

RE-EVALUATION OF THE HEALTH INTERVIEW SURVEY

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Introduction

Since the beginning of the national Health Interview Survey (HIS) in July of 1957, there has been a continuing effort to evaluate the survey design and procedures. Numerous research activities have been carried out on many aspects of the survey over the past 21 years for the purpose of improving our measurement techniques. These endeavors have included the study of the effect of different respondent rules, determining the reliability and validity of various measures such as chronic condition and hospital stay reporting, and the effects of respondent and interviewer behavior on the data collected. In accordance with the long-range plan for the survey set up in its beginning years, a major overall evaluation was conducted after the first ten years of the survey. This resulted in a major revision of the survey which was implemented in July of 1967.

Once again we have embarked on an overall evaluation of the survey which will culminate in another major revision of the survey. This revision is currently scheduled for 1980. There are two major components of the overall evaluation. The first is the formation of a Technical Consultant Panel (TCP) to the survey to assess the survey and the second is a field experiment designed to test a new questionnaire and new interviewer procedures. The purpose of this paper is to describe the objectives and scopes of these two evaluation efforts.

Background

The National Health Survey Act of 1956 called for a continuing survey and special studies to obtain accurate and current statistical information on the amount, distribution, and effects of illnesses and disability in the United States and the services rendered for or because of such conditions. The HIS was the first of a series of data collection systems designed to implement this legislation. The purpose of the HIS as designated by its planners is to provide national data on the incidence of illness and injuries, the prevalence of diseases and impairments, the extent of disability, the utilization of health care services, and other health-related topics. A major strength of the survey is in its ability to tie together these characteristics along with basic social, demographic, and economic information on an individual basis.

The HIS covers the civilian, noninstitutionalized population of the United States. Interviews are conducted each week throughout the year in a probability sample of households: a total of approximately 40,000 households containing about 120,000 persons are interviewed each year by interviewers employed by the U.S. Census Bureau with which the National Center for Health Statistics (NCHS) has contracted to

conduct the field work. Data collected over a year's period are published as annual estimates which allow the analysis of trends in various health characteristics.

The HIS questionnaire consists of a relatively stable "core" set of questions which remains fixed from year to year and supplements on topics which vary from year to year. The core comprises approximately 60-70 percent of the questionnaire. Items included in the "core" are physician and dental visits, hospitalizations, long term limitation of activity, acute and chronic conditions, disability days due to illness or injury, and basic social, demographic and economic characteristics. Since the 1967 revision very few changes have been made to the core of the questionnaire, the accompanying interviewer instructions, and processing procedures. That is, the content, organization, question wording and most of the procedures have remained essentially fixed since that time. This is because of the importance placed on trend analysis and our realization of the effect that changes in procedures could have on the estimates produced. Through our continuing effort to monitor and evaluate the survey, we have, over the years since 1967, observed some important problems that our current evaluation will help us to clarify and our 1980 revision will permit us to rectify.

Because of the complexity and size of the survey there are, needless to say, almost countless issues that could be tackled in this evaluation. These issues range from survey content, to sample design, to publication and dissemination of survey results. Because of limited staff resources only a subset of these are we able to study extensively. The areas which were chosen for concentrated study were selected either because of the high priority the HIS staff assigned to a particular problem or because of questions raised by the staff of the United States Office of Management and Budget assigned to monitor the survey.

Technical Consultant Panel

The Technical Consultant Panel to the HIS was established in February of 1977 and has met a total of five times since then. It is composed of eleven persons (plus the director of the survey) who were chosen to represent the community of researchers and officials involved in attempting to understand and improve the health of the nation and the delivery of health care services. The panel is now in the process of drafting its final report. They plan to meet twice more in this calendar year and then to terminate the panel in its present capacity. The following is the charge which was given to the HIS TCP:

1. To recommend in order of priority the topics for which the type of general purpose data produced by the Survey are most needed on a national, regional or State basis.

2. To review the relevance of the core questions which are asked on an ongoing basis in terms of the changing emphasis or direction of national public health policy.
3. To recommend on an annual basis whether the core component of the questionnaire should be expanded or contracted in relation to the amount of interviewing time to be left for supplemental topics.
4. To consider and make recommendations regarding any biases resulting from the sampling methods, the survey collection techniques, the data processing and analytical procedures which may produce inaccurate or invalid estimates for any numerically significant group.
5. To review and make recommendations regarding the types of sociodemographic data collected on each person with regard to both the variables to be included and the type of information to be sought on each variable.
6. To make recommendations regarding the most appropriate form for disseminating the data--with special emphasis on the questions of the trade-off between the amount of time devoted to analysis and the timeliness of the release of the data.
7. To make recommendations regarding the optimum sample size and the frequency with which this survey should be conducted.

Since the formation of the TCP most of the issues raised in the charge have been discussed extensively. The topic on which the panel has centered the majority of its work has been the responsiveness of HIS to the needs of health data users. The sample of the HIS was designed to provide national estimates; it is not capable of providing State and local data, the demand for which is constantly increasing. Another problem is that although the sample size is quite large it is still not nearly large enough to make estimates of rare occurrences (such as rare diseases) or to make detailed cross-classifications of health and related social, demographic, or economic characteristics. Still another problem is the increasing demand for supplemental health topics to be included in the survey. With the limited sample size HIS is unable to respond to many of these demands because of the interview time requirements of the core portion of the questionnaire alone.

The TCP is currently in the process of developing a resolution to present to the U.S. National Committee on Health and Vital Statistics that addresses itself to these unmet data needs. This resolution proposes first of all that the HIS mechanism be strengthened by making the survey more flexible and by increasing its ability to produce data for smaller population subgroups including smaller geographically defined areas. Secondly, the resolution proposes that NCHS provide a complete range of technical assistance and demonstration activities on health interview

survey methods and uses of health interview survey data. Specific proposals discussed by the TCP include the development of lower cost survey methodologies such as telephone and mail surveys, the development of health interview survey materials to serve as guidelines to those agencies and organizations for which the technical assistance is provided, and demonstrations in State and local areas of the techniques and methodologies which are developed.

Another major outcome of the HIS TCP's work is a proposed supplemental topic selection methodology. In addition to the "core" component of the survey which remains essentially unchanged from year to year, supplemental topics requiring no more than an average of 15 or 20 minutes are added each year. Over the years a wide variety of topics have been included such as out-of-pocket medical expenditures, health habits such as smoking and drinking, and prescription medicines. The methodology proposed by the TCP is discussed in detail in Clinton Burnham's paper "How Can the Health Interview Survey be More Responsive?" (1978) Very briefly, the procedure calls for a mass mailing to reach all persons or representatives of all persons who use or have need for health data which may be obtained through a household survey. These persons will be requested to submit recommendations, suggestions, or requests of supplemental topics to be included. These suggestions, etc., in turn would be summarized by the HIS staff who would then report their findings to the HIS advisory committee. As required or needed, some individuals would be recontacted for a more in depth conversation concerning the details of the request. Based on all of this input the advisory committee would make its recommendations for the topics to be included to the survey director. The TCP itself has served as the advisory group on HIS topic selection while this new selection methodology has been in the developmental process.

Objectives of the Field Experiment

The field experiment component of the overall HIS evaluation was designed to accomplish several major objectives. First of all we hope to arrive at a new HIS core questionnaire which will be much less complex and easier for interviewers to administer. The current HIS core questionnaire is exceedingly complex, partially due to the complexity and ambiguities in the concepts being measured and also partially due to changes that have been tacked on to the instrument over the years in an effort to improve the quality of reporting. HIS interviewers are currently required to memorize a myriad of special instructions and rules to cover all types of exceptions to the basic rules. The questionnaire seemingly is very repetitive although upon closer scrutiny the questions which seem to measure the same concepts are in actuality measuring different concepts. Another problem with the current questionnaire is a large degree of inconsistency in the formatting conventions used. For example, in one question closed parentheses around a word or group of words means that the interviewer should read that clause the first time the question is asked but

not for succeeding times. In another question closed parentheses may mean to insert the words in asking the question based on the respondent's previous answers. Another of the problems with the present questionnaire is that the definitions that are given to interviewers for a particular question are not always reflected in that question wording. For example, a "doctor visit" is defined as including visits in which the patient does not actually see or talk to the medical doctor but rather sees or talks to a doctor's assistant, such as a nurse.

Another aspiration we have in our study is to shorten the amount of time required to administer the core questionnaire items. This is so that more time may be allocated to supplemental topics that are of critical interest. The present HIS core requires an average of approximately 25 minutes to administer. In an attempt to keep the total average questionnaire length down to no more than 45 minutes this means that supplemental topics can take no more than an average of 20 minutes. The survey always has far more requests for inclusions of topics than can be handled in this short amount of time. The new experimental core questionnaire is somewhat more streamlined due to a reorganization of topics plus the deletion of some items which are of concern to a smaller interest group.

We have been aware over the years of the differences in answers we obtain from self respondents versus proxy respondents. These differences become larger and hence more important depending on the types of questions being asked. For questions involving private behavior, attitudes, or long recall periods we usually require that the interviewer ask these items only of the person about whom the questions pertain. From the standpoint of obtaining more reliable and valid information this procedure is certainly advisable. The problem, however, comes in the achievement of a much lower response rate which produces many analytical problems involving the handling of these nonresponse cases. Because of these problems, in the experiment we are testing new call-back rules which permit the interviewers to accept a proxy respondent after a specified number of attempts have been made to contact the person who should be a self respondent.

Survey research literature provides many examples of the effects of question wording and order on respondent answers. One message is very clear: questions must be asked as written and in the order prescribed to achieve comparability of responses. The HIS interviewers are continually trained and monitored with these principles in mind. In addition, as we design our questionnaires from year to year, we attempt to keep the core questions the same. A very real problem, however, is how to integrate the supplemental topics with the core portion of the instrument. We have become apprised of the fact that supplements can have a serious effect on our core instrument. For example, in 1973 and 1974 there was a sizeable drop in the estimated number of acute conditions which coincided with the inclusion of a supplemental set of questions on acute conditions. From

the standpoint of streamlining the collection instrument, cutting down on redundancies, and organization of the questionnaire, the tendency is to intertwine core questions with supplemental questions. From a methodological standpoint, however, this presents problems. The overriding consideration is how can we introduce supplemental topics without biasing the responses to the core portions of the questionnaire. In the field experiment we are attempting to see if we can "tack on" supplements to the core component which stands alone. In doing this we are concerned with how awkward the resulting interview is and does this approach really ameliorate the basic problem (that is, will such an approach decrease the biases which are introduced by additional sets of items).

Another goal of our field experiment is to achieve a better method of documenting our processing procedures including our coding instructions, code keys, and editing specifications. The complexities of our current documentation make it very difficult for many outside users to understand and use our public use tapes. We are also interested in the feasibility of implementing some degree of machine coding. Presently, most of the questionnaire data is hand coded before keypunching and some items are entered key to disc directly from the questionnaire itself. Our fear is that our questionnaire is far too complex to require interviewers to enter answers in a format which would permit optical scanning.

Description of the Field Study

For the purpose of finding solutions to some of the problems discussed in the previous section of this paper, NCHS has contracted with a small research firm in Washington, D.C. to conduct 3,000 household interviews in the Washington, D.C. metropolitan area. The sample is selected from three Census Bureau Primary Sampling Units (PSU)'s in this area which purposively do not correspond to the Standard Metropolitan Statistical Area (SMSA) or to any other geographic area typically used for description. This is because the purpose of the study is to provide answers to some of the questions raised in the preceding section of this paper rather than to provide estimates on health status, etc. The 3,000 households are divided into four equal size groups which are defined as follows:

Group I: The core component of the regular 1978 HIS questionnaire with no supplements.

Group II: A revised experimental core questionnaire with no supplements.

Group III: The experimental core questionnaire with two previously used HIS supplements (hypertension and condition) using present call-back rules to obtain self respondents on the supplements.

Group IV: The experimental core questionnaire and revised call-back rules for obtaining self responses on the two supplements.

Our current respondent rules are used for all groups for the core components. An adult (19 years or over) may respond for a related household member not at home at the time of the interview. The supplements used in groups III and IV, however, require a self respondent. The present call-back rules require the interviewers to make as many personal visit or telephone callbacks as necessary to obtain a self respondent. Only when a person is deemed to be mentally or physically incapable of responding for himself or herself is an interviewer permitted to accept a proxy respondent. The revised call-back rules being tested in group II are the following: (a) for callbacks one through three, only the sample person himself or herself may respond, (b) for callbacks four through six the interviewer must first attempt to interview the sample person; however, if this person is unavailable, the interviewer may take the original respondent who was initially interviewed for the household, (c) for callbacks after six have been made the interviewer still must first attempt to obtain an interview with the sample person. If this person is unavailable any related adult (19+) in the household may respond for this person.

The following illustrations show diagrammatically the design of the study:

Group	Core Questionnaire	Use of Supplements	Call-Back Rules To Obtain Respondent
1	1978	No	Old
2	New	No	Old
3	New	Yes	Old
4	New	Yes	New

Group Pairs	Controlling for	Demonstrates Effects of
1-2	Call-back rules and supplements	Experimental questionnaire
2-3	Questionnaire and call-back rules	Supplements
3-4	Questionnaire and supplements	Experimental call-back rules

In addition to the comparisons above which will be made, the data from the regular ongoing HIS as conducted by the Census Bureau will be made available for the same time period and for the same PSU's so that comparisons may be made with the results of Group I. This will be for the purpose of assessing the effects of a different organization with different interviewers on the data collected.

The sample for the study is a multistage stratified cluster design in which clusters of 16 households are selected. Within the clusters each of the four experimental treatments are randomly assigned to four households each.

The contract calls for an average response rate of 95 percent for the four groups with an absolute minimum of 90 percent for any one group. Almost all of the interviewers selected for the study have either a master's degree or are very experienced in interviewing in an effort to match the skill level of the Census Bureau's HIS interviewers who are mostly very experienced.

Interviewing started in June of this year with a staff of 25 interviewers and will be completed in September. The NCHS staff is observing as many interviews as resources permit since the most valuable outcome of the study we feel will be in terms of the qualitative knowledge our staff acquires from "hands-on" experience. At the end of the field work there will be a debriefing meeting of all of the interviewers and the staffs of the NCHS and the contractor. At this meeting we will attempt to summarize the knowledge acquired by the interviewers in administering the new questionnaire and in carrying out the experimental call-back procedures. In addition to this group meeting, members of our staff will meet with each interviewer individually to discuss his or her specific experiences.

Tabulations will be prepared by the contractor which will compare the four experimental groups on variables which are routinely published by HIS on an annual basis. These results will be compared with the estimates produced from the regular HIS for the same three PSU's and for the same time period. The HIS staff will work with the contractor in analyzing problems and advantages of the experimental variables in terms of costs, field operations, reliability and validity of the data collected and respondent reaction. The contractor also has the responsibility of preparing a model set of documentation for each step in the survey procedures including the interviewer's manual, coding instructions and manual, machine edits for inconsistent and impossible codes, and the final tape layout. Furthermore, the contractor is charged with the responsibility of preparing a report considering the feasibility of machine coding of the core component of the experimental questionnaire.

In Conclusion

This paper has described the two major undertakings in the current overall evaluation of the national Health Interview Survey: the Technical Consultant Panel and a large field experiment. Together, these two components cover a wide range of issues and problems with which the HIS staff and outsiders have been concerned. It would be impossible, given time and dollar constraints as well as a limited amount of staff time and resources, to study all of the issues and problems involved in our very complex survey. We do hope to deal with as many as we can before the major revision of the survey is implemented. For example, plans are currently being developed to conduct, under contract, a study of alternative methods of coding medical conditions in the HIS.

Before proposed changes resulting from our evaluation efforts are made to the survey for 1980, we plan to conduct further field testing. In 1967, the HIS sample was split in half for an entire year with one half using the old questionnaire and procedures and the other half the new questionnaire and procedures. The sheer enormity of this undertaking resulted in many problems which we hope to avoid this go-around. Our plans for additional testing in preparation for 1980 are in the developmental stage at this point in time. It appears likely, however, that we will conduct our investigation in multiple sites across the country during the spring and summer of 1979.