

## Information Flowing in Two Directions: How Respondents Learn by Responding to the National Health Interview Survey<sup>1</sup>

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### Abstract

Obviously, when an interviewer administers a survey questionnaire, the collected data will be used to learn about the surveyed population. What is not so obvious is that survey respondents learn from the experience of being surveyed. The National Health Interview Survey (NHIS) is an in-person household survey conducted by the National Center for Health Statistics (NCHS). NHIS interviewers, who are employees of the Census Bureau under contract to NCHS, repeatedly ask for more information about the survey, e.g., why certain survey questions are asked, how the data will be used, and how participating in the survey is beneficial. Interviewers want more information, both for themselves and to convey to respondents. Accordingly, NHIS interviewer training aims to arm interviewers with information and techniques to improve their interviewing and elicit respondent cooperation and accurate responses. This paper describes how NHIS interviewing has recently been improved and how NHIS respondents learn, from participating in the survey, about their own and their family's health, public health, the science of surveys, and government involvement in public health.

**Key Words:** Survey respondents, interviewer training, National Health Interview Survey, National Center for Health Statistics

### 1. Introduction

Obviously, when an interviewer administers a survey questionnaire, the collected data will be used to learn about the population being surveyed. What is not so obvious is that the survey respondents can learn from the experience of being surveyed. This paper will describe how National Health Interview Survey (NHIS) interviewers are trained, how training procedures were significantly modified starting in 2010, and how, especially when interviewers are appropriately trained, NHIS respondents can learn about their own health, their family's health, public health, the science of surveys, and Government involvement in public health.

### 2. About the National Health Interview Survey

The National Health Interview Survey has been in the field virtually continuously since 1957. It is an in-person household survey of the non-institutionalized civilian population. Since 1997, NHIS interviewers have used Computer Assisted Personal Interviewing (CAPI) to conduct interviews; equipped with laptops, the interviewers read the survey questions from the laptop screens and type in the responses. The CAPI instrument

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<sup>1</sup> The findings and conclusions in this paper are those of the authors and do not necessarily represent the views of the National Center for Health Statistics, CDC.

automatically guides the interviewer through the correct path through the questionnaire, which is dependent on answers to previous questions. Interviewers who are unable to complete the entire NHIS interview in one visit to the household may sometimes complete the interview by telephone.

The National Center for Health Statistics (NCHS), which is part of the Centers for Disease Control and Prevention and which is also the Federal Government's official health statistics agency, conducts the NHIS. Since the inception of the survey, the U.S. Census Bureau has been under contract with NCHS to field the survey. NHIS interviewers are thus employees of the Census Bureau.

In recent years, NCHS has released one year of NHIS microdata to the public every June, six months after the end of the data year. The data and extensive documentation are released on the NCHS website and are available without charge. Public use microdata are available online back to 1962.

Topics presently covered by the relatively stable core of the survey include health status, utilization of health care services, health insurance coverage, health-related behaviors (such as use of tobacco and alcohol), risk factors, and demographic and socio-economic information. In addition, supplemental questions on special topics are added to the NHIS questionnaire each year, sponsored by government agencies other than NCHS.

For example, NHIS supplements are used to monitor objectives of the Department of Health and Human Service's (DHHS') Healthy People program. Since 1995, more than 110 Healthy People objectives have been monitored using data from the NHIS, more than any other source. NHIS will continue to be heavily used to monitor objectives for the updated Healthy People 2020 program (Dept. of Health and Human Services, 2011).

The most recent extensive revision of the NHIS questionnaire was in 1997. Since then, the NHIS has collected data about all family members in the Family Section of the NHIS core, from one randomly selected adult (the "sample adult") in the Sample Adult Section, and about one randomly selected child (the "sample child") in the Sample Child Section. To improve precision of estimates for certain minority subpopulations, the NHIS has been oversampling black persons since 1985 and Hispanic persons since 1995. Also, since the NHIS sample was last redesigned in 2006, Asian persons have been oversampled, and the probability of selection as the sample adult has been increased for persons aged  $\geq 65$  who are Hispanic, black, or Asian.

For more information about the NHIS, see National Center for Health Statistics (2011a). For a list of NHIS supplements and their sponsors, see National Center for Health Statistics (2011b).

### **3. Annual NHIS interviewer classroom refresher training to prepare for the 2009 and previous surveys**

Before 2010, experienced NHIS interviewers normally received "refresher training" annually in a classroom setting, with each of the 12 Census Regional Offices (ROs) organizing several two-day training sessions in different geographical locations. This resulted in basically the same training occurring in more than 25 different locations across the country. The objectives of refresher training were—and still are—to remind the

interviewers of the correct procedures for interviewing; to give them extra training in difficult or problematic topics; to alert them to special problems; to tell them about changes in the questionnaire, interviewing procedures, equipment, and/or software since the previous year, with special emphasis on introducing new supplements; to get feedback from them; to answer their questions; and to give them chances to interact with each other, with the RO Supervisors, with Census staff from Census Headquarters in Suitland, Maryland, and with staff from NCHS (“the sponsor”). Interviewers travelled by car or public transportation to a training site in their own RO and stayed in hotels at the training site. Staff from Census Headquarters and from NCHS attended the training sessions as observers, but because of the large number, simultaneity, and geographical diversity of the training sessions, many sessions had no such observers.

NHIS Supervisors from the ROs are experts in survey field work, and they are effective in training the NHIS interviewers in survey procedures. But the Supervisors are not experts in all of the many topics pertaining to conducting a survey that the interviewers need and want to learn about. No one person could be! Examples of training topics and of questions posed by interviewers during training sessions are as follows:

- Questionnaire design: Why is it important to read the questions as written?
- Survey design: What is oversampling? Why does the NHIS do it?
- Survey methodology and statistics: Why can't I interview whoever is conveniently available instead of having to seek out the randomly selected sample adult?
- Survey data analysis: What are the data we collect used for? Why does NCHS ask for Social Security numbers? What is data linkage, which we ask respondents to permit NCHS to do?
- Supplements: Why does the National Cancer Institute at the National Institutes of Health (NIH) want to know about how often people use sunlamps, sunbeds, and tanning booths? Is that harmful? Why does the National Center for Complementary and Alternative Medicine (NCCAM) at NIH want to know about use of acupuncture? Does that work? Do NCHS and NCCAM support the use of alternative medicine?
- Confidentiality: How do the data get analyzed and the results publicized without intruding on the respondents' privacy?
- Public health: What is colonoscopy? Who should get one? Why ask about it? What is DHHS' Healthy People program?

Interviewers crave such information. They want to have a good understanding of the survey goals, procedures, questions, results, and impact. They know and tell us that having such understanding will help them do a better job of eliciting cooperation from respondents, administering questionnaires, and answering respondents' questions.

The teaching materials for annual classroom refresher training were developed by Census staff at Census Headquarters, with involvement and review by NCHS staff. The materials were a mixture, mostly scripts to be read by the instructors, interactive computer modules, and custom-made videos. The instructor would read from the script, which was not usually available for the interviewers to follow along. The teaching materials were sometimes too technical and/or specialized for a non-expert to convey to others, and the instructors often could not answer questions about the subjects being taught. And in general, although they were called upon to lecture, the instructors were

not experienced lecturers. Those of us who attended refresher training as observers could see that the audience of interviewers was often inattentive and that parts of the training were ineffective.

#### **4. Centralized annual interviewer classroom refresher training to prepare for the 2010, 2011, and 2012 NHIS**

Aware of the need to improve annual interviewer classroom refresher training, staff at NCHS and Census who are involved with conducting the NHIS developed a new scenario for conducting the training. NCHS increased its involvement in planning and conducting training. Training to prepare for the 2010 NHIS was held in hotels in three cities instead of at the more than 25 locations that had hosted training sessions in previous years. Four training sessions were held in three cities (two sessions in Atlanta, one in Dallas, and one in Tucson), staggered in time to enable a core group of experienced and expert instructors to travel from one city to the next, giving training presentations in each city in their own areas of expertise. The core of instructors consisted of staff from NCHS, Census Headquarters, the Census ROs, and selected agencies that were sponsoring supplemental questions on the upcoming NHIS.

After the training was concluded, the consensus among interviewers, Census staff, and NCHS staff was that the new mode of training had been very successful and was a significant improvement over previous training. For example, on the post-training evaluation forms, 92% of responding training attendees rated the 2010 training as very good or good. There was general agreement that the new centralized mode of annual training should be continued in the future, despite the fact that the cost of centralized training was about 50% higher than the cost of decentralized training.

However, moving from city to city and conducting training sessions in three different locations required almost two weeks of the instructors' time and was burdensome. So it was decided to provide all of the training to prepare for the 2011 NHIS in one city (Dallas) and to fit the training sessions into less than one week, including travel time. Three virtually identical overlapping 1-1/2-day training sessions were offered, with a total of about 800 interviewers each attending one session during the week. Several ROs were assigned to each session. For session 1, Sunday was a day of travel to and settling in at the Dallas hotel, Monday was a full day of training, Tuesday morning was a half day of training, and Tuesday afternoon/evening was used to travel home. For session 2, Monday was a day of travel and settling in, Tuesday was a full day of training, Wednesday morning was a half day of training, and Wednesday afternoon/evening was used to travel home. For session 3, Tuesday was a day of travel and settling in, Wednesday was a full day of training, Thursday morning was a half day of training, and Thursday afternoon/evening was used to travel home. The last half day of training for session 1 overlapped the first half day of training for session 2, and the last half day of training for session 2 overlapped the first half day of training for session 3. This was handled by using the last half day of training for all three sessions for procedural training such as practice interview sessions; when two waves of trainees were being trained at the same time, RO Supervisors led practice interview sessions and provided other procedural training in one conference room, while others on the core team of specialized instructors gave their presentations in another conference room.

With careful planning and organization, the weeklong centralized training was successful. On the post-training evaluation forms, 93% of responding training attendees rated the 2011 training as very good or good. Training to prepare for the 2012 NHIS will be held in Dallas using the one-week, one-city format.

One benefit of annual classroom refresher training, whether centralized or decentralized, is the exchange of information and morale boosting resulting from interviewers mingling with other interviewers and with their supervisors. Most of the time, interviewers operate alone, and the geographical territory covered by an RO is so large that most interviewers rarely visit their RO headquarters. Modern technology makes it possible to field a survey without in-person contact between supervisor and interviewer or among interviewers, but face-to-face contact with colleagues appreciably enhances the quality of the interviewer's job. With the advent of centralized NHIS classroom refresher training, interviewers now attend training sessions with virtually *all* of the interviewers in their own ROs as well as with many interviewers from other ROs, which had not been possible when training was decentralized.

## **5. Other sources of training and information for NHIS interviewers**

Other sources of training and information for interviewers include initial training for beginning interviewers, manuals that interviewers can read and use for reference, self-study modules that they can read or administer to themselves using their laptops, and "help files" on the laptops that can be accessed during an interview when either the interviewer or the respondent needs additional information about a topic or question. Also, various brochures are produced for use by the interviewer and survey participants. Examples of these shown below are as follows:

- A brochure about the National Health Interview Survey.
- A brochure about the NHIS Early Release Program, which periodically produces and disseminates results of analyses of NHIS data even before the microdata have been publically released. (See National Center for Health Statistics, 2011c.)
- A brochure about laws and procedures to protect NHIS participants' confidentiality.
- A brochure relevant to a new NHIS supplement (in this example, a supplement about food security, sponsored by the U.S. Department of Agriculture on the 2011 and 2012 NHIS). Interviewers are encouraged to give brochures such as this one to respondents and refer them to the sponsoring agency for answers to respondent questions that interviewers have not been trained to answer.

Some brochures (as seen in some of the examples below) are produced in both English and Spanish, because the NHIS questionnaire may be administered in either language using a toggle switch on the interviewer's laptop.

## 6. Discussion

Information thus flows in two directions when the NHIS is conducted:

- Information is conveyed from assorted experts (survey managers and supervisors, survey methodologists, survey data analysts, contractors, supplement sponsors, etc.) to interviewers to respondents.
- Information is conveyed from respondents to interviewers to the NHIS data files.

Survey researchers are well aware that “In order to perform their tasks well, interviewers must acquire both declarative and procedural knowledge. Declarative or factual knowledge includes, for example, information on the purposes, uses, and sponsor of the survey [as well as] the organization conducting the data collection, uses of the survey information, confidentiality of the data,...where to get additional information” (Lessler, Eyerman, & Wang, 2008). The enhancement of NHIS interviewer classroom refresher training described above was mainly motivated by the realization that improvements were needed in how NHIS interviewers were provided with declarative knowledge at their annual refresher training sessions. Developers of NHIS training agreed with the findings of Lessler et al. that “the success of [NHIS] data retrieval activities...[is] highly dependent upon how well the interviewers understand the goals and purposes of the survey...”.

In the case of an in-person survey such as the NHIS, effective interviewer training needs to focus not just on “getting in the door,” but also on also achieving continuing cooperation and collecting accurate data during the interview. Training of NHIS interviewers has the objectives of maintaining high response rates and good data quality (ever mindful, of course, that these goals often conflict). Lessler et al. pointed out that “conversational interviewing,” in which the interviewer reads the questions as worded but is allowed to use his or her own words to clarify the meaning of the question and resolve respondent uncertainty about how to answer a question, has been shown to result in greater success in gaining cooperation from potential respondents and in eliciting responses that are consistent with the intended meanings of the questions. Similarly, Groves, Fowler, Couper, et al. (2004) observed that “Expert interviewers appear to engage the sample persons in extended conversations.” Conrad and Schober (2005) described the value of respondents requesting clarification about survey questions so that respondents’ misunderstandings can be corrected and their comprehension of the questions can be aligned with the survey designers’ concepts and intentions, thus improving response validity.

NHIS interviewers are taught and repeatedly reminded to read the questions as written, and they are permitted, encouraged, and sometimes required to provide certain types of additional information and/or materials to respondents.

Schwarz (1995) described how respondents learn from survey questionnaires when interviewers are not permitted to engage in conversational interviewing or stray from the scripted interview, saying that “we typically think of questionnaires as an instrument that we use to elicit information from respondents. However our questionnaires are also an instrument with which we convey information to respondents.”

Although respondent learning for its own sake is really a secondary by-product of conducting the NHIS, respondent learning, apart from its effect on response rates and

data quality, can be quite beneficial to the NHIS and to surveys in general. We know that respondents talk about their survey experience with family members, neighbors, friends, and colleagues (which is an important consideration for NCHS in developing and implementing methods for protecting confidentiality). The various kinds of information described above that flow to the respondents as a result of their survey experience can therefore flow on to others, increasing, in particular, awareness and appreciation of the sponsoring agency and the data collection agent. Promulgation of a positive attitude toward surveys can increase participation and cooperation rates for subsequent surveys.

We at NCHS have not directly or systematically measured what NHIS respondents ask about during interviews and what they learn from responding to the NHIS. Two ways that that could be done relatively easily would be to add appropriate questions to the NHIS questionnaire and to utilize the existing NHIS re-interview mechanism, by which selected responding households are re-contacted by Census staff and questioned after the interview, predominantly for quality control purposes. In the future, Computer Assisted Recorded Interviewing (CARI), an interview recording system that the Census Bureau is planning to offer the surveys that it fields, could be utilized. We do know with certainty that the NHIS interviewers repeatedly ask for more information and informational products, both for themselves and for the respondents, and we try to respond to those requests. The enhancement and centralization of annual NHIS interviewer classroom refresher training has improved the quality and presentation of information conveyed to interviewers. Better training of interviewers results in higher response rates, improved data quality, and better informed respondents.

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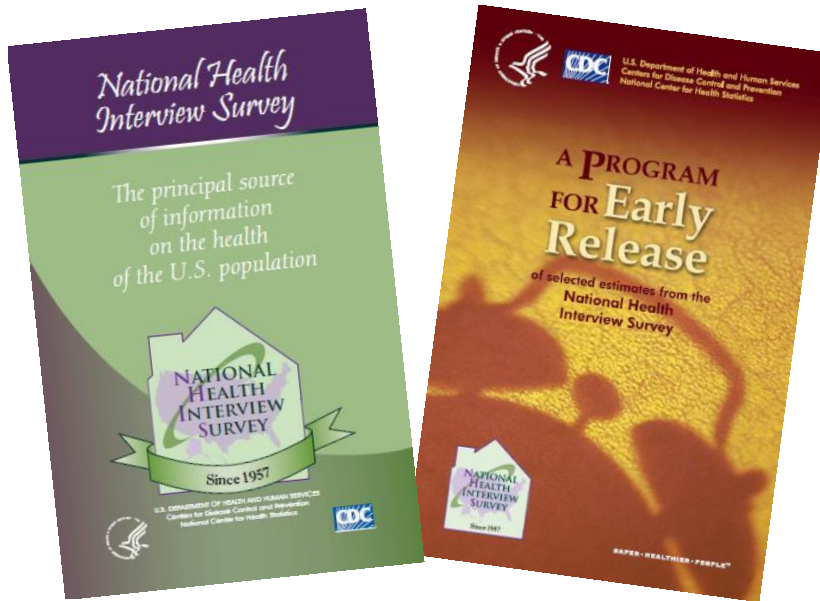
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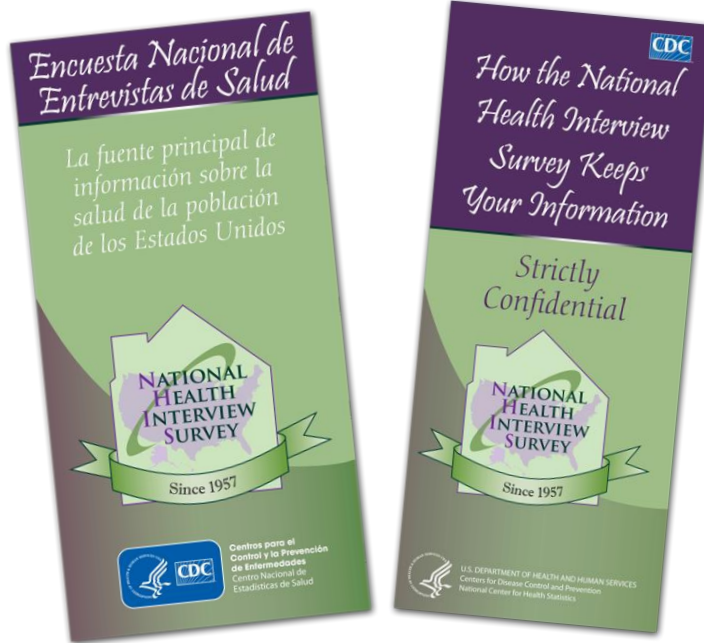


**Examples of brochures given to NHIS interviewers and respondents**



National Center for Health Statistics  
Division of Health Interview Statistics

Examples of brochures given to NHIS interviewers and respondents (cont.)



National Center for Health Statistics  
Division of Health Interview Statistics

Examples of brochures given to NHIS interviewers and respondents (cont.)



### How To Get Food Help



**If you need food help today, call 1-866-348-6479 (1-866-3-HUNGRY)**  
This is the National Hunger Hotline. The hotline staff can help you find food near where you live. It's a free call. You can call Monday to Friday, 9:00 a.m. to 5:00 p.m., and Saturdays 10:00 a.m. to 2:00 p.m., Eastern Time. If you need help during other hours, visit [www.WhyHunger.org/nhc](http://www.WhyHunger.org/nhc). Click on **Resources** and choose **Resource Directory** from the drop-down menu. Then scroll down and click on **Get Help**.

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Examples of brochures given to NHIS interviewers and respondents (cont.)



United States Department of Agriculture  
Food and Nutrition Service



### Ayuda para conseguir alimentos

Del Departamento de Agricultura de los Estados Unidos



**Llame al 1-877-8-HAMBRE (1-877-842-6273)**  
Llame al 1-877-8-HAMBRE (1-877-842-6273) si necesita alimentos hoy mismo. Es la línea directa nacional de Hambre. El personal puede ayudarlo a encontrar alimentos cerca de donde usted vive. El personal puede darle información sobre bancos y despensas de alimentos, y otras fuentes de ayuda. Es una llamada gratuita. Puede llamar de lunes a viernes, de 9:00 a.m. a 5:00 p.m. y los sábados de 10:00 a.m. a 2:00 p.m. hora del Este. Si requiere ayuda en un horario diferente, favor de ir a la página Web en inglés: [www.WhyHunger.org/nhc](http://www.WhyHunger.org/nhc). Haga clic en **Resources**. Elija **Resource Directory** del menú. Después haga clic en **Get Help**.

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