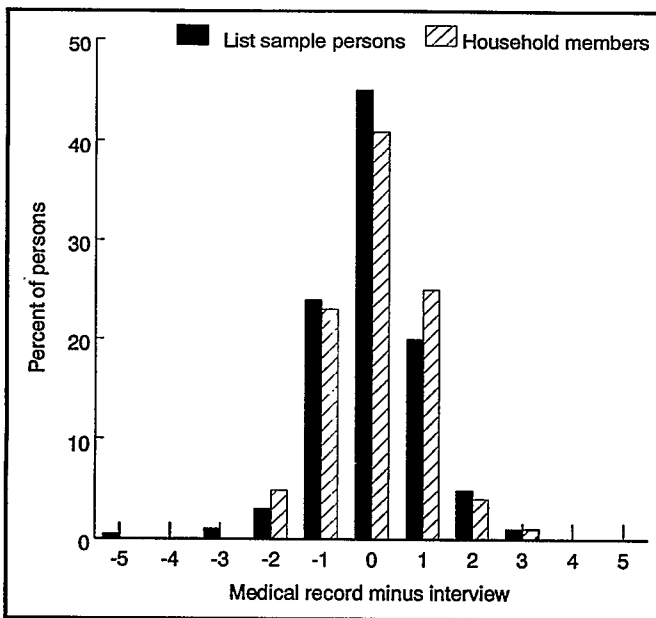


Figure 1. Agreement on number of visits

medical record. Most people cluster along the diagonal representing agreement between the two sources. Figure 1 presents the same data in another way. For all persons with one or more visits reported by either source, it shows the proportion of persons according to the difference in number of visits between the two sources. For both list-sample persons and household members, more than 40 percent of persons with visits had the same number reported by both the interview and medical record, while for both groups 89 percent either agreed or were off by one visit. The symmetry of figure 1 indicates that for both sample groups the over- and underreporting are distributed similarly.

Another view of the symmetry of this distribution is presented in tables 6 and 7. For list-sample persons, the more visits in the medical record, the more likely the interview is to underreport the number (25 percent for one visit, 48 percent for two, and 82 percent for three or more). However, for 0–2 visits in the record, the overreporting rate stays nearly constant (12–15 percent). Conversely, the more visits are reported in the interview, the more likely that the number is an overreport (22 percent for one visit, 50 percent for two, 68 percent for three or more). From the perspective of interview reporting, the overreporting rate stays constant (12–16 percent). Nearly identical patterns hold for household members, although the “constant” rates are lower (6–9 percent overreporting from the perspective of medical record reports and 4–12 percent underreporting from the interview standpoint) than for list-sample persons, and the escalating error rates rise more steeply. The last observation may be due to proxy reporting for some household members. This evidence indicates that if one were to consider household interview data only (from the NHIS, for example), the expected rate of underreporting may not be related to the number of visits reported.

Cartwright (7) presents a table much like tables 4 and 5, and from it can be derived the information in table 8. Cannell and Fowler (6) present similar data for underreporting only,

which is also shown in table 8. Cartwright’s data look similar to those from the HIES, except a jump in overreporting for persons with three or more visits in the medical record (23.6 percent) as opposed to persons with fewer visits (4.6–8.2 percent). The data from Cannell and Fowler, on the other hand, do not parallel those of the HIES. They show a decline in underreporting against the medical record the more visits the sample person had; the decline is more pronounced when considering visits reported to a standard question plus special probes than to the standard question alone. Like the HIES and Cartwright findings, Feather (9) and Cleary and Jette (13) found more underreporting for persons with more utilization during the reference period, according to the medical record.

## Effects of timing of interview and physician contact on reporting accuracy

The NHIS 2-week doctor visit reference period, also used for the HIES, runs through the Sunday immediately preceding the day of interview and begins on the Monday 2 weeks earlier. Thus, if the interview is conducted on a Monday, the 2-week reference period runs until “yesterday.” If the interview is conducted on a Saturday, there are 5 intervening days. This design raises several questions about the effects of recall on reporting accuracy. The first set of questions concerns the likelihood of respondents to report physician contacts that actually (according to the medical record) occurred, or, conversely, the likelihood of underreporting. Are contacts in the second (later) week of the reference period more likely to be reported than those in the first (earlier) week because respondents are more likely to forget the earlier visits? Do interviews conducted later in the interview week lead to poorer reporting than those conducted earlier in the interview week because more time has elapsed since the contacts?

The second set of questions concerns the likelihood that interview-reported visits actually occurred, or, conversely, the likelihood of overreporting. For example, how likely are survey respondents to “telescope” contacts into the reference period, either from before, or, for interviews conducted later in the interview week, from after the reference period?

## Underreporting

Table 9 presents data related to the first set of questions. The first column shows the days of the 2-week reference period, arrayed from earliest (top) to most recent. The second column shows the number of GHA visits recorded in the medical record for HIES list-sample persons on each day of the reference period. The third column gives the percentage of these visits matched with an interview-reported visit. Overall, almost 77 percent of the second-week visits were matched, as opposed to 63.5 percent of the first-week visits, a statistically significant difference ( $z=3.61$ ,  $p<.01$ ). Within the first week there is no particular pattern of reporting accuracy. In the second week, the more recent visits are slightly better reported than the earlier ones, but the pattern is not statistically significant. Very few visits were made Saturday or Sunday of either week (days 6, 7, 13, and 14).

The next pair of columns in table 9 shows the same information for household members. The differential between reporting of week 1 and week 2 visits for household members (59.7 percent versus 72.6 percent) is very similar to that for list-sample persons. The numbers of visits by day for household members are too small to support meaningful interpretation. Thus, there may be more forgetting of visits in the earlier week of the reference period but the data present no evidence for day-by-day “memory decay.”

Cannell and Fowler (6) found a similar pattern of underreporting between weeks of the reference period. Of visits in the medical record for the earlier week, 70 percent were reported in the interview; for the later week, 85 percent were reported in the interview. The authors believe forgetting may not be the dominant problem and that confusion about the reference period and “deliberate” misdating of events out of the reference period may be other important factors. However, Feather (9) found that only 13 of 380 visits (3.4 percent) in the medical record for a 2-week reference period were reported as occurring in the week before the interview, suggesting that deliberate “backward telescoping” is not common.

The HIES pattern of better interview reporting in the second week does not hold for telephone calls. The numbers for list-sample persons are shown in the last two columns of table 9, with 29 percent of first week calls matching an interview report and only 28 percent of the second week calls matching. Household members had too few telephone calls for analysis.

Table 10 presents the same statistics as table 9, but by the day of the week the interview took place for GHA visits and GHA telephone calls, respectively. For sample persons and household members, and for GHA visits and GHA telephone calls, a similar pattern holds: reporting in the interview is consistent on weekdays across the week, but drops off on Saturday and Sunday. For GHA visits, the percentage of visits in the medical record reported in Saturday and Sunday interviews combined drops to 59 percent from over 70 percent on weekdays for list-sample persons ( $z=3.19$ ,  $p<.01$ ), and to 57 percent on Saturday and Sunday from nearly 70 percent on weekdays for household members ( $z=1.46$ , ns). For GHA telephone calls, the weekend interview rate (17 percent) is half the weekday rate (34 percent) for list-sample persons, and none of the 10 GHA telephone calls in the medical record for household members was reported in a weekend interview while 29 percent were reported in weekday interviews.

## Overreporting

Turning to the interview report, table 11 presents the number of GHA visits reported and the percentage of interview reports confirmed by the medical record, by week and day of the reference period on which the respondent said they occurred. The percentage confirmed by the medical record was lower for the first week (67.9 percent) than for the second week (71.9 percent) for list-sample persons, but higher in the first week for household members. Thus, this table does not present any conclusive evidence about the tendency of respon-

dents to “telescope” from outside the reference period by what part of the reference period in which a visit was reported as taking place.

In table 12, we see the percent of interview reports confirmed by the medical record remaining constant across the days on which the interview was conducted. Apparently, net telescoping from outside the reference period is unaffected by the length of time between the end of the reference period and the date of the interview.

Table 13 presents another view of possible telescoping from outside the reference period. For list-sample persons, table 13 shows the number of persons with GHA visits in the 2 weeks before the reference period and in the time between the reference period and the date of interview, by person-level match status. “Match status” means the type of agreement or disagreement between the interview and medical record on whether the person had a GHA visit or not (regardless of the number) in the reference period. Just over half the overreports had visits in the prior 2 weeks, about five points more than persons with positive matches. Thus, if one assumes that overreports and positive matches would be equally likely to have a visit in the prior 2 weeks, telescoping from the prior 2 weeks would explain only about 5 percent of the overreports, with the remainder due to telescoping from farther back or other causes. Cartwright (7) found that 47 percent of overreporting persons had a visit in the medical record 1 month or less before the reference period, a figure similar to the 51 percent in table 13; these numbers probably represent an upper bound for the proportion of overreports due to forward telescoping. Feather (9) attributed about 23 percent of “true” overreports (visits) to telescoping from the week immediately preceding the reference period.

Cannell and Fowler (6) report on apparent telescoping at the visit level. Of visits from the 2 weeks before the reference period, 2 percent were apparently telescoped in by one sample (persons selected because of one or more visits), while 6 percent were telescoped in by the general sample. The Cannell and Fowler study does not present totals of overreports. They suggest that persons without a visit in the reference period may be more prone to telescope than those with a visit to report.

Looking at the columns in table 13 for visits in the time after the reference period but before the interview, only 8 percent of the persons overreporting had visits, the same percentage as the negative matches and half the rate of the people with a 2-week reference period visit (positive matches and underreports). Thus, backward telescoping into the reference period may not be a particular problem in reporting of 2-week doctor visits.

## Telescoping within the reference period

Comparing the weekly totals between tables 9 and 11 for list-sample persons, there was an interview net underreport of about 7 percent in the first (earlier) week as compared with the medical record (293 visits versus 315 visits), and a net overreport of about 2 percent in the second week (302 visits versus 295 visits). For household members, the Week 1 net

underreport was 6 percent (68 versus 72 visits), and the Week 2 net overreport was 15 percent (73 versus 62 visits). These differences could indicate forgetting of the earlier visits or reporting of Week 1 visits as if they were in Week 2 (forward telescoping). Backward telescoping from Week 2 to Week 1 is also possible.

Looking at 241 list-sample persons and household members with one and only one visit reported in both the interview and medical record (data not shown in a table), 7 percent of Week 1 visits were apparently reported in the interview as Week 2, and 10 percent of Week 2 visits were apparently reported as Week 1. "Apparently" is appropriate because the reported visit may not have been the same as the one in the medical record. However, this analysis does show the magnitude of week-to-week telescoping, and suggests that backward telescoping was more common than forward telescoping. This rate of backward telescoping is higher than the 3.4 percent reported by Feather (9) mentioned in the previous section, and again suggests that Cannell and Fowler's hypothesis of backward telescoping may explain some portion of the higher Week 1 underreport.

## Differences in reporting by respondent characteristics

Table 14 presents the agreement on 2-week doctor visits between interview and medical record reports by person characteristics for list-sample persons only. These persons were all self-responding adults. The person characteristics reported on here are different from those for which NHIS statistics are published because of idiosyncrasies in the HIES sample. For each set of characteristics, table 14 presents percent of medical record contacts reported in the interview, percent of interview reports confirmed by the medical record, and the net overreport, defined as the difference between the interview reported contacts and medical record contacts divided by the number of contacts in the medical record.

The youngest group of list-sample persons, those 18–44 years of age, was the least likely to underreport (81 percent of medical record contacts reported in the interview) and the most likely to overreport (71 percent of interview reports confirmed by the medical record). The latter finding is statistically significant for the sample at the .05 level. These two tendencies led to a net overreport of almost 14 percent by the youngest age group, as opposed to net underreports by the older age groups.

Men (72 percent of medical record visits reported in the interview) were more likely than women (84 percent) to underreport, a significant difference, and were more likely to overreport. Men had a net underreport of almost 9 percent, while women had a net overreport of 4.5 percent. There were virtually no differences in reporting by race of respondent.

Persons in lower-income families (under \$20,000) were least likely to underreport (almost 84 percent of medical record visits reported in the interview) and most likely to overreport (76 percent of interview reports were confirmed by the medical record). Persons in families with incomes between \$30,000 and \$50,000 had the opposite pattern. Although neither of these patterns was statistically significant, the lowest-income persons had a net overreport of 10 percent, while those in the next-to-highest income category had a net underreport of almost 10 percent.

List-sample persons with the most education (college graduates) were least likely to underreport (86 percent of medical record visits were reported in the interview), while persons with less than a high school education were the least likely to overreport (87 percent of interview reports were confirmed by the medical record). The former finding was statistically significant at the .05 level. The combination of these two trends led to a net underreporting of 9 percent among the least educated and a net overreporting of almost 11 percent by the most educated.

There were no significant differences in reporting by employment status, either among persons under 65 or over 65 years of age, although in three out of four pairs the employed reported better than the not employed. Employed persons over and under 65 years of age had virtually the same net underreport (just over 1 percent) while among those not employed, persons over 65 years of age had a net 6 percent overreport and persons under 65 years of age had a net 7.5 percent underreport. Comparing list-sample persons by self-reported health status, there was a trend for those in poorer health to underreport less.

Table 15 presents a summary of significant differences in reporting ambulatory medical visits by respondent characteristics across studies. Generally, the findings are scattered and inconsistent. One consistent finding (HIES and two other studies) is that women are less likely to underreport doctor visits than men. A finding of two other studies, Andersen et al. (11) and Cleary and Jette (13), shows that persons with poorer health status are more likely to overreport was not confirmed by the HIES, although the health status measures differ across the three studies. Several studies find differences by age of respondent, although the results are inconsistent. Feather's (9) finding that older women had less underreporting than younger women was inconsistent with three other studies where advancing age was associated with more underreporting, although the other findings included both men and women. Feather's finding that persons 65 years of age and over overreported less was inconsistent with the finding of Andersen et al. (11) that households, including persons 65 years of age and over, had more overreporting but somewhat consistent with the HIES finding that persons 18–44 years of age overreported more than older persons.

# Discussion

Both the reporting and the verification of ambulatory medical visits are subject to various kinds of error. As described by Marquis (5), comparing aggregate totals from interview and medical record reports is insufficient to determine the nature and extent of reporting error. Both sources of data are subject to error and the sources often differ on how "visits" are defined. In the HIES analysis, the very low rates of agreement between survey interviews and medical records on visits to providers outside GHA and telephone calls to GHA show that the medical records are probably not comparable to the interview in important ways. Even within the classification of "GHA visits," some ambiguities of definition could not be fully resolved between sources. Most other verification studies of reporting of ambulatory medical visits in the literature describe similar problems in matching between the two sources. Despite these difficulties, it is useful to consider the medical record as "truth" in comparing reports from the two sources. While some error remains in this verification source, it is more nearly "true" when analyzing reports of visits than when analyzing reports of chronic conditions, for example, the subject of the previous report from the HIES (1).

Reporting error in a verification study can be broken into two components: underreporting, or the failure of an interview to report a visit in the medical record, and overreporting, or the reporting of a visit in an interview that is not confirmed by the medical record. Only record-check studies using a "full design" (Marquis (5)) can examine both aspects of reporting error. The HIES, like several prior studies of ambulatory visit reporting, employed a full design. Like most of these other studies, the HIES found little difference in aggregate reporting of visits between the two data sources, except for adults not present for the interview, for whom the interview provided a considerable net underreport. Reporting of telephone calls to doctors in the HIES had much greater error than reporting of visits, with many more calls found in the medical record than were reported in the interview and, among calls reported in the interview, only about half being confirmed by the medical record.

The underreporting and overreporting rates in the HIES are consistent with rates reported in the literature, both for 2-week reference periods and for longer reference periods with bounded recall or other enhancements. These rates range about 17–35 percent for underreporting and 20–40 percent for overreporting. Differences in sample frames and selection procedures and in interview and matching procedures affect

the comparability of these results across studies, and care should be taken in applying the rates to any other survey, such as the HIES. Although the HIES followed NHIS procedures as closely as possible, many differences remained that could affect reporting accuracy. Most notable is the difference between a sample representative of the civilian noninstitutionalized U.S. population (NHIS) and a sample of HMO members in the Washington, D.C., area. Other differences include respondent selection procedures and the relative experience of the interviewers and supervisors with the study.

The HIES confirmed an earlier finding (Cannell and Fowler (6)) that underreports are about 13–15 percent more prevalent for visits in the earlier week of the reference period than for those in the later week. It also supported the findings of several other studies that underreporting is greater for persons with more visits in the reference period. These findings may be framed in the context of the respondent's cognitive processes: motivation to report may decrease with increasing numbers of visits, for example, or respondents may deliberately or inadvertently telescope visits backwards, remembering them as more distant than they are. Deliberate telescoping would be possible, for example, if the respondent wished to shorten the interview (more reports mean more questions), or if the respondent felt some stigma associated with a doctor visit. Neither the HIES nor previous studies have shown definitively what processes contribute to these kinds of reporting error, but have provided evidence for informed speculation. The HIES also found a significant increase in underreporting for interviews conducted on Saturday and Sunday, suggesting some confusion about "the last 2 weeks" in such interviews.

Overreporting presents a different set of problems. It appears that overreporting is greater for persons reporting more visits, but may not be related to the actual number of visits. Several authors have attributed overreports to forward telescoping, or recalling visits earlier than the reference period as occurring within the reference period. However, the estimates of overreports attributable to telescoping in the HIES and other studies range up to half of all overreports; in fact, the number is probably less than that. The question of what the other overreports represent remain. Errors in the medical record, telescoping from further back than has been examined, differences in definition of "visit," and respondent errors in identifying the provider are all possibilities.

Mostly, the HIES and previous literature point to few consistent patterns of under- or overreporting by respondents'

demographic characteristics. Males seem to underreport consistently more than females, findings about age and health status are not consistent, and other demographic characteristics are typically not associated with significant differences in reporting.

The implications of these findings for the NHIS are not clear. The NHIS is subject to both overreporting and underreporting of 2-week doctor visits. Some research shows that reporting of doctor visits can be improved through recall bounding or the use of additional probes. The difference between reporting in the 2 weeks of the reference period

suggests that estimates might better be made from the more recent week only, or that the interview reference period might be extended and truncated to 2 weeks for analysis. Such steps should be thoroughly investigated before considering them for the NHIS. Despite the manner of asking questions or the reference period employed, however, some reporting error will remain. Reporting error through record checks will itself remain an imperfect process. Nonetheless, data from the HIES and other record check studies may help persons using survey data about health care utilization to understand and to interpret these data.

# References

1. Edwards WS, Winn DM, Kurlantzick V, et al. Evaluation of National Interview Survey diagnostic reporting. National Center for Health Statistics. *Vital Health Stat* 2(120). 1994.
2. Balamuth E. Health interview responses compared with medical records. National Center for Health Statistics. *Vital Health Stat* 2(7). 1965.
3. Madow W. Interview data on chronic conditions compared with information derived from medical records. National Center for Health Statistics. *Vital Health Stat* 2(23). 1967.
4. Madow W. Net differences in interview data on chronic conditions and information derived from medical records. National Center for Health Statistics. *Vital Health Stat* 2(57). 1973.
5. Marquis K. Record checks for sample surveys. In: Jabine T, Loftus E, Straf M, et al, eds. *Cognitive aspects of survey methodology: Building a bridge between disciplines*. Washington, DC: National Academy Press. 1984.
6. Cannell CF, Fowler, FJ. A study of the reporting of visits to doctors in the National Health Survey. Ann Arbor, MI: Institute for Social Research. 1963.
7. Cartwright, A. Memory errors in morbidity surveys. *The Milbank Q* 41:5-24. 1963.
8. Loewenstein, R. Two approaches to Health Interview Surveys. School of Public Health and Administrative Medicine, Columbia University. 1969.
9. Feather, J. A response/record discrepancy study. Saskatchewan University, NTIS PB-226 327. 1972.
10. Marquis KH, Marquis MS, and Newhouse JP. The measurement of expenditures for outpatient physician and dental services: Methodological findings from the Health Insurance Study. *Med Care* 19:913. 1976.
11. Andersen R, Kasper J, Frankel M, et al. Total survey error. San Francisco: Jossey-Bass. 1979.
12. Yaffe R, Shapiro S, Fuchsberg RR, et al. Medical economics survey methods study: Cost-effectiveness of alternative survey strategies. *Med Care* 16:641. 1978.
13. Cleary PD, Jette, AM. The validity of self-reported physician utilization measures. *Med Care* 22(9):796-803. 1984.
14. Edwards WS, Berk ML, Ward, EP. Missing data on medical expenditure surveys: Matching household and provider reports. In: 1988 Proceedings of the Section on Survey Methods Research. Alexandria, VA: American Statistical Association. 746-09. 1988.
15. Means B, Loftus EF. When personal history repeats itself: Decomposing memories for recurring events. *Applied Cognitive Psychology* 5:297-318. 1991.
16. Andersen R, Kravits J, Anderson O, eds., *Equity in health services: Empirical analyses in social policy*. Cambridge, MA: Ballinger. 1975.
17. Sudman S, Wallace W, and Ferber R. The cost-effectiveness of using the diary as an instrument for collecting health data in household surveys. Survey research laboratory, University of Illinois. 1974.

# List of detailed tables

1. Number of persons with 2-week doctor contacts and number of contacts, by sample type . . . . .	21	8. Person-level agreement, overreporting, and underreporting by number of visits reported, previous studies . . . . .	23
2. Agreement between interview and medical record on whether any physician contact in 2-week reference period, by type of contact . . . . .	21	9. Interview reporting of physician contacts in medical record, by day of reference period contact occurred . . . . .	24
3. Contact-level agreement between interview and medical record, by contact type . . . . .	22	10. Interview reporting of physician contacts in medical record, by day of week of interview . . . . .	24
4. Person-level agreement between interview and medical record on number of Group Health Association visits in 2-week reference period, by list-sample persons . . . . .	22	11. Medical record confirmation of interview-reported physician visits to Group Health Association, by day of reference period . . . . .	25
5. Person-level agreement between interview and medical record on number of Group Health Association visits in 2-week reference period, by household members . . . . .	22	12. Medical record confirmation of interview-reported physician visits, by day of week of interview . . . . .	25
6. Person-level agreement, overreporting, and underreporting by number of visits reported, list-sample persons only . . . . .	23	13. Persons with visits just outside of reference period, by agreement on whether any visit in reference period . . . . .	25
7. Person-level agreement, overreporting, and underreporting by number of visits reported, household members only . . . . .	23	14. Agreement of interview and medical record on 2-week Group Health Association visits, by list-sample person characteristics . . . . .	26
		15. Summary of differences in reporting ambulatory medical visits, by respondent characteristics . . . . .	27



**Table 1. Number of persons with 2-week doctor contacts and number of contacts, by sample type**

Sample type	Medical record					Interview			
	Number in sample	Number of persons with contact	Percent of persons with contact	Number of contacts	Mean number of contacts per person	Number of persons with contact	Percent of persons with contact	Number of contacts	Mean number of contacts per person
Total, all contacts . . . . .	1,708	624	36.5	1,072	0.63	629	36.8	1,135	0.66
<b>Group Health Association (GHA)</b>									
visit . . . . .	1,708	532	31.1	745	0.44	531	31.1	760	0.44
List sample persons . . . . .	1,004	430	42.8	611	0.61	422	42.0	613	0.61
Household members, present . . . . .	248	45	18.1	61	0.25	57	23.0	80	0.32
Household members, not present . . . . .	183	32	17.5	46	0.25	21	11.5	33	0.18
Household members under 17 years . . . . .	273	25	9.2	27	0.10	31	11.4	34	0.12
Non-GHA visit . . . . .	1,708	9	0.5	11	0.01	83	4.9	172	0.10
List sample persons . . . . .	1,004	7	0.7	7	0.01	68	6.8	143	0.14
Household members, present . . . . .	248	1	0.4	1	0.00	9	3.6	19	0.08
Household members, not present . . . . .	183	1	0.5	3	0.02	5	2.7	9	0.05
Household members under 17 years . . . . .	273	0	0.0	0	0.00	1	0.4	1	0.00
GHA telephone call . . . . .	1,708	245	14.3	309	0.18	137	8.0	172	0.10
List sample persons . . . . .	1,004	193	19.2	243	0.24	109	10.9	137	0.14
Household members, present . . . . .	248	29	11.7	34	0.14	21	8.5	24	0.10
Household members, not present . . . . .	183	16	8.7	22	0.12	3	1.6	7	0.04
Household members under 17 years . . . . .	273	7	2.6	10	0.04	4	1.5	4	0.01
Non-GHA telephone call . . . . .	1,708	...	...	...	...	5	0.3	6	0.00
Contacts missing type data . . . . .	1,708	6	0.4	7	0.00	11	0.6	31	0.02

0.0 Quantity more than zero but less than 0.05.

... Category not applicable.

**Table 2. Agreement between interview and medical record on whether any physician contact in 2-week reference period, by type of contact**

Group Health Association	Number	Number of persons with contact in medical record	Percent reported in interview	Number of persons with contact in interview	Percent confirmed by medical record
<b>Visit</b>					
All visits . . . . .	1,708	<sup>1</sup> 532	77.3	531	77.4
List sample persons . . . . .	1,004	<sup>1</sup> 430	78.1	422	79.6
Household members, present . . . . .	248	<sup>1</sup> 45	84.4	57	66.7
Household members, not present . . . . .	183	<sup>1</sup> 32	46.9	21	71.4
Household members under 17 . . . . .	273	<sup>1</sup> 25	88.0	31	71.0
<b>Telephone call</b>					
All telephone calls . . . . .	1,708	245	31.0	137	55.5
List sample persons . . . . .	1,004	193	33.7	109	59.6
Household members, present . . . . .	248	29	31.0	21	42.9
Household members, not present . . . . .	183	16	6.3	3	33.3
Household members under 17 . . . . .	273	7	14.3	4	25.0

<sup>1</sup>X=19.96, p<.001.

**Table 3. Contact-level agreement between interview and medical record, by contact type**

<i>Sample type</i>	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>	<i>Number of contacts in interview</i>	<i>Percent confirmed by medical record</i>
Group Health Association (GHA) visits . . . . .	745	68.2	760	67.9
List sample persons . . . . .	611	72.2	613	69.7
Household members, present . . . . .	61	77.0	80	58.8
Household members, not present . . . . .	46	43.5	33	57.6
Household members under 17 years . . . . .	27	85.2	34	67.6
GHA telephone calls . . . . .	309	28.5	172	49.4
List sample persons . . . . .	243	29.6	137	51.1
Household members, present . . . . .	34	32.4	24	41.7
Household members, not present . . . . .	22	22.7	7	57.1
Household members under 17 years . . . . .	10	10.0	4	25.0

**Table 4. Person-level agreement between interview and medical record on number of Group Health Association visits in 2-week reference period, by list-sample persons**

<i>Number of Group Health Association (GHA) visits reported in interview</i>	<i>Number of GHA visits recorded in medical record</i>									<i>Total</i>
	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	
Total persons . . . . .	574	307	90	19	9	2	1	1	1	1,004
None . . . . .	488	77	10	3	0	1	0	0	0	579
1 . . . . .	66	193	33	3	2	0	0	0	0	297
2 . . . . .	17	28	35	10	0	0	0	1	0	91
3 . . . . .	1	5	8	2	4	0	0	0	0	20
4 . . . . .	1	4	4	1	3	0	0	0	0	13
5 . . . . .	1	0	0	0	0	1	1	0	0	3
6 . . . . .	0	0	0	0	0	0	0	0	0	0
7 . . . . .	0	0	0	0	0	0	0	0	1	1

**Table 5. Person-level agreement between interview and medical record on number of Group Health Association visits in 2-week reference period, by household members**

<i>Number of Group Health Association (GHA) visits reported in interview</i>	<i>Number of GHA visits recorded in medical record</i>									<i>Total</i>
	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	
Total persons . . . . .	602	77	20	4	0	1	0	0	0	704
None . . . . .	568	22	5	0	0	0	0	0	0	595
1 . . . . .	26	48	8	2	0	0	0	0	0	84
2 . . . . .	6	6	6	1	0	0	0	0	0	19
3 . . . . .	2	0	1	1	0	0	0	0	0	4
4 . . . . .	0	0	0	0	0	0	0	0	0	0
5 . . . . .	0	0	0	0	0	0	0	0	0	0
6 . . . . .	0	0	0	0	0	1	0	0	0	1
7 . . . . .	0	1	0	0	0	0	0	0	0	1

**Table 6. Person-level agreement, overreporting, and underreporting by number of visits reported, list-sample persons only**

Number of Group Health Association visits	Number of persons	Percent		
		Agreeing with medical records	Overreporting	Underreporting
<b>Medical record</b>				
None	574	85.0	15.0	...
1	307	62.9	12.1	25.1
2	90	38.9	13.3	47.8
3 or more	33	18.2	0.0	81.8
<b>Interview</b>				
None	579	84.3	...	15.7
1	297	65.0	22.2	12.8
2	91	38.5	49.5	12.1
3 or more	37	16.2	67.6	16.2

... Category not applicable.  
 0.0 Quantity more than zero but less than 0.05.

**Table 7. Person-level agreement, overreporting, and underreporting by number of visits reported, household members only**

Number of Group Health Association visits	Number of persons	Percent		
		Agreeing with medical records	Overreporting	Underreporting
<b>Medical record</b>				
None	602	94.4	5.6	...
1	77	62.3	9.1	28.6
2 or more	25	28.0	8.0	64.0
<b>Interview</b>				
None	595	95.5	...	4.5
1	84	57.1	31.0	11.9
2 or more	25	28.0	68.0	4.0

... Category not applicable.

**Table 8. Person-level agreement, overreporting, and underreporting by number of visits reported, previous studies**

Number of visits	Number <sup>1</sup>	Percent <sup>1</sup>			Number <sup>2</sup>	Percent <sup>2</sup>	
		Overreporting	Underreporting	Agreeing with medical records		Underreporting one question	With probes
<b>Medical record</b>							
None	1,618	4.6	...	95.4	...	...	...
1	269	7.1	19.3	73.6	131	29	27
2	98	8.2	40.8	51.0	118	37	29
3 or more	55	23.6	38.2	38.2	154	25	15
<b>Interview</b>							
None	1,604	...	3.7	96.3	...	...	...
1	303	21.5	13.2	65.3	...	...	...
2	85	31.8	9.4	58.8	...	...	...
3 or more	48	45.8	10.4	43.8	...	...	...

... Category not applicable.  
<sup>1</sup>Cartwright (7).  
<sup>2</sup>Cannell and Fowler (6).

**Table 9. Interview reporting of physician contacts in medical record, by day of reference period contact occurred**

<i>Day of reference period contact occurred</i>	<i>Group Health Association visits</i>				<i>Group Health Association telephone calls</i>	
	<i>List sample persons</i>		<i>Household members</i>		<i>List sample persons</i>	
	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>
First week . . . . .	315	63.5	72	59.7	137	29.9
Day 1 . . . . .	53	64.2	8	50.0	36	25.0
Day 2 . . . . .	80	68.8	12	66.7	28	21.4
Day 3 . . . . .	63	58.7	8	62.5	29	44.8
Day 4 . . . . .	68	61.8	23	69.6	25	28.0
Day 5 . . . . .	38	63.2	14	42.9	17	35.3
Day 6 . . . . .	7	57.1	5	60.0	1	0.0
Day 7 . . . . .	6	66.7	2	50.0	1	0.0
Second week . . . . .	295	76.9	62	72.6	107	28.0
Day 8 . . . . .	54	75.9	8	75.0	23	21.7
Day 9 . . . . .	83	75.9	12	83.3	22	31.8
Day 10 . . . . .	53	79.2	20	50.0	25	24.0
Day 11 . . . . .	60	80.0	9	100.0	18	27.8
Day 12 . . . . .	40	80.0	10	70.0	19	36.8
Day 13 . . . . .	2	0.0	1	100.0	—	---
Day 14 . . . . .	3	33.3	2	100.0	—	---

0.0 Quantity more than zero but less than 0.05.

— Quantity zero.

--- Data not available.

**Table 10. Interview reporting of physician contacts in medical record, by day of week of interview**

<i>Day of interview</i>	<i>Group Health Association visits</i>				<i>Group Health Association telephone calls</i>			
	<i>List sample persons</i>		<i>Household members</i>		<i>List sample persons</i>		<i>Household members</i>	
	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>	<i>Number of contacts in medical record</i>	<i>Percent reported in interview</i>
All days . . . . .	611	70.1	134	66.4	244	29.1	66	24.2
Sunday . . . . .	34	50.0	8	75.0	28	14.3	2	0.0
Monday . . . . .	71	70.4	12	83.3	40	25.0	6	16.7
Tuesday . . . . .	101	74.3	22	77.3	11	27.3	15	33.3
Wednesday . . . . .	129	76.0	27	66.7	29	42.9	13	30.8
Thursday . . . . .	103	69.9	20	60.0	44	31.8	14	21.4
Friday . . . . .	73	74.0	16	68.8	50	40.0	8	37.5
Saturday . . . . .	100	62.0	29	51.7	42	19.0	8	0.0

0.0 Quantity more than zero but less than 0.05.

**Table 11. Medical record confirmation of interview-reported physician visits to Group Health Association, by day of reference period**

Day of contact of reference period	List sample persons		Household members	
	Number of contacts in interview	Percent reported in medical record	Number of contacts in interview	Percent reported in medical record
First week . . . . .	293	67.9	68	63.2
Day 1 . . . . .	56	66.1	12	58.3
Day 2 . . . . .	72	63.9	11	63.6
Day 3 . . . . .	59	72.9	9	77.8
Day 4 . . . . .	50	74.0	15	80.0
Day 5 . . . . .	40	65.0	12	50.0
Day 6 . . . . .	11	54.5	3	66.7
Day 7 . . . . .	5	80.0	6	33.3
Second week . . . . .	302	71.9	73	61.6
Day 8 . . . . .	51	72.5	15	53.3
Day 9 . . . . .	75	74.7	12	66.7
Day 10 . . . . .	58	79.3	17	70.6
Day 11 . . . . .	51	76.5	10	60.0
Day 12 . . . . .	63	58.7	13	53.8
Day 13 . . . . .	3	33.3	3	33.3
Day 14 . . . . .	1	100.0	3	100.0

**Table 12. Medical record confirmation of interview-reported physician visits, by day of week of interview**

Day of interview	List sample persons		Household members	
	Number of contacts in interview	Percent reported in medical record	Number of contacts in interview	Percent reported in medical record
All days . . . . .	613	69.7	147	60.5
Sunday . . . . .	26	65.4	10	60.0
Monday . . . . .	76	65.8	16	62.5
Tuesday . . . . .	105	71.4	33	51.5
Wednesday . . . . .	133	72.9	29	62.1
Thursday . . . . .	91	79.1	17	70.6
Friday . . . . .	93	58.1	19	57.9
Saturday . . . . .	89	69.7	23	65.2

**Table 13. Persons with visits just outside of reference period, by agreement on whether any visit in reference period**

Agreement	Number	Persons with a visit in 2 weeks before reference period		Persons with a visit between end of reference period and interview	
		Number	Percent	Number	Percent
Total . . . . .	1,004	427	42.5	111	11.1
Positive match <sup>1</sup> . . . . .	339	156	46.0	54	15.9
Overreport <sup>2</sup> . . . . .	86	44	51.2	7	8.1
Underreport <sup>3</sup> . . . . .	91	40	44.0	13	14.3
Negative match <sup>4</sup> . . . . .	488	187	38.3	37	7.6

<sup>1</sup>“Positive match” is a person with one or more visits in both interview report and medical record.

<sup>2</sup>“Overreport” is a person with one or more visits in the interview and none in the medical record.

<sup>3</sup>“Underreport” is a person with one or more visits in the medical record and none in the interview.

<sup>4</sup>“Negative match” is a person with a visit in neither source.

**Table 14. Agreement of interview and medical record on 2-week Group Health Association visits, by list-sample person characteristics**

<i>Characteristic</i>	<i>Number</i>	<i>Number of persons with contact in medical record</i>	<i>Percent reported in interview</i>	<i>Number of persons with contact in interview</i>	<i>Percent confirmed by medical record</i>	<i>Net overreport by interview</i>
<b>Age</b>						
18–44 years . . . . .	311	116	81.0	132	<sup>1</sup> 71.2	13.8
45–64 years . . . . .	372	162	78.4	148	<sup>1</sup> 85.8	-8.6
65–74 years . . . . .	191	85	78.8	81	<sup>1</sup> 82.7	-4.7
75 years and over . . . . .	130	67	76.1	64	<sup>1</sup> 79.7	-4.5
<b>Sex</b>						
Male . . . . .	459	185	<sup>2</sup> 71.9	169	78.7	-8.6
Female . . . . .	545	245	<sup>2</sup> 84.1	256	80.5	4.5
<b>Race</b>						
Black . . . . .	674	281	79.0	280	79.3	-0.4
Other . . . . .	330	149	78.5	145	80.7	-2.7
<b>Income</b>						
\$0–\$19,999 . . . . .	141	68	83.8	75	76.0	10.3
\$20,000–\$29,999 . . . . .	113	57	82.5	58	81.0	1.9
\$30,000–\$49,999 . . . . .	236	102	74.5	92	82.6	-9.8
\$50,000 and over . . . . .	284	112	78.6	109	80.7	-2.6
<b>Education</b>						
Less than 12 years . . . . .	168	77	<sup>3</sup> 79.2	70	87.1	-9.1
High school graduate . . . . .	305	129	<sup>3</sup> 72.1	118	78.8	-8.5
Some college . . . . .	204	82	<sup>3</sup> 76.8	81	77.8	-1.2
College graduate . . . . .	320	139	<sup>3</sup> 86.3	154	77.9	10.8
<b>Employment and age</b>						
Employed:						
65 years and over . . . . .	544	232	80.2	229	81.2	-1.2
18–64 years . . . . .	218	95	77.9	94	78.7	-1.0
Not employed: <sup>4</sup>						
65 years and over . . . . .	121	48	79.2	51	74.5	6.3
18–64 years . . . . .	117	53	73.6	49	79.6	-7.5
<b>Health status</b>						
Excellent . . . . .	203	64	73.4	61	77.0	-4.7
Very good . . . . .	293	133	75.9	128	78.9	-3.8
Good . . . . .	296	133	82.0	135	80.7	1.6
Fair or poor . . . . .	200	94	83.0	97	80.4	3.2

<sup>1</sup>Chi-sq.=9.77, df=3, p<.05.

<sup>2</sup>z=3.07, p<.01.

<sup>3</sup>Chi-sq.=8.40, df=3, p<.05.

<sup>4</sup>Includes retired, unemployed, and homemakers.

**Table 15. Summary of differences in reporting ambulatory medical visits, by respondent characteristics**

<i>Characteristic</i>	<i>Effect</i>	<i>Reference(s)</i>
<b>Underreporting</b>		
<b>Age:</b>		
Advancing age . . . . .	More	Cleary and Jette (1984)(13); Balamuth (1965)(2)
Under age 55 . . . . .	Less	Cannell and Fowler (1963)(6)
Over 65 females <sup>1</sup> . . . . .	Less	Feather (1972)(9)
<b>Sex:</b>		
Females under 45 . . . . .	Less	Cannell and Fowler (1963); (6)HIES(1)
Females 45–65 <sup>2</sup> . . . . .	Less	Feather (1972)(9)
<b>Education:</b>		
College graduates . . . . .	Less	HIES(1)
<b>Health status:</b>		
Persons with many health conditions . . . . .	Less	Cannell and Fowler (1963)(6)
Persons with restricted activity . . . . .	Less	Cannell and Fowler (1963)(6)
<b>Other:</b>		
Lowerst SES <sup>3</sup> category . . . . .	Less	Feather (1972)(9)
HMO <sup>4</sup> membership . . . . .	More	Cleary and Jette (1984)(13)
<b>Overreporting</b>		
<b>Age:</b>		
Persons 65 years and over . . . . .	Less	Feather (1972)(9)
Oldest adult in household 65 or over . . . . .	More	Andersen et al. (1979)(11)
Persons 18–45 . . . . .	More	HIES(1)
<b>Sex:</b>		
Male . . . . .	More	Feather (1972)(9)
<b>Race:</b>		
Non-white . . . . .	More	Andersen et al. (1979)(11)
<b>Health status:</b>		
Several chronic conditions . . . . .	More	Cleary and Jette (1984)(13)
Persons in fair or poor health . . . . .	More	Andersen et al. (1979)(11)
Presence of limiting illness . . . . .	More	Cleary and Jette (1984)(13)
More demoralized . . . . .	More	Cleary and Jette (1984)(13)
<b>Other:</b>		
Belief in regular checkups . . . . .	More	Cleary and Jette (1984)(13)

<sup>1</sup>Compared with younger females.  
<sup>2</sup>Compared with males 45–64 years of age.  
<sup>3</sup>SES is socioeconomic status.  
<sup>4</sup>HMO is Health Maintenance Organization.

# Appendix

## Contents

Health Interview Evaluation Survey questionnaire .....	29
--	----



# Appendix I Health Interview Evaluation Survey Questionnaire

CDC 64.01

OMB No. 0920-0239. Approval Expires 12/31/90

**NOTICE** - Information contained on this form which would permit identification of any individual or establishment has been collected with a guarantee that it will be held in strict confidence, will be used only for purposes stated for this study, and will not be disclosed or released to others without the consent of the individual or the establishment in accordance with section 306(d) of the Public Health Service Act (42 USC 242m). Public reporting burden for this collection of information is estimated to vary from 16 to 35 minutes per response, with an average of 28 minutes per response. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to PHS Reports Clearance Officer, ATTN: PRA; Hubert H. Humphrey Bldg., Rm. 721-H, 200 Independence Avenue, SW, Washington, DC 20201; and to the Office of Management and Budget, Paperwork Reduction Project (0920-0239), Washington, DC 20503.

FORM **HIS-1 (Evaluation)**  
12-1-90

WESTAT, INC.  
ACTING AS COLLECTING AGENT FOR THE  
U.S. PUBLIC HEALTH SERVICE

## HEALTH INTERVIEW EVALUATION SURVEY

**6a. What is your exact address?** (Include House No., Apt. No., or other identification, county and ZIP Code)

City \_\_\_\_\_ State \_\_\_\_\_ County \_\_\_\_\_ ZIP Code \_\_\_\_\_

**b. Is this your mailing address?** (Mark box or specify if different. Include county and ZIP Code.)  Same as 6a

City \_\_\_\_\_ State \_\_\_\_\_ County \_\_\_\_\_ ZIP Code \_\_\_\_\_

Items 7, 8, and 9 not applicable this form.

**10. CLASSIFICATION OF LIVING QUARTERS** — Mark by observation

Items 10 a and b not applicable this form.

**c. HOUSING unit** (Mark one, THEN page 2)

- 01  House, apartment, flat
- 02  HU in nontransient hotel, motel, etc.
- 03  HU — permanent in transient hotel, motel, etc.
- 04  HU in rooming house
- 05  Mobile home or trailer with no permanent room added
- 06  Mobile home or trailer with one or more permanent rooms added
- 07  HU not specified above — Describe in footnotes

**d. OTHER unit** (Mark one)

- 08  Quarters not HU in rooming or boarding house
- 09  Unit not permanent in transient hotel, motel, etc.
- 10  Unoccupied site for mobile home, trailer, or tent
- 11  Student quarters in college dormitory
- 12  Other unit not specified above — Describe in footnotes

### GO TO HOUSEHOLD COMPOSITION PAGE

**11. What is the telephone number here?**

Area code/number

None

**12. Interview observed?**

1  Yes 2  No

**13a. Interviewer's name**

Code

**b. Language of interview**

- 1  English
- 2  Spanish
- 3  Both English and Spanish
- 4  Other

**1.** Book \_\_\_\_\_ of \_\_\_\_\_ books

**2-5.** Not applicable this form

**14. Noninterview reason**

#### TYPE A

- 01  Refusal — Describe in footnotes
- 02  No one at home, repeated calls
- 03  Temporarily absent — Footnote
- 04  Other (Specify) \_\_\_\_\_

Fill items  
7-9,  
10, and  
12-15

**15. Record of calls**

Month	Date	Beginning time	Ending time	Completed Mark (X)
1		P T	a.m. p.m.	
2		P T	a.m. p.m.	
3		P T	a.m. p.m.	
4		P T	a.m. p.m.	
5		P T	a.m. p.m.	
6		P T	a.m. p.m.	

**16.** Not applicable this form

**17. Record of additional contacts**

Month	Date	Beginning time	Ending time	Completed Mark (X)
1		P T	a.m. p.m.	
2		P T	a.m. p.m.	
3		P T	a.m. p.m.	
4		P T	a.m. p.m.	

### A. HOUSEHOLD COMPOSITION PAGE

1

1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.

b. What are the names of all other persons living or staying here? Enter names in columns.

c. I have listed (read names). Have I missed:  
 - any babies or small children?  Yes  No  
 - any lodgers, boarders, or persons you employ who live here?  Yes  No  
 - anyone who USUALLY lives here but is now away from home traveling or in a hospital?  Yes  No  
 - anyone else staying here?  Yes  No

d. Do all of the persons you have named usually live here?  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

Probe if necessary:  
 Does — usually live somewhere else?

1. First name Mid. init. Age  
 Last name Sex  
 1  M  
 2  F

2. Relationship  
**REFERENCE PERSON**

3. Date of birth  
 Month Date Year

**C1**

HOSP.	WORK	RD	2-WK. DV
00 <input type="checkbox"/> None	1 <input type="checkbox"/> Wa	1 <input type="checkbox"/> Yes	00 <input type="checkbox"/> None
Number	2 <input type="checkbox"/> Wb	2 <input type="checkbox"/> No	Number

**C2**

LA	IRA	1 DV	TINJ	TCL	LTH	HST	COND.
LA	IRA	1 DV	TINJ	TCL	LTH	HST	COND.
LA	IRA	1 DV	TINJ	TCL	LTH	HST	COND.
LA	IRA	1 DV	TINJ	TCL	LTH	HST	COND.
LA	IRA	1 DV	TINJ	TCL	LTH	HST	COND.

Ask for all persons beginning with column 2:

2. What is — relationship to (reference person)?

3. What is — date of birth? (Enter date and age and mark sex.)

**A1**

REFERENCE PERIODS

2-WEEK PERIOD

12-MONTH DATE

13-MONTH HOSPITAL DATE

**A2** ASK CONDITION LISTS 1,2, and 3.

**A3** Refer to ages of all related HH members.

**A3**

All persons 65 and over (5)  
 Other (4)

4a. Are any of the persons in this family now on full-time active duty with the armed forces?  Yes  No (5)

b. Who is this? Delete column number(s) \_\_\_\_\_ by an "X" from 1-C2.

c. Anyone else?  Yes (Reask 4b and c)  No

Ask for each person in armed forces:  
 d. Where does — usually live and sleep, here or somewhere else? Mark box in person's column.

**4d.**

Living at home  
 Not living at home

If related persons 17 and over are listed in addition to the respondent and are not present, say:  
 5. We would like to have all adult family members who are at home take part in the interview. Are (names of persons 17 and over) at home now? If "Yes," ask: Could they join us? (Allow time)

Read to respondent(s):  
 This survey is being conducted to collect information on the nation's health. I will ask about hospitalizations, disability, visits to doctors, illness in the family, and other health related items.

**HOSPITAL PROBE**

6a. Since (13-month hospital date) a year ago, was — a patient in a hospital OVERNIGHT?

b. How many different times did — stay in any hospital overnight or longer since (13-month hospital date) a year ago?

**6a.**

1  Yes  
 2  No (Mark "HOSP." box, THEN NP)

**b.**

Number of times } (Make entry in "HOSP." box THEN NP)

Ask for each child under one:  
 7a. Was — born in a hospital?  
 Ask for mother and child:  
 b. Have you included this hospitalization in the number you gave me for —?

**7a.**

1  Yes  
 2  No (NP)

**b.**

Yes (NP)  
 No (Correct 6 and "HOSP." box)

FOOTNOTES

**A. HOUSEHOLD COMPOSITION PAGE**

**1**

**1a.** What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.

**b.** What are the names of all other persons living or staying here? Enter names in columns.

**c.** I have listed (read names). Have I missed:

- any babies or small children?  Yes  No
- any lodgers, boarders, or persons you employ who live here?  Yes  No
- anyone who USUALLY lives here but is now away from home travelling or in a hospital?  Yes  No
- anyone else staying here?  Yes  No

**d.** Do all of the persons you have named usually live here?  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

Probe if necessary:  
Does --- usually live somewhere else?

Ask for all persons beginning with column 2:

1. First name Mid. init. Age  
Last name Sex  
1  M  
2  F

2. Relationship REFERENCE PERSON

3. Date of birth Month Date Year

HOSP. WORK RD 2-WK. DV  
00  None 1  Wa 1  Yes 00  None  
Number 2  Wb 2  No Number

**2.** What is --- relationship to (reference person)?

**3.** What is --- date of birth? (Enter date and age and mark sex.)

**C1**

LA IRA DV TINJ T.C.L.T.RI HSTCOND.

**C2**

LA IRA DV TINJ T.C.L.T.RI HSTCOND.

LA IRA DV TINJ T.C.L.T.RI HSTCOND.

LA IRA DV TINJ T.C.L.T.RI HSTCOND.

LA IRA DV TINJ T.C.L.T.RI HSTCOND.

**A1**

REFERENCE PERIODS

2-WEEK PERIOD

12-MONTH DATE

13-MONTH HOSPITAL DATE

**A2** ASK CONDITION LISTS 1,2, and 3.

**A3** Refer to ages of all related HH members.

**A3**

All persons 65 and over (5)  
 Other (4)

**B. LIMITATION OF ACTIVITIES PAGE**

**B1** Refer to age.

**B1**

1  18-69(1)  
2  Other (NP)

**1.** What was --- doing MOST OF THE PAST 12 MONTHS; working at a job or business, keeping house, going to school, or something else?  
Priority if 2 or more activities reported: (1) Spent the most time doing; (2) Considers the most important.

**1.**

1  Working (2)  
2  Keeping house (3)  
3  Going to school (5)  
4  Something else (5)

**2a.** Does any impairment or health problem NOW keep --- from working at a job or business?

**b.** Is --- limited in the kind OR amount of work --- can do because of any impairment or health problem?

**2a.**

1  Yes (7)  No

**b.**

2  Yes (7) 3  No (6)

**3a.** Does any impairment or health problem NOW keep --- from doing any housework at all?

**b.** Is --- limited in the kind OR amount of housework --- can do because of any impairment or health problem?

**3a.**

4  Yes (4)  No

**b.**

5  Yes (4) 6  No (5)

**4a.** What (other) condition causes this?  
Ask if injury or operation: When did (the injury) occur?/--- have the operation?  
Ask if operation over 3 months ago: For what condition did --- have the operation?  
If pregnancy delivery or 0-3 months injury or operation -  
Reask question 3 where limitation reported, saying: Except for --- (condition), ...?  
OR reask 4b/c.

**b.** Besides (condition) is there any other condition that causes this limitation?

**c.** Is this limitation caused by any (other) specific condition?

Mark box if only one condition.

**d.** Which of these conditions would you say is the MAIN cause of this limitation?

**4a.** (Enter condition in C2, THEN 4b)

1  Old age (Mark "Old age" box, THEN 4c)

**b.**

Yes (Reask 4a and b)  
 No (4d)

**c.**

Yes (Reask 4a and b)  
 No

**d.**

Only 1 condition

Main cause

**5a.** Does any impairment or health problem keep --- from working at a job or business?

**b.** Is --- limited in the kind OR amount of work --- could do because of any impairment or health problem?

**5a.**

1  Yes (7)  No

**b.**

2  Yes (7) 3  No

**B2** Refer to questions 3a and 3b.

**B2**

1  "Yes" in 3a or 3b (NP)  
2  Other (6)

**6a.** Is --- limited in ANY WAY in any activities because of an impairment or health problem?

**b.** In what way is --- limited? Record limitation, not condition.

**6a.**

1  Yes 2  No (NP)

**b.**

Limitation

**7a.** What (other) condition causes this?  
Ask if injury or operation: When did (the injury) occur?/--- have the operation?  
Ask if operation over 3 months ago: For what condition did --- have the operation?  
If pregnancy delivery or 0-3 months injury or operation -  
Reask question 2, 5, or 6 where limitation reported, saying: Except for --- (condition), ...?  
OR reask 7b.c.

**b.** Besides (condition) is there any other condition that causes this limitation?

**c.** Is this limitation caused by any (other) specific condition?

Mark box if only one condition.

**d.** Which of these conditions would you say is the MAIN cause of this limitation?

**7a.** (Enter condition in C2, THEN 7b)

1  Old age (Mark "Old age" box, THEN 7c)

**b.**

Yes (Reask 7a and b)  
 No (7d)

**c.**

Yes (Reask 7a and b)  
 No

**d.**

Only 1 condition

Main cause

**A. HOUSEHOLD COMPOSITION PAGE**

**1**

1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.

1b. What are the names of all other persons living or staying here? Enter names in columns.

1c. I have listed (read names). Have I missed:  
 - any babies or small children? .....  
 - any lodgers, boarders, or persons you employ who live here? .....  
 - anyone who USUALLY lives here but is now away from home traveling or in a hospital? .....  
 - anyone else staying here? .....

1d. Do all of the persons you have named usually live here?  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

Probe if necessary:  
Does -- usually live somewhere else?

If "Yes," enter names in columns

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1. First name Mid. init. Age  
 Last name Sex  
 1  M  
 2  F

2. Relationship REFERENCE PERSON

3. Date of birth Month Date Year

C1  
 HOSP. WORK RD 2-WK. DV  
 00  None 1  Wa 1  Yes 00  None  
 Number 2  Wb 2  No Number

C2  
 LA TRA IDV TINJ T CLLTRI HSTCOND.  
 LA TRA IDV TINJ T CLLTRI HSTCOND.  
 LA TRA IDV TINJ T CLLTRI HSTCOND.  
 LA TRA IDV TINJ T CLLTRI HSTCOND.  
 LA TRA IDV TINJ T CLLTRI HSTCOND.

Ask for all persons beginning with column 2:

2. What is -- relationship to (reference person)?

3. What is -- date of birth? (Enter date and age and mark sex.)

REFERENCE PERIODS

A1	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE

A2 ASK CONDITION LISTS 1,2, and 3.

**B. LIMITATION OF ACTIVITIES PAGE, Continued**

B3 Refer to age.

B3  
 0  Under 5 (10) 2  18-69 (NP)  
 1  5-17 (11) 3  70 and over (8)

8. What was -- doing MOST OF THE PAST 12 MONTHS; working at a job or business, keeping house, going to school, or something else?  
Priority if 2 or more activities reported: (1) Spent the most time doing; (2) Considers the most important.

8.  
 1  Working  
 2  Keeping house  
 3  Going to school  
 4  Something else

9a. Because of any impairment or health problem, does -- need the help of other persons with -- personal care needs, such as eating, bathing, dressing, or getting around this home?  
 b. Because of any impairment or health problem, does -- need the help of other persons in handling -- routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?

9a. 1  Yes (13)  No  
 b. 2  Yes (13) 3  No (12)

10a. Is -- able to take part AT ALL in the usual kinds of play activities done by most children -- age?  
 b. Is -- limited in the kind OR amount of play activities -- can do because of any impairment or health problem?

10a.  Yes 0  No (13)  
 b. 1  Yes (13) 2  No (12)

11a. Does any impairment or health problem NO?/ keep -- from attending school?  
 b. Does -- attend a special school or special classes because of any impairment or health problem?  
 c. Does -- need to attend a special school or special classes because of any impairment or health problem?  
 d. Is -- limited in school attendance because of -- health?

11a. 1  Yes (13)  No  
 b. 2  Yes (13)  No  
 c. 3  Yes (13)  No  
 d. 4  Yes (13) 5  No

12a. Is -- limited in ANY WAY in any activities because of an impairment or health problem?  
 b. In what way is -- limited? Record limitation, not condition.

12a. 1  Yes 2  No (NP)  
 b. Limitation

13a. What (other) condition causes this?  
 Ask if injury or operation: When did (the injury) occur?/ -- have the operation?  
 Ask if operation over 3 months ago: For what condition did -- have the operation?  
 If pregnancy/delivery or 0-3 months injury or operation --  
 Reask question where limitation reported, saying: Except for -- (condition), ...?  
 OR reask 13b/c.  
 b. Besides (condition) is there any other condition that causes this limitation?  
 c. Is this limitation caused by any (other) specific condition?  
 Mark box if only one condition.  
 d. Which of these conditions would you say is the MAIN cause of this limitation?

13a. (Enter condition in C2, THEN 13b)  
 1  Old age (Mark "Old age" box, THEN 13c)  
 b.  Yes (Reask 13a and b)  No (13d)  
 c.  Yes (Reask 13a and b)  No  
 d.  Only 1 condition  
 Main cause

FOOTNOTES

**A. HOUSEHOLD COMPOSITION PAGE**

**1**

**1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.**

**b. What are the names of all other persons living or staying here? Enter names in columns.**

**c. I have listed (read names). Have I missed:**

- any babies or small children? .....
- any lodgers, boarders, or persons you employ who live here? .....
- anyone who USUALLY lives here but is now away from home travelling or in a hospital? .....
- anyone else staying here? .....

**d. Do all of the persons you have named usually live here?**  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1—C2 and enter reason.)

Probe if necessary:  
Does — usually live somewhere else?

If "Yes," enter names in columns	
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

<b>1.</b>	First name	Mid. init.	Age
	Last name		Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F
<b>2.</b>	Relationship <b>REFERENCE PERSON</b>		
<b>3.</b>	Date of birth	Date	Year
	Month		
<b>C1</b>	HOSP. 00 <input type="checkbox"/> None	WORK 1 <input type="checkbox"/> Ws 2 <input type="checkbox"/> Wb	RD 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No
			2-WK. DV 00 <input type="checkbox"/> None
<b>C2</b>	LA — TRA — DV — TINJ. TOLLTR HSTCOND.		
	LA — TRA — DV — TINJ. TOLLTR HSTCOND.		
	LA — TRA — DV — TINJ. TOLLTR HSTCOND.		
	LA — TRA — DV — TINJ. TOLLTR HSTCOND.		
	LA — TRA — DV — TINJ. TOLLTR HSTCOND.		

Ask for all persons beginning with column 2:

**2. What is — relationship to (reference person)?**

**3. What is — date of birth? (Enter date and age and mark sex.)**

<b>A1</b>	<b>REFERENCE PERIODS</b>
	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE
<b>A2</b>	ASK CONDITION LISTS 1,2, and 3.

**B. LIMITATION OF ACTIVITIES PAGE, Continued**

**B4** Refer to age.

**B5** Refer to "Old age" and "LA" boxes. Mark first appropriate box.

**14a.** Because of any impairment or health problem, does — need the help of other persons with — personal care needs, such as eating, bathing, dressing, or getting around this home?  
If under 18, skip to next person; otherwise ask:

**b.** Because of any impairment or health problem, does — need the help of other persons in handling — routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?

**15a.** What (other) condition causes this?  
Ask if injury or operation: When did [the (injury) occur?/ — have the operation?]  
Ask if operation over 3 months ago: For what condition did — have the operation?  
If pregnancy/delivery or 0—3 months injury or operation —  
Reask question 14 where limitation reported, saying: Except for — (condition), ...?  
OR reask 15b/c.

**b.** Besides (condition) is there any other condition that causes this limitation?

**c.** Is this limitation caused by any (other) specific condition?

Mark box if only one condition.

**d.** Which of these conditions would you say is the MAIN cause of this limitation?

<b>B4</b>	0 <input type="checkbox"/> Under 5 (NP) 2 <input type="checkbox"/> 60—69 (14) 1 <input type="checkbox"/> 5—59 (B5) 3 <input type="checkbox"/> 70 and over (NP)
<b>B5</b>	<input type="checkbox"/> "Old age" box marked (14) <input type="checkbox"/> Entry in "LA" box (14) <input type="checkbox"/> Other (NP)
<b>14a.</b>	1 <input type="checkbox"/> Yes (15) <input type="checkbox"/> No
<b>b.</b>	2 <input type="checkbox"/> Yes 3 <input type="checkbox"/> No (NP)
<b>15a.</b>	(Enter condition in C2, THEN 15b) 1 <input type="checkbox"/> Old age (Mark "Old age" box, THEN 15c)
<b>b.</b>	<input type="checkbox"/> Yes (Reask 15a and b) <input type="checkbox"/> No (15d)
<b>c.</b>	<input type="checkbox"/> Yes (Reask 15a and b) <input type="checkbox"/> No
<b>d.</b>	<input type="checkbox"/> Only 1 condition
	_____ Main cause

FOOTNOTES

### A. HOUSEHOLD COMPOSITION PAGE

1

**1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.**

**b. What are the names of all other persons living or staying here? Enter names in columns.**

**c. I have listed (read names). Have I missed:**

- any babies or small children? .....
- any lodgers, boarders, or persons you employ who live here? .....
- anyone who USUALLY lives here but is now away from home travelling or in a hospital? .....
- anyone else staying here? .....

**d. Do all of the persons you have named usually live here?**  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

Probe if necessary:  
Does --- usually live somewhere else?

If "Yes," enter names in columns

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1. First name	Mid. init.	Age	
Last name		Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F	
2. Relationship REFERENCE PERSON			
3. Date of birth Month   Date   Year			
HOSP.	WORK	RD	2-WK. DV
00 <input type="checkbox"/> None	1 <input type="checkbox"/> Wa	1 <input type="checkbox"/> Yes	00 <input type="checkbox"/> None
Number	2 <input type="checkbox"/> Wb	2 <input type="checkbox"/> No	Number
<b>C1</b>			
<b>C2</b>			
LA	TRA	1 DV	TINJ. T CLLTRI HSTCOND.
LA	TRA	1 DV	TINJ. T CLLTRI HSTCOND.
LA	TRA	1 DV	TINJ. T CLLTRI HSTCOND.
LA	TRA	1 DV	TINJ. T CLLTRI HSTCOND.
LA	TRA	1 DV	TINJ. T CLLTRI HSTCOND.

Ask for all persons beginning with column 2:

**2. What is --- relationship to (reference person)?**

**3. What is --- date of birth? (Enter date and age and mark sex.)**

<b>REFERENCE PERIODS</b>	
<b>A1</b>	2-WEEK PERIOD -----
	12-MONTH DATE -----
	13-MONTH HOSPITAL DATE -----
<b>A2</b>	ASK CONDITION LISTS 1,2, and 3.

**D. RESTRICTED ACTIVITY PAGE PERSON 1**

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

**D1** Refer to age.  
 Under 5 (4)  5-17 (3)  18 and over (1)

**1a. DURING THOSE 2 WEEKS, did --- work at any time at a job or business not counting work around the house? (Include unpaid work in the family [farm/business].)**  
1  Yes (Mark "Wa" box, THEN 2) 2  No

**b. Even though --- did not work during those 2 weeks, did --- have a job or business?**  
1  Yes (Mark "Wb" box, THEN 2) 2  No (4)

**2a. During those 2 weeks, did --- miss any time from a job or business because of illness or injury?**  
 Yes 00  No (4)

**b. During that 2-week period, how many days did --- miss more than half of the day from --- job or business because of illness or injury?**  
00  None (4)  (4)

**3a. During those 2 weeks, did --- miss any time from school because of illness or injury?**  
 Yes 00  No (4)

**b. During that 2-week period, how many days did --- miss more than half of the day from school because of illness or injury?**  
00  None  (4)

**4a. During those 2 weeks, did --- stay in bed because of illness or injury?**  
 Yes 00  No (6)

**b. During that 2-week period, how many days did --- stay in bed more than half of the day because of illness or injury?**  
00  None (6)  (D2)

**D2** Refer to 2b and 3b.  
 No days in 2b or 3b (6)  
 1 or more days in 2b or 3b (5)

**5. On how many of the (number in 2b or 3b) days missed from [work/school] did --- stay in bed more than half of the day because of illness or injury?**  
00  None  No. of days

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

**6a. (Not counting the day(s) [missed from work missed from school (and) in bed], Was there any (OTHER) time during those 2 weeks that --- cut down on the things --- usually does because of illness or injury?**  
 Yes 00  No (D3)

**b. (Again, not counting the day(s) [missed from work missed from school (and) in bed], During that period, how many (OTHER) days did --- cut down for more than half of the day because of illness or injury?**  
00  None  No. of cut-down days

**D3** Refer to 2-6.  
 No days in 2-6 (Mark "No" in RD, THEN NP)  
 1 or more days in 2-6 (Mark "Yes" in RD, THEN 7)

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

**7a. What (other) condition caused --- to [miss work miss school (or) stay in bed (or) cut down] during those 2 weeks?**  
(Enter condition in C2, THEN 7b)

**b. Did any other condition cause --- to [miss work miss school (or) stay in bed (or) cut down] during that period?**  
1  Yes (Reask 7a and b) 2  No

FOOTNOTES

### A. HOUSEHOLD COMPOSITION PAGE

1

**1 a.** What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.

**b.** What are the names of all other persons living or staying here? Enter names in columns.

**c.** I have listed (read names). Have I missed:  
 — any babies or small children? .....  
 — any lodgers, boarders, or persons you employ who live here? .....  
 — anyone who USUALLY lives here but is now away from home traveling or in a hospital? .....  
 — anyone else staying here? .....

**d.** Do all of the persons you have named usually live here?  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1—C2 and enter reason.)

Probe if necessary:  
**Does — usually live somewhere else?**

Ask for all persons beginning with column 2:

If "Yes," enter names in columns

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1.	First name	Mid. Init.	Age
	Last name		Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F
2.	Relationship REFERENCE PERSON		
3.	Date of birth	Date	Year
	Month		
C1	HOSP.	WORK	RD
	00 <input type="checkbox"/> None	1 <input type="checkbox"/> Wa	1 <input type="checkbox"/> Yes
	2 <input type="checkbox"/> Wb	2 <input type="checkbox"/> No	00 <input type="checkbox"/> None
	Number		Number
C2	LA	IRA	IDV
	LA	IRA	IDV
	LA	IRA	IDV

**2.** What is — relationship to (reference person)?

**3.** What is — date of birth? (Enter date and age and mark sex.)

REFERENCE PERIODS	
A1	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE
A2	ASK CONDITION LISTS 1,2, and 3.

### E. 2-WEEK DOCTOR VISITS PROBE PAGE

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

**E1** Refer to age.

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

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

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

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

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

Ask for each person with "DR Visit" in 2b:

**d.** How many times did — receive this care during that period?

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

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

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

Ask for each person with "Phone call" in 3b:

**d.** How many telephone calls were made about —?

E1	<input type="checkbox"/> Under 14 (1b) <input type="checkbox"/> 14 and over (1a)
1 a. and b.	00 <input type="checkbox"/> None Number of times (NP)
2 b.	<input type="checkbox"/> DR Visit
d.	Number of times
3 b.	<input type="checkbox"/> Phone call
d.	Number of calls

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

FOOTNOTES

A. HOUSEHOLD COMPOSITION PAGE

1

1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.
b. What are the names of all other persons living or staying here? Enter names in columns.
c. I have listed (read names). Have I missed?
d. Do all of the persons you have named usually live here?

Table with 2 columns: Yes, No. Rows for various household members.

Form for person 1: 1. First name, Mid. init., Age, Sex, Last name, Relationship, Date of birth, HOSP., WORK, RD, 2-WK. DV, Number.

2. What is -- relationship to (reference person)?
3. What is -- date of birth? (Enter date and age and mark sex.)

Table with 2 columns: REFERENCE PERIODS (2-WEEK PERIOD, 12-MONTH DATE, 13-MONTH HOSPITAL DATE) and ASK CONDITION LISTS 1,2, and 3.

F. 2-WEEK DOCTOR VISITS PAGE

DR VISIT 1 PERSON NUMBER

1a. On what (other) date(s) during those 2 weeks did -- see or talk to a medical doctor, nurse, or doctor's assistant?
b. On what (other) date(s) during those 2 weeks did anyone see or talk to a medical doctor, nurse, or doctor's assistant about --?
c. Were there any other visits or calls for -- during that period?
d. Where did -- receive health care on (date in 1) -- at a GHA medical center or somewhere else, or was this a telephone call?
e. Which GHA medical center was that?
f. Where was that?
g. What kind of place is that -- a doctor's office, clinic, hospital, or some other kind of place?

Form for DR VISIT 1: 1a. and b. Month, Date, 7777, 8888, Last week, Week before. c. 1 Yes, 2 No. d. 1 GHA Med. Center, 2 Somewhere else, 3 Phone call to GHA, 4 Phone call somewhere else.

3a. Did -- actually talk to a medical doctor?
b. Did anyone actually talk to a medical doctor about --?
c. What type of medical person or assistant was talked to?
d. What was the doctor's name?
e. Is that doctor a general practitioner or a specialist?
f. What kind of specialist?

Form for DR VISIT 1: 3a. and b. 1 Yes, 2 No, 8 DK if M.D., 9 DK who was seen. c. (4) 99 DK. d. 99 DK. e. 1 GP, 2 Specialist, 9 DK.

4a. For what condition did -- see or talk to the (doctor/entry in 3c) on (date in 1)?
b. For what condition did anyone see or talk to the (doctor/entry in 3c) about -- on (date in 1)?
c. Was a condition found as a result of the (test(s)/examination)?
d. Was this (test/examination) because of a specific condition -- had?
e. During the past 2 weeks was -- sick because of her pregnancy?
f. What was the matter?
g. During this (visit/call) was the (doctor/entry in 3c) talked to about any (other) condition?
h. What was the condition?

Form for DR VISIT 1: 4a. and b. 1 Condition, 2 Pregnancy, 3 Test(s) or examination, 8 Other. c. Yes, No. d. Yes, No. e. Yes, No. f. (item C2, THEN 4g). g. Yes, No. h. Pregnancy.

5a. Did -- have any kind of surgery or operation during this visit, including bone settings and stitches?
b. What was the name of the surgery or operation?
c. Was there any other surgery or operation during this visit?
6. In what city (town), county, and State is the (place in 2) located?

Form for DR VISIT 1: 5a. 0 Telephone, 1 Yes, 2 No. b. (1), (2). c. Yes, No. 6. City, County, State, ZIP Code.



**A. HOUSEHOLD COMPOSITION PAGE**

**1**

**1a.** What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.

**b.** What are the names of all other persons living or staying here? Enter names in columns.

**c.** I have listed (read names). Have I missed:  
 - any babies or small children? .....  
 - any lodgers, boarders, or persons you employ who live here? .....  
 - anyone who USUALLY lives here but is now away from home traveling or in a hospital? .....  
 - anyone else staying here? .....

**d.** Do all of the persons you have named usually live here?  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

Probe if necessary:  
 Does — usually live somewhere else?

Ask for all persons beginning with column 2:

If "Yes," enter names in columns

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

**1.** First name Mid. Init. Age  
 Last name Sex  
 M  
 F

**2.** Relationship REFERENCE PERSON

**3.** Date of birth Month Date Year

**C1** HOSP. WORK RD 2-WK. DV  
 None  Wa  Yes  None  
 Number 2  Wb 2  No Number

**C2** LA TRA IDV TINJ TOLLTRI HSTCOND.

**2.** What is — relationship to (reference person)?

**3.** What is — date of birth? (Enter date and age and mark sex.)

REFERENCE PERIODS	
<b>A1</b>	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE
<b>A2</b>	ASK CONDITION LISTS 1, 2, and 3.

**G. HEALTH INDICATOR PAGE**

**1a.** During the 2-week period outlined in red on that calendar, has anyone in the family had an injury from an accident or other cause that you have not yet told me about?  
 Yes  No (2)

**b.** Who was this? Mark "Injury" box in person's column.

**c.** What was — injury?  
 Enter injury(ies) in person's column.

**d.** Did anyone have any other injuries during that period?  
 Yes (Reask 1b, c, and d)  No

Ask for each injury in 1c:

**e.** As a result of the (injury in 1c) did [—/anyone] see or talk to a medical doctor or assistant (about —) or did — cut down on — usual activities for more than half of a day?

**1b.**  Injury

**c.** Injury

**e.**  Yes (Enter injury in C2, THEN 1e for next injury)  
 No (1e for next injury)

**2.** During the past 12 months, (that is, since (12-month date) a year ago) ABOUT how many days did illness or injury keep — in bed more than half of the day? (Include days while an overnight patient in a hospital.)

**3a.** During the past 12 months, ABOUT how many times did [—/anyone] see or talk to a medical doctor or assistant (about —)? (Do not count doctors seen while an overnight patient in a hospital.) (Include the (number in 2-WK DV box) visit(s) you already told me about.)

**b.** About how long has it been since [—/anyone] last saw or talked to a medical doctor or assistant (about —)? Include doctors seen while a patient in a hospital.

**2.** 000  None  
 No. of days

**3a.** 000  None (3b)  
 000  Only when overnight patient in hospital } (NP)  
 No. of visits

**b.** 1  Interview week (Reask 3b)  
 2  Less than 1 yr. (Reask 3a)  
 3  1 yr., less than 2 yrs.  
 4  2 yrs., less than 5 yrs.  
 5  5 yrs. or more  
 0  Never

**4.** Would you say — health in general is excellent, very good, good, fair, or poor?

Mark box if under 18.

**5a.** About how tall is — without shoes?

**b.** About how much does — weigh without shoes?

**4.** 1  Excellent 4  Fair  
 2  Very good 5  Poor  
 3  Good

**5a.**  Under 18 (NP)  
 Feet Inches

**b.** Pounds

FOOTNOTES

**A. HOUSEHOLD COMPOSITION PAGE**

**1**

**1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.**

**b. What are the names of all other persons living or staying here? Enter names in columns.**

**c. I have listed (read names). Have I missed:**

- any babies or small children? .....
- any lodgers, boarders, or persons you employ who live here? .....
- anyone who USUALLY lives here but is now away from home traveling or in a hospital? .....
- anyone else staying here? .....

**d. Do all of the persons you have named usually live here?**  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

*Probe if necessary:*

**Does --- usually live somewhere else?**

*If "Yes," enter names in columns*

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1. First name	Mid. init.	Age
Last name		Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F
2. Relationship <b>REFERENCE PERSON</b>		
3. Date of birth Month   Date   Year		
HOSP.	WORK	RD
oo <input type="checkbox"/> None	1 <input type="checkbox"/> Wa	1 <input type="checkbox"/> Yes
Number	2 <input type="checkbox"/> Wb	2 <input type="checkbox"/> No
2-WK. DV oo <input type="checkbox"/> None		
Number		
<b>C1</b>		
LA	TRA	DV
TINJ	CLL	TRI
HS	COND.	
<b>C2</b>		
LA	TRA	DV
TINJ	CLL	TRI
HS	COND.	
<b>C3</b>		
LA	TRA	DV
TINJ	CLL	TRI
HS	COND.	
<b>C4</b>		
LA	TRA	DV
TINJ	CLL	TRI
HS	COND.	

Ask for all persons beginning with column 2:

**2. What is --- relationship to (reference person)?**

**3. What is --- date of birth? (Enter date and age and mark sex.)**

<b>REFERENCE PERIODS</b>	
<b>A1</b>	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE
<b>A2</b>	ASK CONDITION LISTS 1,2, and 3.

**H. CONDITION LISTS**

*Read to respondent:*

**Now I am going to read you several lists of medical conditions. Tell me if anyone in the family has each condition I read, even if you have mentioned it before.**

**1**

**1a. Does anyone in the family (read names) NOW HAVE --** *If "Yes," ask 1b and 1c.*

**b. Who is this?**

**c. Does anyone else NOW have --**  
*Enter condition and letter in appropriate person's column.*

<b>A. PERMANENT stiffness or any deformity of the foot, leg, or back?</b>	<b>E. Any other trouble hearing with one or both ears?</b>
<b>B. PERMANENT stiffness or any deformity of the fingers, hand, or arm?</b>	<b>F. Tinnitus or ringing in the ears?</b>
<b>C. Any condition caused by an accident or injury which happened more than three months ago?</b>	<b>G. Blindness in one or both eyes?</b>
<b>D. Deafness in one or both ears?</b>	<b>H. Cataracts?</b>
	<b>I. Any other trouble seeing with one or both eyes EVEN when wearing glasses?</b>

**3**

**3a. DURING THE PAST 12 MONTHS, did anyone in the family have --** *If "Yes," ask 3b and 3c.*

**b. Who was this?**

**c. DURING THE PAST 12 MONTHS, did anyone else have --**  
*Enter condition and letter in appropriate person's column.*

<b>A. Damaged heart valves?</b>	<b>I. FREQUENT constipation?</b>
<b>B. Tachycardia or rapid heart?</b>	<b>J. Diabetes?</b>
<b>C. A heart murmur?</b>	<b>K. Migraine?</b>
<b>D. Any other heart trouble?</b>	<b>L. Bronchitis?</b>
<b>E. Varicose veins?</b>	<b>M. Asthma?</b>
<b>F. Hemorrhoids or piles?</b>	<b>N. Hay fever?</b>
<b>G. Arthritis or any kind of rheumatism?</b>	<b>O. Sinus trouble?</b>
<b>H. Dermatitis or any other skin trouble?</b>	

**2**

**2a. Has anyone in the family EVER HAD --** *If "Yes," ask 2b and 2c.*

**b. Who was this?**

**c. Has anyone else EVER had --**  
*Enter condition and letter in appropriate person's column.*

<b>A. Hardening of the arteries or arteriosclerosis?</b>	<b>D. Hypertension, sometimes called high blood pressure?</b>
<b>B. Congenital heart disease?</b>	<b>E. Angina pectoris?</b>
<b>C. Coronary heart disease?</b>	<b>F. A myocardial infarction?</b>
	<b>G. Any other heart attack?</b>

FOOTNOTES

A. HOUSEHOLD COMPOSITION PAGE

1

1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.

b. What are the names of all other persons living or staying here? Enter names in columns.

c. I have listed (read names). Have I missed:  
 - any babies or small children?  
 - any lodgers, boarders, or persons you employ who live here?  
 - anyone who USUALLY lives here but is now away from home traveling or in a hospital?  
 - anyone else staying here?

d. Do all of the persons you have named usually live here?  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

Probe if necessary:  
 Does -- usually live somewhere else?

If "Yes," enter names in columns

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1. First name Mid init. Age  
 Last name Sex  
 1  M  
 2  F

2. Relationship REFERENCE PERSON

3. Date of birth Month Date Year

C1  
 HOSP WORK RD 2-WK. DV  
 00  None 1  Wa 1  Yes 00  None  
 Number 2  Wb 2  No Number

C2  
 LA IRA DV TINJ TOLLTRI HSTCOND.  
 LA IRA DV TINJ TOLLTRI HSTCOND.  
 LA IRA DV TINJ TOLLTRI HSTCOND.  
 LA IRA DV TINJ TOLLTRI HSTCOND.  
 LA IRA DV TINJ TOLLTRI HSTCOND.

Ask for all persons beginning with column 2:

2. What is -- relationship to (reference person)?

3. What is -- date of birth? (Enter date and age and mark sex.)

REFERENCE PERIODS	
A1	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE
A2	ASK CONDITION LISTS 1,2, and 3.

J. HOSPITAL PAGE

HOSPITAL STAY 1

1. Refer to C1, "HOSP." box.

2. You said earlier that -- was a patient in the hospital since (1,3-month hospital date) a year ago. On what date did -- enter the hospital ([the last time/the time before that])? Record each entry date in a separate Hospital Stay column.

3. How many nights was -- in the hospital?

4. For what condition did -- enter the hospital?  
 • For delivery ask: Was this a normal delivery? If "No," ask: What was the matter?  
 • For newborn ask: Was the baby normal at birth? If "No," ask: What was the matter?  
 • For initial "No condition" ask: Why did -- enter the hospital?  
 • For tests, ask: What were the results of the tests? If no results, ask: Why were the tests performed?

1. PERSON NUMBER

2. Month Date Year  
 19 \_\_

3. 0000  None (Next HS)  
 \_\_\_\_\_ Nights

4. 1  Normal delivery } (5)  
 2  Normal at birth }  
 3  No condition }  
 Condition z

J1 Refer to questions 2, 3, and 2-week reference period.

J1  
 At least one night in 2-week reference period (Enter condition in C2, THEN 5)  
 No nights in 2-week reference period (5)

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

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

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

5a. 1  Yes 2  No (6)

b. (1) \_\_\_\_\_  
 (2) \_\_\_\_\_  
 (3) \_\_\_\_\_

c.  Yes (Reask 5b and c)  No

6. What is the name and address of this hospital?

6. Name  
 Number and street  
 City or County State

FOOTNOTES

A. HOUSEHOLD COMPOSITION PAGE

1

1 a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.
b. What are the names of all other persons living or staying here? Enter names in columns.
c. I have listed (read names). Have I missed:
- any babies or small children?
- any lodgers, boarders, or persons you employ who live here?
- anyone who USUALLY lives here but is now away from home traveling or in a hospital?
- anyone else staying here?
d. Do all of the persons you have named usually live here?
Yes (2)
No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

2. What is -- relationship to (reference person)?
3. What is -- date of birth? (Enter date and age and mark sex.)

REFERENCE PERIODS
A1 2-WEEK PERIOD
12-MONTH DATE
13-MONTH HOSPITAL DATE
A2 ASK CONDITION LISTS 1,2, and 3.

1. First name Mid. init. Age
Last name Sex
2. Relationship REFERENCE PERSON
3. Date of birth Month Date Year
C1 HOSP. WORK RD 2-WK. DV
C2 LA TRA DV TINJ. TOLLTR HSTCOND.

CONDITION 1 PERSON NO.
1. Name of condition
2. When did [---/anyone] last see or talk to a doctor or assistant about --- (condition)?
3a. (Earlier you told me about --- (condition) Did the doctor or assistant call the (condition) by a more technical or specific name?
b. What did he or she call it? (Specify)
c. What was the cause of --- (condition in 3b)? (Specify)
d. Did the (condition in 3b) result from an accident or injury?
e. What kind of (condition in 3b) is it? (Specify)
f. How does the [allergy/stroke] NOW affect ---? (Specify)

Ask 3g if there is an impairment (refer to Card CP2) or any of the following entries in 3b-f:
Abscess Damage Paley
Ache (except head or ear) Growth Paralysis
Bleeding (except menstrual) Hemorrhage Rupture
Blood clot Infaction Sore(ness)
Boil Inflammation Stiff(ness)
Cancer Neuralgia Tumor
Cramps (except menstrual) Neuritis Ulcer
Cyst Pain Varicose veins Weak(ness)
g. What part of the body is affected? (Specify)
Show the following detail:
Head... skull, scalp, face
Back/spine/vertebrae... upper, middle, lower
Side... left or right
Ear... inner or outer; left, right, or both
Eye... left, right, or both
Arm... shoulder, upper, elbow, lower or wrist; left, right, or both
Hand... entire hand or fingers only; left, right, or both
Leg... hip, upper, knee, lower, or ankle; left, right, or both
Foot... entire foot, arch, or toes only; left, right, or both
h. What part of the (part of body in 3b-g) is affected by the [infection/sore/soreness] - the skin, muscle, bone, or some other part?
i. Is this [tumor/cyst/growth] malignant or benign?
5 a. When was --- (condition in 3b/3f) first noticed?
b. When did --- (name of injury in 3b)?

Old age	Old age	Old age	Old age								
<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>								
1. First name Mid. init. Age Last name Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F	1. First name Mid. init. Age Last name Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F	1. First name Mid. init. Age Last name Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F	1. First name Mid. init. Age Last name Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F								
2. Relationship	2. Relationship	2. Relationship	2. Relationship								
3. Date of birth Month Date Year	3. Date of birth Month Date Year	3. Date of birth Month Date Year	3. Date of birth Month Date Year								
C1 HOSP. WORK RD 2-WK. DV 00 <input type="checkbox"/> None 1 <input type="checkbox"/> Wa 1 <input type="checkbox"/> Yes 00 <input type="checkbox"/> None Number 2 <input type="checkbox"/> Wb 2 <input type="checkbox"/> No Number	C1 HOSP. WORK RD 2-WK. DV 00 <input type="checkbox"/> None 1 <input type="checkbox"/> Wa 1 <input type="checkbox"/> Yes 00 <input type="checkbox"/> None Number 2 <input type="checkbox"/> Wb 2 <input type="checkbox"/> No Number	C1 HOSP. WORK RD 2-WK. DV 00 <input type="checkbox"/> None 1 <input type="checkbox"/> Wa 1 <input type="checkbox"/> Yes 00 <input type="checkbox"/> None Number 2 <input type="checkbox"/> Wb 2 <input type="checkbox"/> No Number	C1 HOSP. WORK RD 2-WK. DV 00 <input type="checkbox"/> None 1 <input type="checkbox"/> Wa 1 <input type="checkbox"/> Yes 00 <input type="checkbox"/> None Number 2 <input type="checkbox"/> Wb 2 <input type="checkbox"/> No Number								
C2 LA TRA DV INJ. CLTRHS COND.	C2 LA TRA DV INJ. CLTRHS COND.	C2 LA TRA DV INJ. CLTRHS COND.	C2 LA TRA DV INJ. CLTRHS COND.								
<b>K1</b> Refer to RD and C2. 1 <input type="checkbox"/> "Yes" in "RD" box AND more than 1 condition in C2 (6) 2 <input type="checkbox"/> Other (K2)		<b>13. Is this (condition in 3b) the result of the same accident you already told me about?</b> <input type="checkbox"/> Yes (Record condition page number where accident questions first completed.) → Page No. _____ (INC) <input type="checkbox"/> No									
<b>6a. During the 2 weeks outlined in red on that calendar, did --- (condition) cause --- to cut down on the things --- usually does?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No (K2)		<b>14. Where did the accident happen?</b> <input type="checkbox"/> 1 At home (inside house) <input type="checkbox"/> 2 At home (adjacent premises) <input type="checkbox"/> 3 Street and highway (includes roadway and public sidewalk) <input type="checkbox"/> 4 Farm <input type="checkbox"/> 5 Industrial place (includes premises) <input type="checkbox"/> 6 School (includes premises) <input type="checkbox"/> 7 Place of recreation and sports, except at school <input type="checkbox"/> 8 Other (Specify) _____									
<b>b. During that period, how many days did --- cut down for more than half of the day?</b> 00 <input type="checkbox"/> None (K2) _____ Days		<b>15a. Was --- under 18 when the accident happened?</b> <input type="checkbox"/> 1 Yes (16) <input type="checkbox"/> No <b>b. Was --- in the Armed Forces when the accident happened?</b> <input type="checkbox"/> 2 Yes (16) <input type="checkbox"/> No <b>c. Was --- at work at --- job or business when the accident happened?</b> <input type="checkbox"/> 3 Yes <input type="checkbox"/> 4 No									
<b>7. During those 2 weeks, how many days did --- stay in bed for more than half of the day because of this condition?</b> 00 <input type="checkbox"/> None _____ Days		<b>16a. Was a car, truck, bus, or other motor vehicle involved in the accident in any way?</b> <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No (17)									
<b>8. During those 2 weeks, how many days did --- miss more than half of the day from --- job or business because of this condition?</b> 00 <input type="checkbox"/> None _____ Days		<b>b. Was more than one vehicle involved?</b> <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <b>c. Was [it/either one] moving at the time?</b> <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No									
<b>9. During those 2 weeks, how many days did --- miss more than half of the day from school because of this condition?</b> 00 <input type="checkbox"/> None _____ Days		<b>17a. At the time of the accident what part of the body was hurt? What kind of injury was it?</b> Anything else? <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Part(s) of body *</th> <th style="width:50%;">Kind of injury</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		Part(s) of body *	Kind of injury						
Part(s) of body *	Kind of injury										
<b>K2</b> <input type="checkbox"/> Condition has "CL LTR" in C2 as source (10) <input type="checkbox"/> Condition does not have "CL LTR" in C2 as source (K4)		<b>b. What part of the body is affected now? How is --- (part of body) affected? Is --- affected in any other way?</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Part(s) of body *</th> <th style="width:50%;">Present effects **</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		Part(s) of body *	Present effects **						
Part(s) of body *	Present effects **										
<b>10. About how many days since (12-month date) a year ago, has this condition kept --- in bed more than half of the day? (Include days while an overnight patient in a hospital.)</b> 000 <input type="checkbox"/> None _____ Days		<b>* Enter part of body in same detail as for 3g.          ** If multiple present effects, enter in C2 each one that is not the same as 3b or C2 and complete a separate condition page for it.</b>									
<b>11. Was --- ever hospitalized for --- (condition in 3b)?</b> <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No		<b>12a. Does --- still have this condition?</b> <input type="checkbox"/> 1 Yes (K4) <input type="checkbox"/> No <b>b. Is this condition completely cured or is it under control?</b> <input type="checkbox"/> 2 Cured <input type="checkbox"/> 3 Other (Specify) _____ (K4) <input type="checkbox"/> 3 Under control (K4)									
<b>K3</b> <input type="checkbox"/> Missing extremity or organ (K4) <input type="checkbox"/> Other (12)		<b>c. About how long did --- have this condition before it was cured?</b> 000 <input type="checkbox"/> Less than 1 month OR Number { 1 <input type="checkbox"/> Months 2 <input type="checkbox"/> Years <b>d. Was this condition present at any time during the past 12 months?</b> <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No									
<b>K4</b> <input type="checkbox"/> Not an accident/injury (NC) <input type="checkbox"/> 1 First accident/injury for this person (14) <input type="checkbox"/> 2 Other (13)											

**A. HOUSEHOLD COMPOSITION PAGE**

1

**1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.**

**b. What are the names of all other persons living or staying here? Enter names in columns.**

**c. I have listed (read names). Have I missed:**

- any babies or small children? .....
- any lodgers, boarders, or persons you employ who live here? .....
- anyone who USUALLY lives here but is now away from home traveling or in a hospital? .....
- anyone else staying here? .....

**d. Do all of the persons you have named usually live here?**  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

*Probe if necessary:*  
Does -- usually live somewhere else?

If "Yes," enter names in columns	
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1.	First name	Mid. init.	Age
	Last name		Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F
2.	Relationship		
3.	REFERENCE PERSON		
	Date of birth	Month	Date Year
C1	HOSP.	WORK	RD
	00 <input type="checkbox"/> None	1 <input type="checkbox"/> Wa	1 <input type="checkbox"/> Yes
	2 <input type="checkbox"/> Wb	2 <input type="checkbox"/> No	00 <input type="checkbox"/> None
	Number	Number	Number
C2	LA	TRA	1 DV
			TINJ. TOLLTR
			HSTCOND.

**2. What is -- relationship to (reference person)?**

**3. What is -- date of birth? (Enter date and age and mark sex.)**

REFERENCE PERIODS	
A1	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE
A2	ASK CONDITION LISTS 1,2, and 3.

**L. DEMOGRAPHIC BACKGROUND PAGE**

**L1** Refer to age.

**L1**

Under 5 (NP)  
 5-17 (2)  
 18 and over (1)

**1a. Did -- EVER serve on active duty in the Armed Forces of the United States?**

**b. When did -- serve?**

*Mark box in descending order of priority. Thus, if person served in Vietnam and in Korea mark VN.*

Vietnam Era (Aug. '64 to April '75) .....	VN
Korean War (June '50 to Jan. '55) .....	KW
World War II (Sept. '40 to July '47) .....	WWII
World War I (April '17 to Nov. '18) .....	WWI
Post Vietnam (May '75 to present) .....	PVN
Other Service (all other periods) .....	OS

**c. Was -- EVER an active member of a National Guard or military reserve unit?**

**d. Was ALL of -- active duty service related to National Guard or military reserve training?**

**1a.** 1  Yes  
2  No (2)

**b.** 1  VN 5  PVN  
2  KW 6  OS  
3  WWII 7  DK  
4  WWI

**c.**  Yes 2  No (2) 7  DK (2)

**d.** 1  Yes 3  No 9  DK

**2a. What is the highest grade or year of regular school -- has ever attended?**

**b. Did -- finish the (number in 2a) (grade/year)?**

**2a.** 00  Never attended or kindergarten (NP)

Elem: 1 2 3 4 5 6 7 8  
 High: 9 10 11 12  
 College: 1 2 3 4 5 6 +

**b.** 1  Yes 2  No

*Hand Card R. Ask first alternative for first person; ask second alternative for other persons.*

**3a. What is the number of the group or groups which represents -- race? (What is -- race?)**

*Circle all that apply*

1 - Aleut, Eskimo, or American Indian	4 - White
2 - Asian or Pacific Islander	5 - Another group not listed - Specify
3 - Black	

*Ask if multiple entries:*

**b. Which of those groups; that is, (entries in 3a) would you say BEST represents -- race?**

**c. Mark observed race of respondent(s) only.**

**3a.** 1 2 3 4 5   

(Specify)

**b.** 1 2 3 4 5   

(Specify)

**c.** 1  W 2  B 3  O

*Hand Card O.*

**4a. Are any of those groups -- national origin or ancestry? (Where did -- ancestors come from?)**

**b. Please give me the number of the group. Circle all that apply.**

1 - Puerto Rican	5 - Chicano
2 - Cuban	6 - Other Latin American
3 - Mexican/Mexicano	7 - Other Spanish
4 - Mexican American	

**4a.** 1  Yes  
2  No (NP)

**b.** 1 2 3 4 5 6 7

**A. HOUSEHOLD COMPOSITION PAGE**

**1**

**1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.**

**b. What are the names of all other persons living or staying here? Enter names in columns.**

**c. I have listed (read names). Have I missed:**

- any babies or small children? .....
- any lodgers, boarders, or persons you employ who live here? .....
- anyone who USUALLY lives here but is now away from home traveling or in a hospital? .....
- anyone else staying here? .....

**d. Do all of the persons you have named usually live here?**  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

*Probe if necessary:*

**Does -- usually live somewhere else?**

*Ask for all persons beginning with column 2:*

*If "Yes," enter names in columns*

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

<b>1.</b>	First name	Mid. init.	Age
	Last name		Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F
<b>2.</b>	Relationship <b>REFERENCE PERSON</b>		
<b>3.</b>	Date of birth Month	Date	Year
<b>C1</b>	HOSP.	WORK	RD
	00 <input type="checkbox"/> None Number	1 <input type="checkbox"/> Wa 2 <input type="checkbox"/> Wb	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No Number
<b>C2</b>	LA	TRA	DV
	TINJ.	TCLL	TR
	HST	COND.	
	LA	TRA	DV
	TINJ.	TCLL	TR

**2. What is -- relationship to (reference person)?**

**3. What is -- date of birth? (Enter date and age and mark sex.)**

REFERENCE PERIODS	
<b>A1</b>	2-WEEK PERIOD
	12-MONTH DATE
	13-MONTH HOSPITAL DATE

**A2 ASK CONDITION LISTS 1,2, and 3.**

**L. DEMOGRAPHIC BACKGROUND PAGE, Continued**

**L2** Refer to "Age" and "Wa/Wb" boxes in C1.

**L2**

0  Under 18 (NP)  
 1  Wa box marked (6a)  
 2  Wb box marked (6a)  
 3  Neither box marked (6b)

**5a. Earlier you said that -- has a job or business but did not work last week or the week before. Was -- looking for work or on layoff from a job during those 2 weeks?**

**b. Earlier you said that -- didn't have a job or business last week or the week before. Was -- looking for work or on layoff from a job during those 2 weeks?**

**c. Which, looking for work or on layoff from a job?**

**5a.** 1  Yes (6c) 2  No (6b)

**b.** 1  Yes 2  No (NP)

**c.** 1  Looking (6c) 3  Both (6b)  
 2  Layoff (6b)

**6a. Earlier you said that -- worked last week or the week before. Ask 6b.**

**b. For whom did -- work? Enter name of company, business, organization, or other employer.**

**c. For whom did -- work at -- last full-time job or business lasting 2 consecutive weeks or more? Enter name of company, business, organization, or other employer, or mark "NEV" or "AF" box in person's column.**

**6b. and c.** Employer  NEV (6g)  AF (6e)

**d. What kind of business or industry is this? For example, TV and radio manufacturing, retail shoe store, State Labor Department, farm.**

**d.** Industry

*If "AF" in 6b/c, mark "AF" box in person's column without asking.*

**e. What kind of work was -- doing? For example, electrical engineer, stock clerk, typist, farmer.**

**e.** Occupation  AF (NP)

**f. What were -- most important activities or duties at that job? For example, types, keeps account books, files, sells cars, operates printing press, finishes concrete.**

**f.** Duties

*Complete from entries in 6b-f. If not clear, ask:*

**g. Was --**

An employee of a PRIVATE company, business or individual for wages, salary, or commission ..... P  
 A FEDERAL government employee? ..... F  
 A STATE government employee? ..... S  
 A LOCAL government employee? ..... L

Self-employed in OWN business, professional practice, or farm?  
 Ask: Is the business incorporated?  
 Yes ..... I  
 No ..... SE

Working WITHOUT PAY in family business or farm? ..... WP  
 -- NEVER WORKED or never worked at a full-time job lasting 2 weeks or more ..... NEV

**g.** Class of worker

1  P 5  I  
 2  F 6  SE  
 3  S 7  WP  
 4  L 8  NEV

FOOTNOTES

**A. HOUSEHOLD COMPOSITION PAGE**

**1**

**1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.**

**b. What are the names of all other persons living or staying here? Enter names in columns.**

**c. I have listed (read names). Have I missed:**

- any babies or small children? .....
- any lodgers, boarders, or persons you employ who live here? .....
- anyone who USUALLY lives here but is now away from home traveling or in a hospital? .....
- anyone else staying here? .....

**d. Do all of the persons you have named usually live here?**  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1—C2 and enter reason.)

*Probe if necessary:*  
Does — usually live somewhere else?

*If "Yes," enter names in columns*

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1. First name	Mid. init.	Age					
Last name		Sex 1 <input type="checkbox"/> M 2 <input type="checkbox"/> F					
2. Relationship <b>REFERENCE PERSON</b>							
3. Date of birth Month   Date   Year							
<b>C1</b>	HOSP.	WORK	RD	2-WK. DV			
	00 <input type="checkbox"/> None Number	1 <input type="checkbox"/> Wa 2 <input type="checkbox"/> Wb	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	00 <input type="checkbox"/> None Number			
<b>C2</b>	LA	TRA	DV	TINJ	TCLL	TRH	HSTCOND

Ask for all persons beginning with column 2:

**2. What is — relationship to (reference person)?**

**3. What is — date of birth? (Enter date and age and mark sex.)**

<b>A1</b>	<b>REFERENCE PERIODS</b>	
	2-WEEK PERIOD	
	12-MONTH DATE	
	13-MONTH HOSPITAL DATE	
<b>A2</b>	ASK CONDITION LISTS 1, 2, and 3.	

**L. DEMOGRAPHIC BACKGROUND PAGE, Continued**

*Mark box if under 14. If "Married" refer to household composition and mark accordingly.*

**7. Is — now married, widowed, divorced, separated, or has — never been married?**

**7.**

0  Under 14  
 1  Married — spouse in HH  
 2  Married — spouse not in HH  
 3  Widowed  
 4  Divorced  
 5  Separated  
 6  Never married

**8a. Was the total combined FAMILY income during the past 12 months — that is, yours, (read names, including Armed Forces members living at home) more or less than \$20,000? Include money from jobs, social security, retirement income, unemployment payments, public assistance, and so forth. Also include income from interest, dividends, net income from business, farm, or rent, and any other money income received.**

*Read if necessary: Income is important in analyzing the health information we collect. For example, this information helps us to learn whether persons in one income group use certain types of medical care services or have certain conditions more or less often than those in another group.*

*Read parenthetical phrase if Armed Forces member living at home or if necessary.*

**b. Of those income groups, which letter best represents the total combined FAMILY income during the past 12 months (that is, yours, (read names, including Armed Forces members living at home)? Include wages, salaries, and other items we just talked about.**

*Read if necessary: Income is important in analyzing the health information we collect. For example, this information helps us to learn whether persons in one income group use certain types of medical care services or have certain conditions more or less often than those in another group.*

**8a.**

1  \$20,000 or more (Hand Card I)  
 2  Less than \$20,000 (Hand Card J)

**b.**

00 <input type="checkbox"/> A	10 <input type="checkbox"/> K	20 <input type="checkbox"/> U
01 <input type="checkbox"/> B	11 <input type="checkbox"/> L	21 <input type="checkbox"/> V
02 <input type="checkbox"/> C	12 <input type="checkbox"/> M	22 <input type="checkbox"/> W
03 <input type="checkbox"/> D	13 <input type="checkbox"/> N	23 <input type="checkbox"/> X
04 <input type="checkbox"/> E	14 <input type="checkbox"/> O	24 <input type="checkbox"/> Y
05 <input type="checkbox"/> F	15 <input type="checkbox"/> P	25 <input type="checkbox"/> Z
06 <input type="checkbox"/> G	16 <input type="checkbox"/> Q	26 <input type="checkbox"/> ZZ
07 <input type="checkbox"/> H	17 <input type="checkbox"/> R	
08 <input type="checkbox"/> I	18 <input type="checkbox"/> S	
09 <input type="checkbox"/> J	19 <input type="checkbox"/> T	

**R**

**a. Mark first appropriate box.**

-----

**b. Enter person number of respondent.**

**Ra.**

0  Under 17  
 1  Present for all questions  
 2  Present for some questions  
 3  Not present

**b.**

Person number(s) of respondent(s)

**L3** Enter person number of first parent listed or mark box.

**L3**

Person number of parent

00  None in household

**L4** Enter person number of spouse or mark box.

**L4**

Person number of spouse

00  None in household

**GHA**

**a. Is — currently a member of GHA?**

-----

**b. At any time since October 1988, has — been a member of GHA?**

**a.**

1  Yes (NP)      2  No (b)

**b.**

1  Yes      2  No



A. HOUSEHOLD COMPOSITION PAGE

1

1a. What are the names of all persons living or staying here? Start with the name of the person or one of the persons who owns or rents this home. Enter name in REFERENCE PERSON column.

b. What are the names of all other persons living or staying here? Enter names in columns.

c. I have listed (read names). Have I missed:  
 - any babies or small children?  
 - any lodgers, boarders, or persons you employ who live here?  
 - anyone who USUALLY lives here but is now away from home traveling or in a hospital?  
 - anyone else staying here?

d. Do all of the persons you have named usually live here?  Yes (2)  No (APPLY HOUSEHOLD MEMBERSHIP RULES. Delete nonhousehold members by an "X" from 1-C2 and enter reason.)

Probe if necessary:  
 Does -- usually live somewhere else?

Ask for all persons beginning with column 2:

If "Yes," enter names in columns

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

1. First name Mid. init. Age  
 Last name Sex  
 1  M  
 2  F

2. Relationship REFERENCE PERSON

3. Date of birth Month Date Year

C1 HOSP. WORK RD 2-WK. DV  
 00  None 1  We 1  Yes 00  None  
 Number 2  Wb 2  No Number

C2  
 LA IRA DV INJ. CLTR HSCOND.  
 LA IRA DV INJ. CLTR HSCOND.  
 LA IRA DV INJ. CLTR HSCOND.  
 LA IRA DV INJ. CLTR HSCOND.  
 LA IRA DV INJ. CLTR HSCOND.

2. What is -- relationship to (reference person)?

3. What is -- date of birth? (Enter date and age and mark sex.)

REFERENCE PERIODS

A1 2-WEEK PERIOD  
 12-MONTH DATE  
 13-MONTH HOSPITAL DATE

A2 ASK CONDITION LISTS 1, 2, and 3.

L. DEMOGRAPHIC BACKGROUND PAGE, Continued

L5 Refer to age. Complete a separate column for each nondeleted person aged 18 and over. PERSON NUMBER RT81 3-4

Read to respondent(s): In order to determine how health practices and conditions are related to how long people live, we would like to refer to statistical records maintained by the National Center for Health Statistics.

L6 Enter date of birth from question 3 on Household Composition page. Date of birth 5-11  
 Month Date Year

9a. In what State or country was -- born? 9a. 99  DK (NP) 12-13  
 Print the full name of the State or mark the appropriate box if the person was not born in the United States.  
 01  Puerto Rico 05  Cuba  
 02  Virgin Islands 06  Mexico  
 03  Guam 98  All other countries  
 04  Canada 14

If born in U.S., ask 9b; if born in foreign country, ask 9c.

b. Altogether, how many years has -- lived in (State of present residence)? b. 1  Less than 1 yr. 4  10 yrs., less than 15  
 2  1 yr., less than 5 5  15 yrs. or more  
 3  5 yrs., less than 10 9  OK

c. Altogether, how many years has -- lived in the United States? c. 1  Less than 1 yr. 4  10 yrs., less than 15  
 2  1 yr., less than 5 5  15 yrs. or more  
 3  5 yrs., less than 10 8  DK

**SUGGESTED SCRIPT TO INTRODUCE PERMISSION FORMS:** As I mentioned earlier, GHA is working with Westat on this study. As part of the data collection, we would like to obtain some additional information from your medical records at GHA. One of the purposes of this study is to see how certain national health statistics would be different if they were made from medical records rather than from interviewing people in households. To do this, we need your written permission. I remind you that any information that would identify you or members of your family will be destroyed after the data collection.

*Hand permission form to respondent. If additional GHA members in household, fill out permission forms for them, and arrange to have them signed as well.*

			PERSON 1	PERSON 2	PERSON 3		PERSON 4	PERSON 5
<b>PF1</b>	<i>Enter status of permission form for each person</i>	<b>PF1</b>	0 <input type="checkbox"/> Not Required 1 <input type="checkbox"/> Signed 2 <input type="checkbox"/> Not Obtained; Left at Household 3 <input type="checkbox"/> Refused 4 <input type="checkbox"/> Other	0 <input type="checkbox"/> Not Required 1 <input type="checkbox"/> Signed 2 <input type="checkbox"/> Not Obtained; Left at Household 3 <input type="checkbox"/> Refused 4 <input type="checkbox"/> Other	0 <input type="checkbox"/> Not Required 1 <input type="checkbox"/> Signed 2 <input type="checkbox"/> Not Obtained; Left at Household 3 <input type="checkbox"/> Refused 4 <input type="checkbox"/> Other	<b>PF1</b>	0 <input type="checkbox"/> Not Required 1 <input type="checkbox"/> Signed 2 <input type="checkbox"/> Not Obtained; Left at Household 3 <input type="checkbox"/> Refused 4 <input type="checkbox"/> Other	0 <input type="checkbox"/> Not Required 1 <input type="checkbox"/> Signed 2 <input type="checkbox"/> Not Obtained; Left at Household 3 <input type="checkbox"/> Refused 4 <input type="checkbox"/> Other

# Vital and Health Statistics series descriptions

- SERIES 1. Programs and Collection Procedures**—These reports describe the data collection programs of the National Center for Health Statistics. They include descriptions of the methods used to collect and process the data, definitions, and other material necessary for understanding the data.
- SERIES 2. Data Evaluation and Methods Research**—These reports are studies of new statistical methods and include analytical techniques, objective evaluations of reliability of collected data, and contributions to statistical theory. These studies also include experimental tests of new survey methods and comparisons of U.S. methodology with those of other countries.
- SERIES 3. Analytical and Epidemiological Studies**—These reports present analytical or interpretive studies based on vital and health statistics. These reports carry the analyses further than the expository types of reports in the other series.
- SERIES 4. Documents and Committee Reports**—These are final reports of major committees concerned with vital and health statistics and documents such as recommended model vital registration laws and revised birth and death certificates.
- SERIES 5. International Vital and Health Statistics Reports**—These reports are analytical or descriptive reports that compare U.S. vital and health statistics with those of other countries or present other international data of relevance to the health statistics system of the United States.
- SERIES 6. Cognition and Survey Measurement**—These reports are from the National Laboratory for Collaborative Research in Cognition and Survey Measurement. They use methods of cognitive science to design, evaluate, and test survey instruments.
- SERIES 10. Data From the National Health Interview Survey**—These reports contain statistics on illness; unintentional injuries; disability; use of hospital, medical, and other health services; and a wide range of special current health topics covering many aspects of health behaviors, health status, and health care utilization. They are based on data collected in a continuing national household interview survey.
- SERIES 11. Data From the National Health Examination Survey, the National Health and Nutrition Examination Surveys, and the Hispanic Health and Nutrition Examination Survey**—Data from direct examination, testing, and measurement on representative samples of the civilian noninstitutionalized population provide the basis for (1) medically defined total prevalence of specific diseases or conditions in the United States and the distributions of the population with respect to physical, physiological, and psychological characteristics, and (2) analyses of trends and relationships among various measurements and between survey periods.
- SERIES 12. Data From the Institutionalized Population Surveys**—Discontinued in 1975. Reports from these surveys are included in Series 13.
- SERIES 13. Data From the National Health Care Survey**—These reports contain statistics on health resources and the public's use of health care resources including ambulatory, hospital, and long-term care services based on data collected directly from health care providers and provider records.
- SERIES 14. Data on Health Resources: Manpower and Facilities**—Discontinued in 1990. Reports on the numbers, geographic distribution, and characteristics of health resources are now included in Series 13.
- SERIES 15. Data From Special Surveys**—These reports contain statistics on health and health-related topics collected in special surveys that are not part of the continuing data systems of the National Center for Health Statistics.
- SERIES 16. Compilations of Advance Data From Vital and Health Statistics**—Advance Data Reports provide early release of information from the National Center for Health Statistics' health and demographic surveys. They are compiled in the order in which they are published. Some of these releases may be followed by detailed reports in Series 10–13.
- SERIES 20. Data on Mortality**—These reports contain statistics on mortality that are not included in regular, annual, or monthly reports. Special analyses by cause of death, age, other demographic variables, and geographic and trend analyses are included.
- SERIES 21. Data on Natality, Marriage, and Divorce**—These reports contain statistics on natality, marriage, and divorce that are not included in regular, annual, or monthly reports. Special analyses by health and demographic variables and geographic and trend analyses are included.
- SERIES 22. Data From the National Mortality and Natality Surveys**—Discontinued in 1975. Reports from these sample surveys, based on vital records, are now published in Series 20 or 21.
- SERIES 23. Data From the National Survey of Family Growth**—These reports contain statistics on factors that affect birth rates, including contraception, infertility, cohabitation, marriage, divorce, and remarriage; adoption; use of medical care for family planning and infertility; and related maternal and infant health topics. These statistics are based on national surveys of childbearing age.
- SERIES 24. Compilations of Data on Natality, Mortality, Marriage, Divorce, and Induced Terminations of Pregnancy**—These include advance reports of births, deaths, marriages, and divorces based on final data from the National Vital Statistics System that were published as supplements to the *Monthly Vital Statistics Report* (MVSR). These reports provide highlights and summaries of detailed data subsequently published in *Vital Statistics of the United States*. Other supplements to the MVSR published here provide selected findings based on final data from the National Vital Statistics System and may be followed by detailed reports in Series 20 or 21.

For answers to questions about this report or for a list of reports published in these series, contact:

Data Dissemination Branch  
National Center for Health Statistics  
Centers for Disease Control and Prevention  
Public Health Service  
6525 Belcrest Road, Room 1064  
Hyattsville, MD 20782  
(301) 436-8500  
E-mail: [nchsquery@nch10a.em.cdc.gov](mailto:nchsquery@nch10a.em.cdc.gov)  
Internet: <http://www.cdc.gov/nchswwww/nchshome.htm>

DEPARTMENT OF  
HEALTH AND HUMAN SERVICES

Public Health Service  
Centers for Disease Control and Prevention  
National Center for Health Statistics  
6525 Belcrest Road  
Hyattsville, Maryland 20782

---

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

BULK RATE  
POSTAGE & FEES PAID  
PHS/NCHS  
PERMIT NO. G-281