

**REQUEST FOR CLEARANCE FOR THE
HEALTH INFORMATION NATIONAL TRENDS SURVEY**

(HINTS II)

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A. JUSTIFICATION

A.1 Circumstances Making the Collection of Information Necessary

The National Cancer Institute (NCI) has the vital mission of facilitating the process by which cancer research is communicated to the public. The task of collecting data relevant to cancer communication falls upon the Health Communication and Informatics Research Branch (HCIRB), Division of Cancer Control and Population Science (DCCPS) at NCI. The HCIRB seeks to advance communication and information science across the cancer continuum—prevention, detection, treatment, control, survivorship, and end of life. The primary goals for the HCIRB are (1) to encourage programmatic and interdisciplinary approaches to cancer communication research and (2) to accelerate development of innovative health communication models, theories, and research strategies in cancer prevention, control, and care.

To address these goals, the NCI funded the Health Information National Trends Survey (HINTS) in June 2001 (OMB No. 0925-0507, Expiration 08/2003). HINTS is intended to be a biennial, cross-sectional survey of the U.S. civilian, noninstitutionalized, adult population. The first survey used a probability-based sample, drawing on random digit dialing (RDD) telephone numbers as the sample frame of highest penetration at the time. The purpose of funding a national probability survey to assess health communication processes is to provide communication researchers with unbiased population estimates of the prevalence of cancer-relevant knowledge, attitudes, and behaviors in the U.S. adult (18+) population. In addition, population scientists should not only be in a more effective position for planning population-based interventions, but they should also be in a position of using data from the survey to refine the scientific knowledge base.

The second cycle of HINTS, or HINTS II, is slated to occur in early 2005. There are two priorities for this round of HINTS: (1) to preserve the methodological integrity of the survey and (2) to experiment with alternative modes of data collection. There are two primary mechanisms for preserving the integrity of HINTS. First, a similar methodology will be used to draw the sample and collect the data (i.e., a national RDD survey of the general adult population). Second, approximately 50 percent of the content from HINTS I will be retained for HINTS II. Some of the critical content includes “marker” items that serve as links to other national surveys [e.g., Behavioral Risk Factor Surveillance System and National Health Interview Survey (OMB No. 0920-214, Expiration 04/2005)] in health and

communication. Other items will be retained to allow HINTS to monitor trends in the population over time in cancer-related health communication. In addition, new items will be included to address emerging priorities of the NCI (e.g., incidental exposure to health information and the public's mental model of cancer).

The second priority for HINTS II is to experiment with alternative modes of data collection. A primary reason for this priority is the decline in response rates to telephone-based surveys due to a rise in telemarketing, an increase in tools for screening calls, and a proliferation of alternative modes of communication (e.g., mobile telephones and instant messaging). Therefore, in addition to the portion of the RDD sample that will be administered over the telephone to maintain the methodological integrity of HINTS, data will also be collected through a web-based version of the instrument. In theory, the World Wide Web offers the advantages of computer-assisted interviewing (CAI) in combination with those of self-administered questionnaires (SAQs). The web offers full control over multiple aspects of the survey's design (e.g., color, graphics, and presentation of items) and administration (e.g., quality control checks and skip logic). The disinhibiting nature of web-based data collection, as with SAQs, has the advantage of reducing social desirability effects to promote candid reporting of controversial items. Two experiments will be conducted to assess the effectiveness of the Internet as an alternate method of data collection, one in the field study and one in a laboratory setting.

The Public Health Services Act outlines the research and information dissemination mission of the National Cancer Institute. Attachment 1 contains the full text of 42 USC, Sections 285a, 285a-1.1, and 285a-1.3.

Section 285a of 42 USC states that:

“The National Cancer Program shall consist of ... an expanded, intensified, and coordinated cancer research program encompassing the research programs conducted and supported by the Institute and the related research programs of the other national research institutes ...”

Section 285a-1 further states that:

“The Director of the Institute shall establish and support demonstration, education, and other programs for the detection, diagnosis, prevention, and treatment of cancer...” Programs established and supported under this section shall include {among others}: “...the demonstration of new methods for the dissemination of information to the general public concerning the prevention,

early detection, diagnosis, and treatment and control of cancer and information concerning unapproved and ineffective methods, drugs, and devices for the diagnosis, prevention, treatment, and control of cancer.”

HINTS II is specifically designed to support this mission by providing a means to address health communication issues that have not been adequately studied through other data collection efforts. The NCI has recognized that the recent advances in communication technologies have created an “extraordinary opportunity” to invest in cancer communication research (see The Nation’s Investment in Cancer Research: A Plan and Budget Proposal for Fiscal Year 2003 at <http://plan2003.cancer.gov/>). As a vehicle to monitor trends in information preferences, cancer knowledge, and behaviors related to cancer prevention, HINTS II provides a powerful way to inform decisions about topics and methods of information dissemination by NCI, as well as to monitor the impact of information disseminated (e.g., how changes in recommendations affect screening behavior).

A.2 Purpose and Use of the Information

HINTS II will provide NCI with a comprehensive assessment of the American public’s current access to, and use of, information about cancer, including cancer prevention, early detection, diagnosis, treatment, and prognosis. The content of the survey will focus on understanding the degree to which members of the general population understand vital cancer prevention messages. More importantly, this NCI survey will couple knowledge-related questions with inquiries into the communication channels through which understanding is being obtained. HINTS II is intended to be the foundation of NCI’s effort to build on the opportunities presented by a national shift in communication context, and by so doing, improve the nation’s ability to reduce the national cancer burden.

A.2.1 Research Questions

The analyses enabled by the survey will allow NCI to refine its communication priorities and develop evidence-based strategies for selecting the most effective channels to reach identified demographic population groups, including typically underserved populations such as minorities and

persons living in poverty. Specifically, HINTS will provide the only source of data available to answer the following research questions and monitor trends in the answers over time:

1. Considering the full range of communication channels, what are the major sources of cancer information for the American public?
2. To what extent is access or lack of access to different sources of health information associated with cancer knowledge or behaviors?
3. What segments of the U.S. population depend on information technology (i.e., the Internet) to meet at least some of their cancer information needs?
4. How trustworthy are the sources of health information perceived to be, and how satisfied are respondents with information access and content?
5. What is the level of knowledge about cancer incidence, etiology, prevention, detection, and treatability, and what are the psychological and structural determinants of this knowledge?
6. How are cancer prevention behaviors related to sources of information and their use?
7. How do people want to get information about cancer-related issues?

A.2.2 Audiences for Data and Results

The authors of the “Healthy People 2010” initiative argued that effective health communication strategies are becoming “increasingly recognized as a necessary element of efforts to improve personal and public health.”¹ Developing effective health communication messages is relevant to myriad stakeholders because health communication can contribute to all aspects of disease prevention and health promotion. Some of the targeted beneficiaries of HINTS data are as follows:

- **Health Care Professionals.** Recent articles in the Journal of the American Medical Association have suggested that there has been a change in the ways in which health care providers communicate with patients. Many patients come to their health appointments armed with information — some credible, some not so credible — that they have downloaded from the World Wide Web. Others explain how they have been ordering herbal supplements, and sometimes prescription pharmaceuticals, on line. Health care providers will benefit directly from information about how members of the general public are acquiring their health-related information in order to accommodate their patients’ health information needs.

¹ <http://www.health.gov/HealthyPeople/Document/HTML/volume1/11HealthCom.htm>

- **“Consumer Informatics” Specialists.** Recent meetings of the American Medical Informatics Association have emphasized the emergence of a new field in communication referred to as “Consumer Informatics.” With the emergence of a better educated middle class, along with a broad dissemination of information technology, more and more individuals are personally seeking out recommendations for health living. Consumer informatics specialists are those responsible for publishing the information needed by consumers in easy-to-use and accessible formats. Knowing how individuals acquire knowledge about cancer and cancer prevention should enable consumer informatics professionals to make important decisions about channels (e.g., World Wide Web vs. traditional broadcast media), what type of information to publish within those channels, and how best to reach certain, especially minority, populations.
- **Public Health Professionals.** Directors of public health departments throughout the country are constantly in the position of making critical administrative and budgetary decisions about the number and format of effective Public Service Announcement campaigns. HINTS should provide public health administrators with data on which to base their communication decisions.
- **Behavioral and Communication Researchers.** Much of the scientific knowledge that is underpinning public health campaigns has been collected within traditional “broadcast media” domains. Given the failure of many commercial “dot-com” health web sites, there is some reason to believe that some of the traditional behavioral communication models, which were formulated during an age of one-way broadcast media, may not work as effectively in a highly networked communication environment. New research is needed to inform the next generation of behaviorally oriented communication theories.

A.2.3 Methods of Dissemination

Data from HINTS II will be made available for public use following the removal of all identifying information, such as telephone numbers or names. Data files will be prepared in accordance with standards for protecting the confidentiality of the participants. HINTS II data, then, will be made available through various mechanisms as described below.

- **Reports.** NCI will prepare descriptive reports summarizing the data in terms of cancer knowledge, preventive behavior, and communication preferences. These reports will be made available in hard copy and over the Internet on the HINTS web site (<http://cancercontrol.cancer.gov/hints/>) in accessible formats.
- **Data.** The data files and documentation will be made available via the HINTS web site and on CD ROM for those who do not have Internet access or who request this mode of distribution. In addition to the raw data files, NCI plans to develop an electronic codebook that will allow interaction with the data (e.g., graphical

representations of frequency data can be displayed easily). Including both the raw data and easy access to summary data will allow HINTS II data to be a rich resource for data users (e.g., researchers) and results users (e.g., policymakers).

- **Presentations and Publications.** NCI staff, as well as researchers in cancer and health communication who access the raw data, will prepare presentations that will be made at national conferences such as the American Public Health Association, the Society of Behavioral Medicine, the International Communication Association, and the American Association of Public Opinion Researchers. In addition, research on cancer and health communication will be summarized and submitted to peer-reviewed research journals such as the American Journal of Public Health, Journal of the American Medical Association, Journal of Preventive Medicine, Journal of Preventive Oncology, Health Psychology, and Journal of Health Communication.

A.3 Use of Information Technology and Burden Reduction

Computer-assisted telephone interviewing (CATI) systems will be employed for HINTS data collection activities. The most important features of the CATI system that reduce burden are described below. These features of CATI will not only reduce respondent burden, but also will enable efficient use of study resources and timely capturing of information during the field period.

- **Sampling.** The CATI will be programmed to identify eligible household members and sample respondents for interviews. The use of real-time sampling reduces the need for separate screening and interviewing calls, reducing respondent burden.
- **Scheduling.** The CATI scheduler will be used to route telephone numbers to interviewers, maintain a schedule of callback appointments, and reschedule unsuccessful contact attempts to an appropriate day and time. This system also allows the assignment of random subsets of the total sample to any experimental conditions embedded in the data collection, with unbiased administration of different questionnaire versions.
- **Skip Patterns.** The CATI system will automatically guide interviewers through the complex skip patterns in the questionnaire, reducing the potential for interviewer error and shortening the questionnaire administration time.
- **Multiple Languages.** The HINTS instrument will be translated into Spanish for administration to Spanish-speaking respondents. The CATI system allows interviewers to change between English and Spanish language versions with a single keystroke.
- **Receipt Control.** The CATI system will provide for automatic receipt control in a flexible manner that will be used to produce status reports that allow ongoing monitoring of the survey's progress.

In addition to the portion of the sample that will be interviewed using CATI technology, a web-based survey is proposed in a field experiment for this study to offer an alternative mode of data collection. The web-based version of the questionnaire incorporates the advantages of the CATI system described above in combination with the advantages allowed by self-administered questionnaires (SAQs). The advantages of an SAQ that reduces burden include allowing the respondent to complete the questionnaire at the time most convenient to him or her, allowing the respondent to complete the interview in smaller segments over as many sessions as needed, and reducing social desirability effects to promote candid reporting of information. While approximately 2,500 people will be assigned to a web-based survey condition initially, we estimate that only 25 percent of those assigned (N ~ 625) will complete the interview on the Internet due to issues related to Internet access and nonresponse. More detail on the procedures for the web-based survey can be found in Section B.2.2 – Extended Interview Procedures (Wave 1).

A.4 Efforts to Identify Duplication and Use of Similar Information

The context through which cancer communication occurs has changed dramatically with the availability of new communication channels and technologies. New evidence must be gathered to develop a new generation of cancer communication programs. During the development of the HINTS II instrument, the research team canvassed major data collection efforts to assess the degree to which other surveys collect and report data relevant to these areas. The following is a brief summary of the major sources reviewed.

A.4.1 Communication Media

- **Pew Charitable Trust.** Various instruments designed by the Pew Charitable Trust were reviewed in designing the health communication questions for HINTS. Many of these instruments can be found at <http://www.pewinternet.org/index.asp>.
- **Other Sources.** A number of data collection efforts on Internet usage were reviewed, including those administered by (a) the Departments of Commerce and Education; (b) universities such as the University of California at Los Angeles, Georgia Tech, Rutgers, and Carnegie Mellon; and (c) private companies such as Harris Opinion Polling. In addition, project staff and consultants involved in health communication research were consulted to identify potentially comparable survey collection efforts.

A.4.2

Cancer Behavior, Knowledge, Attitudes, and Beliefs

- **Behavioral Risk Factor Surveillance System (BRFSS).** This survey is sponsored by the Centers for Disease Control and Prevention (CDC) and was designed to monitor, through telephone interviews, health-promoting and disease-preventing behaviors in the general U.S. population. The BRFSS covers topics such as preventive health practices (e.g., exercise, healthy diet, cancer screenings, and condom use), risk behaviors (e.g., tobacco use, alcohol abuse, and drug abuse), access to health care, general health status, and demographic information.
- **National Health Interview Survey (NHIS, OMB No. 0920-214, Expiration 04/2005).** The NHIS is a cross-sectional survey conducted annually by the National Center for Health Statistics. It is a probability sample representing the adult, civilian, noninstitutionalized population of the U.S. Items from the NHIS core pertaining to cigarette smoking, alcohol intake, and leisure-time physical activity were reviewed. In addition, the 2000 NHIS cancer control module was reviewed. It covers topics such as diet and nutrition, physical activity, tobacco, cancer screening, genetic testing, and family history.
- **Current Population Survey (CPS, OMB No. 0607-0049, Expiration 07/2005).** The CPS is a monthly survey of approximately 50,000 households that is conducted by the Bureau of the Census for the Bureau of Labor Statistics. The sample is scientifically selected to represent the adult, civilian, noninstitutionalized population of the U.S. Items on tobacco use contained in the CPS were reviewed for inclusion in this survey.
- **Five-A-Day Survey (OMB No. 0925-0450, Expiration 07/2000).** The National Cancer Institute conducted the National 5-A-Day for Better Health Followup Survey to measure 5-year trends in fruit and vegetable intakes, as well as trends in knowledge, attitudes, and beliefs about diet and nutrition. The study findings will allow NCI to assess the effectiveness of the National 5-A-Day for Better Health Program and other intervention efforts through a telephone survey of approximately 2,600 adults. Items from this survey on fruit and vegetable intake were reviewed.
- **Medical Expenditure Panel Survey (MEPS, OMB No. 0935-0108, Expiration 02/2005).** MEPS is the third (and most recent) in a series of national probability surveys conducted by the Agency for Healthcare Research and Quality on the financing and utilization of medical care in the U.S. Items on contact with health care providers were reviewed for inclusion in HINTS.
- **Consumer Assessments of Health Plans (CAHPS, OMB No. 0938-0732, Expiration 05/2007).** The CAHPS project is a multiyear initiative funded by the Agency for Healthcare Research and Quality. The CAHPS includes multiple survey instruments designed to assess the experiences of respondents with a range of health care products and services. Items on contact with health care providers were reviewed for inclusion in HINTS.

- **Other Sources.** Other cancer resources such as the American Cancer Society (ACS) and C-Change (<http://www.ndoc.org/>) were contacted to assess comparability of data collection efforts on cancer. Advice was also sought from content consultants such as Dr. Robert Hornik of the University of Pennsylvania, Annenberg School for Communication and Dr. Alex Rothman from the University of Minnesota. Dr. Hornik advised NCI on issues related to health communication, including media exposure and incidental exposure to health information. Dr. Rothman lent expertise related to health cognition.

Results of the source review indicated that no existing survey adequately covered the topic areas central to HINTS II. Items from the existing Internet surveys (e.g., UCLA, Pew Charitable Trust, Georgia Tech, and Harris Poll) covered topics related to general Internet usage, but did not relate on-line communication directly to relevant issues regarding cancer or cancer communication. Similarly, items in the health surveys (e.g., NHIS-Cancer Supplement and BRFSS) obtained data about respondents' behaviors and contained a limited number of knowledge and attitude questions, but did not connect specific knowledge about cancer to health communication variables.

None of the surveys asked the questions needed to understand how individuals use the new array of communication options to prevent cancer, support treatment, or preserve quality of life. Efforts were made, nevertheless, to include similar wordings and response options when similar items were found in other surveys that appeared to be relevant to HINTS concepts. Including those items should provide comparability to other data sources and provide value to the government by allowing it to make inferences across data collection efforts.

A.5 Impact on Small Business and Other Small Entities

No small businesses will be involved in this study.

A.6 Consequences of Collecting the Information Less Frequently

As its name implies, the Health Information National Trends Survey is designed to identify trends in national health information over time. HINTS II is intended to be the second round of this biennial, cross-sectional survey of the U.S. civilian, noninstitutionalized, adult population. Less frequent data collection would result in incomplete tracking of these trends. However, this submission is requesting clearance for a one-time data collection (i.e., respondents are not expected to answer this

survey more than once and will not be recontacted). Separate requests will be submitted for future rounds of HINTS data collection.

A.7 Special Circumstances Relating to the Guidelines of 5 CFR 1320.5

There are no special circumstances related to the national survey that would cause the information collection to be conducted in a manner inconsistent with 5 CFR 1320.5. However, this clearance package also includes a laboratory experiment that will be conducted in parallel to the field study to examine methodological issues related to the mode (i.e., telephone versus Internet) of administering the survey. This experiment is explained in further detail in Section A.9.1 – Research Laboratory Experiment. In brief, 100 participants will be brought into a laboratory setting and asked to respond to the survey on two different occasions with 1 week between administrations. These experimental procedures are designed to examine the reliability of responding in each mode, as well as to assess the validity of responses when possible (e.g., height and weight). Allowing a longer interval between administrations may introduce true changes in response (e.g., the number of fruits and vegetables eaten in the past 30 days), thus confounding the primary variable of interest, which is the reliability of the mode.

A.8 Comments in Response to the Federal Register Notice and Efforts to Consult Outside Agency

Notice of this study was published in the *Federal Register* on April 13, 2004 (Volume 69, Number 71, Pg. 19436-19437). A copy of the 60-day notice is provided as Attachment 5. No public comments were received.

HINTS II builds on the input of many experts in the field of cancer and health communication research that were consulted during the development of HINTS I questionnaire. In addition, substantial efforts were made to consult with additional content experts and experts in survey methodology, both internal and external to the agency, on issues related to the survey design plan and questionnaire development. The individuals listed below are external consultants who provided their expertise in specific areas of cancer knowledge and survey methodology.

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Project Role

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Research Methodologist

Health Communications Expert

Health Cognition Expert

Health Communications Expert

A.9 Explanation of Any Payment or Gift to Respondents

Incentive payments to survey respondents have been common practice for several years. Theoretical frameworks such as the social exchange theory (Dillman, 1978), the norm of reciprocity (Gouldner, 1960), and economic exchange (e.g., Biner and Kidd, 1994) all describe and document the effectiveness of incentives in gaining cooperation.

Two different experiments will be carried out as part of HINTS II that involve incentive payments. One will be based in the research laboratory and have one experimental factor (mode of interview). The second will be carried out in the field and will have two experimental factors (incentive and mode of interview). These two experiments are intended to complement one another. The experiment in the research laboratory will provide direct observations on the differences between the modes of communication offered by web-based and telephone interviewing. The field experiment will provide data on how these modes differ in practice where there is less control over who responds, and the conditions under which the response is provided. Convergence of results across field and laboratory experiments would serve to reinforce conclusions drawn from each experiment in isolation.

A.9.1 Research Laboratory Experiment

The experiment in the research laboratory will randomly assign 100 respondents to complete the HINTS II instrument either through a web-based questionnaire or a telephone interview. Each respondent will complete the survey twice in a laboratory setting, with 1 week separating the two administrations. Once the interview is complete, a project staff member will compare the answers between the two administrations and ask the respondent to reconcile any differences between the two interviews. Participants will also be asked to provide more details about the basis for their answer. This experiment is designed to measure the reliability of responding in each mode, as well as probing in more detail why respondents may change their answers across the survey administrations. An important advantage of the laboratory experiment will be the capability of keeping the two experimental groups equivalent with respect to sample composition (i.e., they will be matched on key characteristics and unaffected by differential response rates between the modes). Respondents will be paid \$50 if they participate in all phases of the study.

A.9.2 Field Experiment

An incentive experiment was conducted in HINTS I. A subsample of respondents were randomly assigned to either a control condition or an incentive condition. For respondents assigned to the incentive condition, a \$2 prepaid incentive was sent with the advance letter if an address could be found for the telephone number through a reverse match directory. The results of the experiment indicated that there was a statistically significant increase in the response rates of 11.5 percent for the screener and 4 percent for the extended interview (among “mailable” households). Based on these promising results, a \$2 prepaid incentive will be sent with the prenotification letter to all households for which an address can be found in HINTS II. Subsequently, the entire sample will be screened by telephone.

In this round of HINTS, we plan to conduct an experiment focusing on the extended interview response rates. The HINTS II study design includes a field experiment to be conducted in the first half of the field period that will investigate the effects of incentive and mode on response rate. The experiment is a 3 x 3 factorial design. One factor is the amount of the incentive (i.e., \$0, \$10, or \$20) that will be promised to the respondent for completing the extended interview. The other factor is the mode in which the interview will be administered. The conditions of mode are: (1) telephone interview only, (2) web survey only, or (3) respondent choice of telephone or web. Respondents will be randomized into one of the nine experimental groups at the extended interview. The incentive treatment will be applied when introducing the study to the extended respondent. For those receiving an incentive, the introduction would ask for the respondent’s cooperation and promise the incentive at that time.

Through the implementation of this experiment, we will determine the optimal level of incentive, data collection mode, and interaction between incentive and mode in order to maximize the extended interview response rate. The results of the experiment will be used to inform future HINTS data collection efforts to reduce total survey error due to measurement error and sources of bias.

A.10 Assurance of Confidentiality Provided to Respondents

Volunteers who participate in this study will be subject to assurances and safeguards as provided by the Privacy Act of 1974 (5 USC 552a), which requires the safeguarding of individuals against invasion of privacy. The Privacy Act also provides for the confidential treatment of records maintained by a Federal agency according to either the individual’s name or some other identifier. The

NCI published a *System of Records* notice in the Federal Register on Thursday, September 26, 2002 (Vol. 67, No. 187, pp. 60776-60779). All members of the HCIRB and staff working with HINTS data will adhere to the provisions stipulated within that announcement (see Attachment 4).

The survey instrument includes a statement of confidentiality in the introductory language read to sampled persons. HINTS II will collect and maintain a few personal identifiers during the household screening process to determine individual eligibility. However, none of the identifiers (with the exception of gross geographical measures) will be associated with data collected. Because of the random digit dial (RDD) sample, perhaps as much as 50 percent of the sample will have no identifier (such as address) associated with the phone number. Identifying information that is obtained will be destroyed upon completion of the study. Electronic storage areas will be reformatted using a standard security erase routine and paper documents will be shredded and disposed of securely.

Westat, the study contractor, has its own policy and procedures regarding assurance of confidentiality and a pledge that all employees must sign (see Attachment 7a). Westat provides all safeguards mandated by Privacy and Confidentiality Acts to protect the confidentiality of data gathered for this study. Westat data security procedures comply fully with procedural safeguards for computerized records as outlined in the HHS General Administrative Manual under "Safeguarding Records Contained in Systems of Record" and specified by the National Institute of Standard's and Technology Federal Information Processing Standards (FIPS).

The NIH Office of Human Subjects Review has reviewed this study and determined that it is exempt from NIH IRB review. Westat has its own internal Institutional Review Board under provisions specified by its multiple project assurance plan. Westat's IRB reviewed the HINTS II materials and on April 6, 2004, Westat's IRB Chairman, Dr. Thomas W. McKenna indicated that the project is exempt from IRB review under the provisions of 45 CFR §46.101(b)(2). IRB documentation is provided as an attachment (Attachment 6) to the clearance package.

A.11 Justification for Sensitive Questions

Very few of the HINTS research topics require collection of information on potentially sensitive questions. Respondents will be asked questions about their health, health-related risk behaviors, cancer history, and cancer treatment. All of these potentially sensitive topics are essential to the objectives

of HINTS. This survey will provide an assessment of how the general population accesses and utilizes current communication channels to obtain health information. At the same time, it will collect trend data on cancer knowledge, attitudes, and behaviors. The survey should enable researchers to track the success of national intervention programs designed to improve access to information and, at the same time, to track the hypothesized changes on cognitive and behavioral outcomes.

Study procedures will be designed to make respondents feel as comfortable as possible in answering these questions. These procedures will involve assuring respondents of the confidentiality of their responses and of the voluntary nature of their participation in the survey or any of its components, including specific questions which they may prefer not to answer. Further, participants' names will not appear on any study documents containing data. A crosswalk between study ID and participant name will be kept in a secured electronic file and will be accessible only to those working on the study. Electronic interview data will be identified by the unique study ID only. The linkage between study ID and personal identifiers will be destroyed upon completion of the study.

A.12 Estimates of Hour Burden Including Annualized Hourly Costs

Estimates of hour burden for HINTS II are shown in Table A.12-1. The research laboratory experiment will consist of 100 people attending two, 1-hour sessions that will include completing the questionnaire, as well as debriefing questions and validation measures (e.g., height and weight), yielding 200 burden hours. The household screener will take approximately 5 minutes (.0833 hours) to complete. The extended interview will take approximately 25 minutes (.4167 hours) to complete. There will be 150 people who participate in a dress rehearsal for the field study to assess the procedures for data collection, their combined burden is estimated to be 63 hours. In the field study, approximately 10,239 households will be screened, yielding 854 hours of burden. A subset of the screener respondents (N = 7,004) will complete the extended interview, yielding a burden estimate of 2,919 hours. The total estimate of respondent burden is 4,036 hours.

Table A.12-1. Estimate of respondent hour burden for HINTS II

Type of respondent	Estimated number of respondents	Frequency of Response	Average hours per response	Annual hour burden
Laboratory Experiment	100	2	1.0000	200
Pilot Survey	150	1	.4167	63
HINTS II Screener	10,239	1	.0833	854
HINTS II Interview*	7,004	1	.4167	2,919
Total				4,036

* HINTS II interview respondents are a subset of the screener respondents (N = 10,489).

All respondents in the study will be randomly selected from the United States (U.S.), non-institutionalized population. The cost to the respondents for the total burden is estimated to be \$64,576, that is, \$16 per hour for 4,036 burden hours. This includes 200 burden hours (\$3,200) for the research laboratory experiment, 63 burden hours (\$1,008) for the pilot survey, 854 burden hours (\$13,664) for the household screener, and 2,919 burden hours (\$46,704) for the extended interview. There are no other costs to respondents. These costs are summarized in Table A12-2.

Table A.12-2. Annualized cost to respondents

Type of respondent*	Number of respondents	Frequency of response	Hourly wage rate	Respondent cost
Laboratory Experiment	100	2	\$16.00	\$3,200
Pilot Survey	150	1	\$16.00	\$1,008
HINTS II Screener	10,239	1	\$16.00	\$13,664
HINTS II Interview	7,004	1	\$16.00	\$46,704
Total				\$64,576

*All respondents are members of the U.S., noninstitutionalized population.

Estimated timings of the attached survey instruments (see Attachments 2a and 2b) were developed based on a general rule-of-thumb that six questions can be administered per minute

(see Table A.12-3).² The hour burden on respondents for completing the HINTS II interview is expected to vary depending upon the age and gender of the respondent. This variance is due to the difference in questionnaire modules that sample subgroups will receive. Although men and women will receive different sets of gender-appropriate questions, the estimate of burden for each gender is approximately the same. Older respondents (i.e., those over the age of 35) and those who have never had cancer will be asked additional questions about cancer screening tests that would not be relevant to younger individuals or those with cancer. The remaining variation between the minimum and maximum times estimated can be attributed to skip patterns in the instrument triggered by responses to previous questions in the instrument. For example, people who have heard of specific alternative tobacco products will be asked followup questions on where they learned about the product. People who have not heard of these products will not be asked these followup questions.

A.13 Estimates of Other Total Annual Cost Burden to Respondents or Recordkeepers

There are no costs to respondents beyond those presented in Section A.12. There are no operating, maintenance or capital costs associated with the collection.

A.14 Annualized Cost to the Federal Government

Based on the current HINTS budget, the total cost to the Federal Government for the proposed survey is \$1,364,409 for the 24-month period from September 30, 2003 to September 29, 2005. The annualized cost is approximately \$682,204.50. This amount includes all direct and indirect costs of the design, data collection, analysis, and reporting phases of the study as well as the production of public and restricted data sets. The costs of Federal employees for monitoring the contract are estimated to be \$180,000. These costs are based on 50 percent of the project officer's time, 75 percent of an individual's time to support ongoing data analysis, as well as an additional .5 FTE, which includes several NCI staff who contributed to the content of the instrument.

² We intend to determine the exact length of the questionnaire in the field test. If the interview takes longer than the estimated hour burden presented, we will reduce the length of the interview prior to fielding the survey to be consistent with these estimates. When it is finalized, we will provide the shortened version of the instrument to OMB.

Table A.12-3. Estimated response times by section and gender

Section	Number of items		Estimated times*	
	Minimum	Maximum	Minimum	Maximum
Health communication	27	53	4:30	8:50
Cancer communication	14	40	2:20	6:40
Mental model of cancer	18	18	3:00	3:00
Prostate cancer	0	7	0	1:10
Cervical cancer	5	15	0:50	3:00
Breast cancer	0	3	0	0:30
Colon cancer	1	6	0:10	1:00
Skin cancer	4	8	0:40	1:20
Tobacco use	5	35	0:50	5:50
Energy balance	14	21	2:20	3:30
Health status	9	10	1:30	1:40
Social networks	4	6	0:40	1:00
Demographics	10	22	1:40	3:40
Debriefing questions	1	11	0:10	1:50
Contact information	0	1	0	0:10
Total	Men: 107 Women: 112	Men: 230 Women: 244	Men: 17:50 Women: 18:40	Men: 38:20 Women: 40:40

* NOTE: These time estimates are based a general rule-of-thumb of six questions per minute.

A.15 Explanation for Program Changes or Adjustments

This study represents a new collection of information that will provide data for comparison with the prior HINTS I survey.

A.16 Plans for Tabulation and Publication and Project Time Schedule

There will be three phases of data analysis that will take place during the course of the HINTS II data collection cycle. They include analyses of data from the laboratory study, data from the

field experiment, and data from the field survey. The analysis of each phase is described in further detail below.

A.16.1 Analysis of the Research Laboratory Data

Table A.16-1 provides the research questions for the field experiment and the measures that will be used to address them. Analyses will examine mode differences (i.e., web and telephone) in response distributions and data quality. Response distributions will be compared by the type of question that is asked (e.g., open-ended and closed-ended), and other analyses will be conducted to determine if there is a mode effect on the correlation of items within scales.

Table A.16-1. Research questions and outcome measures to be used in analysis of laboratory experiment

Research question	Outcome measures
What are the differences in response distributions by telephone and web?	Means, response distributions, and variances.
Are there differences in data quality across the two modes?	Debriefing information. Test-retest reliability. How do Association of Cancer On-line Resources (ACOR) respondents report their use of the web?
Are there differences related to the type of question that is asked (e.g., behavioral, recall, attitudinal, and sensitive information)?	Means, response distributions, and variances.
Does the mode affect the correlation among scale and/or related items?	Correlations and cross-tabulations among selected items by experimental group.
What are the differences for open-ended questions across the modes?	Means, response distributions, and variances.
What are the differences for questions with a large number of response categories?	Means, response distributions, and variances.
What oral or physical processes do respondents use to provide an answer (e.g., How often do respondents interact with interviewers? How often do web respondents use online help? How efficiently do web respondents navigate the survey?)	Recording of interviews; tally of number of times respondents use online help. Direct observations of use of web interface by question.

- Open-ended questions.** HINTS II contains a number of items that are open-ended, with the interviewer coding categories from a long list. The web version of these questions will either include an open-ended question, asking for a verbatim response, or provide the list of options to the respondent (e.g., via a drop-down box). These differences in administration may cause a difference in the number and type of responses across modes.

- **Closed-ended questions.** Interviews conducted over the telephone may result in more extreme responses than questionnaires completed on the web because of the difficulty of retaining the responses in short-term memory (i.e., the primacy and recency effect). The web provides the advantage of providing visual stimuli that can be re-examined when the response is being considered. This ability may result in more evenly distributed responses.
- **Examples in questions.** On the telephone, the interviewer is often interrupted with a response before examples (i.e., include things such as...) can be read. This potentially restricts the scope of the respondent's memory search. This restriction is less likely to happen on the web, where the entire question is displayed for the respondent. Therefore, questions with examples in the text might be particularly sensitive to mode differences in response distributions.
- **Scales.** Correlations among theoretically related items and items in a scale will be examined for differences across mode.

The experiment will be supplemented by several additional measures that will be compared across the modes. These measures will assist in the assessment of data quality.

- **Reinterview.** Reinterviews will be conducted to provide information on the comparative reliability across modes. The mode that results in higher reliability will be considered "best" on this dimension. Conflicts in answers between the two interviews will also be probed by the interviewer. To the extent that particular questions perform poorly with respect to consistency across administrations, reconciliation will point to the problems respondents are having with the items. The analysis will assess whether these problems are associated with mode of interview.
- **Probes on answer logic.** Respondents will be probed for further information about the basis for the answers they provided. For example, the respondent is asked, "Have you ever looked for information about cancer from any source?" Respondents will be probed for specific information about the timeframe and the type of information for which they were looking for cancer information. Respondents who cannot provide specifics will be considered to have poorer quality information than those that can.
- **Probes of comprehension.** The debriefing will be used to ask about respondents' definitions of key terms, such as "Medicine or vitamins online" and methods of estimation of the number of fruits and vegetables eaten.
- **Physical measures.** Height and weight will be measured directly and compared to the answers given to survey questions.

None of these analyses will be highly powerful statistical analyses. It would be necessary to find very large effects across the modes in order to find a statistically significant result with only 50 interviews in each experimental group. In addition, the results will not be representative of the general population because of the use of a convenience sample in a laboratory setting. Nonetheless, the level of

detail available from the laboratory experiment should provide important insights into how the response process differs across the modes, as well as giving some sense of differences in distributions and data quality.

A.16.2 Analysis of the Field Experiment

The field experiment will be conducted during the first half of the field period. It is intended to address the research questions above within the context of a survey. In addition to the measurement issues addressed by the laboratory experiment, the field experiment will investigate the research questions related to the effects of incentives and mode on response rates.

The research questions and the measures to be used in the analyses are shown in Table A.16-2. The analyses will examine measurement differences, how the incentive levels affect participation, how the different mode options affect participation, and whether there is an interaction between the mode and incentives on participation.

As with many other mode comparison studies (Bishop et al., 1988; Dillman, et al., 2001; Groves and Kahn, 1979), assessing measurement effects will reflect both differences in the channel of communication (i.e., aural prompts on the telephone; visual on the Web), as well as other characteristics unique to each mode (e.g., differential response rates, item structures). One set of comparisons will take these as given and observe how response distributions compare as a result of the combination of all these differences put together. This comparison is useful to show the result of using the combination of these procedures to collect data.

A second set of comparisons will be made that controls for the differences in sample composition across the groups. To do this, we will conduct analyses that examine characteristics associated with completing the web survey. The analysis will examine mode differences, after controlling for differences identified in key characteristics.

Table A.16-2. Research questions and outcome measures to be used in analysis of field experiment

Research question	Outcome measures
What are the differences in response distributions by telephone and web?	Means, response distributions, and variances.
Are there differences related to the type of question that is asked (e.g., behavioral, recall, attitudinal, and sensitive information)?	Means, response distributions, and variances.
Does the mode affect the correlation among scale and/or related items?	Correlations and cross-tabulations among selected items.
What are the differences for open-ended questions across the modes?	Means, response distributions, and variances.
What are the differences for questions with a large number of response categories?	Means, response distributions, and variances.
Where do respondents fill out the web questionnaire (e.g., home, office, or library)?	Debriefing information.
How often do respondents stop and start the web interview?	Timing data; login information.
Do respondents engage in other activities while filling out the questionnaire? Are there other people present when filling out the questionnaire?	Debriefing information.
What oral or physical processes do respondents use to provide an answer (e.g., How often do respondents interact with interviewers)? How often do web respondents use online help? How efficiently do web respondents navigate the survey?	Recording of interviews; tally of number of times respondents use online help. Time to complete survey.
Does a promised incentive at the extended level increase response rates? What level of incentive gets the highest response rate?	Contact rates, cooperation rates and response rates, debriefing questions on role of incentive.
Does the effect of a promised incentive vary by the type of respondent (e.g., demographics and type of household)?	Demographic and household information from the screener. Census characteristics of the ZIP Code.
Does an incentive affect data quality?	Item(s) missing data, number of responses to open-ended questions, willingness to provide address information.
Does an incentive reduce the time interviewers have to spend getting cooperation? If so, do these savings make up for the cost of the incentive? How does this vary by the amount of the incentive?	Number of attempts to contact at each stage (initial, refusal conversion); amount of time interviewers spend on the telephone at each stage.
Does offering web, then telephone, increase the response rate relative to just using the telephone?	Contact, cooperation, and response rate by initial assigned mode, after followup when offering an alternative mode.
How does giving the choice of either the telephone or web affect response rates?	Contact, cooperation, and response rate by initial assigned mode; after followup when offering an alternative mode.

Table A.16-2. Research questions and outcome measures to be used in analysis of field experiment (continued)

Research question	Outcome measures
Is there an interaction between the level of the promised incentive and mode-specific response rates, types of respondents, and data quality?	Contact, cooperation, and response rate by mode of response and level of incentive. Item(s) missing data, number of responses to open-ended questions, supplying of email and address information.
At what stage in the response process do incentives affect web participation (e.g., agreement to provide contact information, getting to the web site, starting the survey, and breaking off)?	Rates of logon to web site; getting to welcome page; answering first question; completing the entire questionnaire; number accessing web site and completing it by telephone.
What are the predictors of who will participate on a web survey (e.g., demographics, accessibility, type of connection, and intensity of use)?	Age, race, ethnicity, income of household, size of household, location of Internet access; type of Internet access, speed of Internet access.
How do these predictors differ across coverage and nonresponse statuses (e.g., Internet access, refusing the web survey but responding to telephone survey, and not responding to the survey at all)?	Comparison of predictive models for those without web access to those with access but not responding.
Are there key variables on HINTS II (e.g., communication-related) that are correlated with respondents having access to the web and whether they decide to use the web to respond to the survey?	Estimates of key HINTS II measures by web access status, response to web among those with access.

When there are differences observed between response distributions, it will not be possible to definitively state which yields the most “valid” information. Nonetheless, it will be useful to examine any patterns associated with particular types of questions that produce significant differences between the modes.

A.16.3 Analysis of the Field Survey Data

Analyses of HINTS II data will be guided by the seven research questions articulated in Section A.2.1. Research Questions 1, 2, 3, and 7 are aimed at assessing the degree to which the public uses different types of communication media to meet its cancer information needs. The analyses conducted to answer these questions will begin by tabulating weighted estimates of respondents’ use of communication media in general, and will explore differences in media usage by different segments of the population. “Market segmentation” is an essential feature of effective planning activities for large-scale communication efforts. The HINTS II sampling methodology will assure that the needs of Spanish-

speaking and African American communities are adequately represented in NCI's cancer communication programs now and in the future.

The theoretical framework presented in Attachment 7b, however, suggests that simple usage statistics alone will be insufficient to meet NCI's planning needs. Updated theories from the communication literature suggest that a continuum of usage patterns exists, which ranges from mere exposure at one end to highly interactive information seeking at the other. Communication media differ in their support for information needs along the continuum. Traditional broadcast media (television, radio, newspapers, and magazines) work best as vehicles for broad exposure. The so-called "new media" (web sites, email, and Personal Digital Assistants) support the more interactive, information-seeking behaviors at the other end. To answer Research Questions 1, 2, 3, and 7 accurately, analyses must take into account the full range of information consumptive behaviors along the continuum and must relate those behaviors to the full range of media options available to the modern health information consumer. Previous communication surveys have concentrated primarily on exposure variables at one end. This survey is the first to provide in-depth data on the specific ways in which health information consumers utilize all types of media to meet cancer information needs along the full breadth of the continuum.

The theoretical framework underlying HINTS II also incorporates data points suggested by modern "stage" theories of health behavior change. The most critical of these is the "Precaution-Adoption" model proposed by Dr. Neil Weinstein of Rutgers University, a consultant on HINTS I. Research Questions 4, 5, and 6 are designed to produce prevalence estimates of cancer prevention behaviors as practiced by adults in the United States. The analyses conducted in support of these questions will use Dr. Weinstein's theoretical model to explore and substantiate the structural determinants of specific cancer prevention behaviors.

Analysts will use multiple regression and other path analytic techniques (e.g., LISREL) to plot the relationship between media usage and the adoption of precautionary behaviors. Results will contribute to the overall knowledge base in health education and will provide greater specificity to NCI's evidence-based approach to communication.

Westat will take responsibility for preparing the analytic databases resulting from HINTS II. Westat will follow IRB guidelines for protecting participant confidentiality and will ensure that no identifying information be included in the analysis files given to NCI. Table A.16-3 lists the scheduled timeline for conducting analyses and reporting results.

Table A.16-3. Project time schedule

Study activity	Time schedule after OMB approval
Field Test of Study Procedures and Instruments	1 Month
Revision of Study Instruments	2 Months
Main Data Collection	3-7 Months
Data Coding	7-9 Months
Data Delivery	9 Months
Data Dissemination	11 Months
Final Report	11 Months

A.17 Reasons(s) Display of OMB Expiration Date is Inappropriate

NCI is not seeking an exception to the display of the OMB expiration date. The OMB expiration date will be displayed in the upper right-hand corner of all HINTS materials that are seen by respondents (e.g., advance mailings). Additionally, the Burden Disclosure Statement (BDS) will appear on these mailings, as required. While the questionnaires formatted electronically for telephone administration will not be seen by respondents, the OMB clearance number and expiration date will appear on an initial CATI screen. Questionnaires formatted for web-based administration will display the OMB expiration date and BDS as required.

A.18 Exceptions to Certification for Paperwork Reduction Act Submissions

NCI is not requesting an exception to the certification requirements.

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

B.1 Respondent Universe and Sampling Methods

The sample design builds on the methods used during HINTS I. It will be a list-assisted RDD sample of all telephone exchanges in the United States. This approach will result in a nationally representative sample of households.³ During the household screener, one adult will be sampled within each household and recruited for the extended interview. The sample design will yield approximately 7,000 completed interviews.

Table B.1-1 presents expected sample sizes for the full study under our design. A total of 32,759 telephone numbers are expected to be sampled, with an expected yield of 7,000 completed interviews. These are similar to HINTS I sample sizes. A reserve sample of 15,759 telephone numbers will also be sampled and set aside to be used in case expectations are not met; that is, a total of 48,518 telephone numbers will be initially sampled, with 15,759 then set aside as the reserve. We will subsample out 31.3 percent of the nonmailable numbers (numbers for which we have no address information). Before this subsampling takes place, the sample size will be 39,862 numbers, from which the 32,759 will be drawn (see Table B.1-1).

Table B.1-1. Expected sample sizes for full study

	Wave 1	Wave 2	Total
Sampled telephone numbers	17,000	15,759	32,759
Residency rate	47%	47%	47%
Residentials	7,990	7,407	15,397
-----	-----	-----	-----
Screener response rate	66.5%	66.5%	66.5%
Completed screeners	5,313	4,925	10,239
-----	-----	-----	-----
Extended interview response	65.9%	71.1%	68.4%
Yield of extended interviews	3,502	3,502	7,004

NOTE: All figures in the table are rounded, leading to arithmetic inconsistencies (a*b equals c, but rounded, a * rounded b is not equal to rounded c).

³ NOTE: It is necessary to adjust for households with multiple telephone numbers.

It should be noted that the Wave 1 expected extended interview response rate is lower than the Wave 2 expected extended interview response rate due to our plan to carry out the Internet experiments, which will likely reduce response rates. Attachment 7c provides a detailed breakdown of expected response rates in Wave 1 (leading to the aggregate extended interview response rate of 66%).

Our goal is to be able to generate 95 percent confidence intervals that are no wider than ± 4 percentage points for all adults responding to questionnaire items in a particular way, as well as for Hispanic and Black adults separately. We are not oversampling any minority stratum in HINTS II, so that the expected sample allocation to each race/ethnicity group should be proportional to that of the population. Table B.1-2 presents Current Population Survey (March 2003 supplement) estimates of adults in telephone households within the domains of interest, with expected sample sizes proportional to these estimates. The effective sample sizes (the sample size of a simple random sample with the same precision) are smaller by a factor of 1.3. We expect a design effect⁴ of 1.3, allowing for adult selection within households (generating variable weights for adults for differing size households), which generally has a design effect of 1.2; mailable-nonmailable subsampling; and nonresponse weighting adjustments.

Table B.1-2. Expected percentages by race/ethnicity for the HINTS II survey

Race/ethnicity	Adults in U.S. population telephone households (in 1,000s)	Percentage of adults in telephone households	Expected sample size	Expected effective sample size
Hispanic	24,130	11.81%	827	636
Non-Hispanic, Black ¹	22,144	10.83%	759	584
Non-Hispanic, White only	146,541	71.70%	5,022	3,863
Non-Hispanic, American Indian ²	2,179	1.07%	75	57
Non-Hispanic, Asian/ Pacific Islander only	8,977	4.39%	308	237
Non-Hispanic, Multiple race other ³	420	0.21%	14	11
Total	204,390	100.00%	7,004	5,388

¹ Black only, or two-race with one race Black.

² American Indian only or two-race with American Indian, excluding two-race American Indian/Black.

³ All other multiple race combinations.

⁴ Design effect is defined as the ratio of the actual sample variance to the variance of a simple random sample with the same sample size (Kish, 1965, p. 162).

Table B.1-3 presents standard errors for sample percentages ranging from 10 percent to 50 percent, using the standard binomial distribution standard error formula, with the effective sample sizes from Table B.1-2 in the denominator. As can be seen, the Hispanic and non-Hispanic Black percentages are in the range 1.19 percent to 2.07 percent, giving 95 percent confidence intervals with half-widths in the range 2.38 percent to 4.14 percent. Any overall sample size smaller than 7,000 will give confidence intervals for some sample percentages for Blacks and Hispanics significantly larger than ± 4 percent, unless oversampling is done. We do not wish to do oversampling in this study (in contrast to HINTS I), as it will reduce precision levels for the experimental component of the study.

Table B.1-3. Estimated standard errors for domain sample percentages

Sample percentage	Hispanics	Non-Hispanic Blacks ¹	Non-Hispanic White only	Non-Hispanic American Indian ²	Non-Hispanic Asian/Pacific Islander
50%	1.98%	2.07%	0.80%	6.60%	3.25%
40%	1.94%	2.03%	0.79%	6.46%	3.18%
30%	1.82%	1.90%	0.74%	6.05%	2.98%
20%	1.59%	1.66%	0.64%	5.28%	2.60%
10%	1.19%	1.24%	0.48%	3.96%	1.95%

¹ Black only, or two-race with one race Black.

² American Indian only or two-race with American Indian, excluding two-race American Indian/Black.

B.2 Procedures for the Collection of Information

This section describes the data collection procedures to be used in HINTS II. The discussion includes screening procedures, the extended interview procedures that will be used during Wave 1 of data collection during the field experiment, and the extended interview procedures that will be used during Wave 2 of data collection.

If possible, interviewers will be selected from Westat's current pool of interviewers; however, additional interviewers may be hired as needed. Any new hires will participate in Westat's general interviewer training and basic CATI training. All interviewers will be required to successfully complete the Telephone Research Center's (TRC) new automated contact procedures module, which trains and tests interviewers on contact procedures and coding. Experienced interviewers usually complete this program very quickly, leaving more time to focus on project-specific issues. The remainder

of training will focus on information specific to HINTS II. Training will include modeling interviews, role plays, and practice interviews with nonsample participants. Westat staff will carefully monitor the performance of all interviewers before allowing them to begin interviews with sample persons and will provide additional training as needed. We estimate that HINTS II training will require approximately 16-20 hours.

During the first few weeks of the field period, TRC team leaders and other project staff will focus on monitoring activities to identify any problems or a need for retraining. Team leaders will also evaluate the interviewers in terms of their refusal avoidance abilities. Informal meetings of interviewers and team leaders will be held to discuss reasons for nonresponse and to disseminate the nonresponse conversion or avoidance strategies that have been most successful in converting HINTS refusals. Interviewers who are most successful in nonresponse conversion will be assigned to a special team that will focus primarily on refusal conversion work. In addition, a percentage of live interviews will be monitored during the field period in accordance with Westat's standard operating procedures in order to provide interviewers with feedback on their performance and to provide additional training as necessary.

B.2.1 Screening Procedures

The RDD sample will be address-matched using the commercial services of Telematch and Axiom so that advance letters can be sent to potential respondents. A prepaid incentive of \$2 will be included with this letter, as indicated from the results of the HINTS I experiment, as well as other research conducted by Westat (Cantor et al., 2003a). It is anticipated that between 45 percent-60 percent of the sampled telephone numbers will have an address match. The sample will be released in small groups or waves. For each wave, the advance materials will be mailed to households and, subsequently, the sample will be released to the telephone interviewers. This coordination will provide the highest likelihood that respondents will recall the advance materials, and will have the most positive impact on cooperation and response rates. The advance letter will be short and concise and will be written on NCI stationary (see Attachment 3a).

All screeners will be administered over the telephone using CATI. The purpose of the screening interview is to find residential households among the sample of telephone numbers and select an eligible person for the extended interview. A list-assisted RDD sample (a random sample of telephone numbers from all "working banks") will be used for HINTS II.

The list-assisted RDD method is a random sample of telephone numbers from all “working banks” in U.S. telephone exchanges (Tucker, Casady, and Lepkowski, 1993). A working bank is a set of 100 telephone numbers (e.g., telephone numbers with area code 301 and first five digits 294-44) with at least one listed residential number.⁵ The list-assisted method has been used in most RDD surveys in recent years. The within-household sample involves asking the respondent how many adults are in the household, identifying the adults in a nonintrusive way (i.e., avoiding asking for names), and then sampling one adult. One approach is the last birthday method, which is described for example in Binson, Canchola, and Catania (2000). We ask the respondent how many adults are in the household, and then ask which adult has had the most recent birthday. That adult becomes the selected adult. However, some studies have shown that the screener respondent tends to “self-select” using this method. This results in a disproportionate number of female respondents. In addition, there are some concerns that respondents may not fully implement the method because of lack of knowledge about birthdays or the general difficulty of the response task.

Another, more scientific, method involves asking the respondent to list all of the adults in the household. This could be done by asking for the full name or, to be less threatening, identifiers that do not provide personal information (e.g., made-up name; age only). The CATI then randomly selects one adult on this ordered list. The advantage of this method is that it keeps control of the sampling process in the hands of the survey administrators. The disadvantage is that it is more intrusive than the birthday method and may reduce the response rate.

Westat proposes to use the same successful household sampling approach for sampling one adult (18+) per eligible household that was developed for HINTS I (Rizzo, Brick, and Park, 2004). While speaking with an adult, the first step in screening is to obtain the number of adults currently living in the household. A respondent-selection algorithm will be run automatically by the CATI system once this response is entered. The algorithm draws a random number to sample the respondent (or not) with a probability of $1/N$, with N being the number of adults.

- If the respondent is sampled, sampling is complete. For one-person households, the respondent is always sampled.
- If the household contains two adults, and the screener respondent is not sampled, the other adult is sampled and the process is complete.

⁵ NOTE: All numbers are part of the sampling frame, whether listed as residential or not, as long as they are in working banks.

- If the number of adults in the household is more than two, and the screener respondent is not sampled, the “last birthday” method is employed. The respondent is asked which adult, other than himself or herself, has had the most recent birthday. This adult then becomes the sampled adult.
- If the respondent does not know the adult with the most recent birthday, the household is enumerated by initials or first names, and one adult is randomly sampled by CATI.

Use of this screening methodology minimizes the number of screener questions that are asked of a respondent and also minimizes the intrusiveness of the questions for the majority of households, while still accomplishing a valid probability sample.

Some households will not be reached for screening and others will refuse to participate. Among this group, we will send a refusal conversion letter to the households for which we have address matches to request their participation. This letter will explain the purpose of the study and the importance of their participation (see Attachment 3c).

B.2.2 Extended Interview Procedures (Wave 1)

The majority of the content required to answer the research questions for HINTS II is contained in the extended interview. After a respondent is selected from the household, he or she will be asked to complete this portion of the interview. The incentive condition will be disclosed when introducing the study to the extended interview respondent and asking for the respondent’s cooperation. The first questions administered after the introduction will be on whether or not the respondent has access to the Internet. If the respondent does not have access to the Internet, the survey will be administered by telephone, as described below. If the respondent has access to the Internet, he or she will be eligible for assignment to one of the three different mode conditions.

The interview administration procedures differ according to experimental group assignment:

- **Telephone interview only.** The interviewer will proceed with the extended interview and attempt to complete it over the telephone at that point in time.
- **Web survey only.** The respondent will be asked to complete the interview using the Internet. If agreeable, he or she will be asked for an email address so that we can send the information necessary to access the web survey (e.g., URL, ID, and password). Respondents will be informed that their email address will remain confidential, be used only for study purposes, and be destroyed upon completion of the study.

However, if they refuse to provide their e-mail address or do not have one, we will attempt to obtain (or confirm) their mailing address so that we can send them a hard copy of the information. As final option, we will give them the information they need to access the survey over the telephone.

- **Option of Web survey or Telephone.** The respondent will be given the choice of completing the survey in either of the two modes. Those who chose the telephone will follow the telephone-only condition. Those who chose the web survey will follow the path for the web survey condition.

Some sampled persons selected during the screener will not be reached to complete the extended interview and others will refuse to participate. Two weeks after initial contact, refusal conversion letters will be sent to people for whom we have address matches. This letter will explain the purpose of the study as well as the importance of their participation. Then, sampled persons will be called again to elicit participation in the survey in the mode to which they were originally assigned or selected. If a completed interview is not obtained at the first refusal conversion attempt, a second followup call will be made 2 weeks later.

Although one attempt at refusal conversion will be made in the mode that was originally assigned at the initial contact for all groups, there will be slightly different refusal conversion procedures according to experimental group assignment.

- **Telephone interview only.** A refusal conversion letter will be mailed to arrive approximately 2 weeks after the refusal. An interviewer will follow up with a telephone call to attempt to do the interview. If this is not successful, a followup will be attempted 2 weeks later. People assigned to the telephone-only condition who refuse to complete the interview by telephone at this contact will be given the option of completing the web-based survey if they have Internet access. However, no additional followup of this group will occur.
- **Web survey only.** A letter will be sent to arrive approximately 2 weeks after either a refusal or no receipt of the survey. An email will be sent at the same time (if an email address is provided), reminding the respondent about the survey. An interviewer will call shortly after these correspondences are scheduled to arrive and ask the respondent to complete the questionnaire on the web. This followup correspondence will not necessarily involve talking to the respondent. If it is possible to leave a message, either with someone at the household or on an answering machine/voicemail, then no other followup attempts will be made at that time. If, after 2 weeks, no response has been received, an interviewer will call back and attempt to do the survey over the telephone.
- **Choice of telephone or web.** The "Choice" group will follow a sequence that is contingent on what happens at the first contact attempt for the extended interview. If the respondent initially agrees to do the survey on the web, then the sequence will

follow the web survey procedure above. If the respondent refuses at the initial attempt and does not commit to a mode of interview, then the followup attempt will again give a choice of mode. At the third contact attempt, the interviewer will try to complete the interview over the telephone.

Respondents may be compensated for completing the extended interview based on their incentive condition in the methodological experiment. The final point of contact with sampled persons will be to mail them this payment.

B.2.3 Extended Interview Procedures (Wave 2)

Based on the results of the field experiment in Wave 1 of the data collection, decisions will be made about the best level of incentive to use in the second wave to maximize response rates. However, the analyses required to understand the impact of mode on response rates, total survey error, or data quality will not be done in time to make recommendations related to these at the time the second wave is being released. Therefore, all data in Wave 2 will be collected by telephone. This decision was made for three primary reasons including that this procedure (1) will maximize comparability with HINTS I data, which was collected entirely by telephone, (2) will ensure that the overall response rates for the survey are as high as possible, and (3) will preserve the sample size available for data analyses.⁶ Results of data analysis from the HINTS II field experiment will serve as a method to inform future rounds of HINTS.

A series of production and management reports will be generated daily and weekly during the field period. These reports provide information on response rates, cooperation rates, production-to-date in terms of total interviews, and problems encountered during the course of data collection. The results of these reports will be reported weekly to the Project Officer, as well as in the monthly project progress report. Additional reports will be provided as requested by NCI. NCI will be provided both hard-copy and electronic copies of all reports. Reports that present response rates will include the algorithm used for calculating the rate, as well as the data items used in calculations. Westat normally uses the definitions for completion rate and response rate that have been recommended by the Council of American Survey Research Organizations (CASRO). However, we will discuss alternative strategies with NCI and make a final recommendation on the algorithms to be used for HINTS II to NCI for their approval prior to the field period.

⁶ If there is an effect of mode on interview responses, it may be difficult to combine data across the two modes for analyses.

B.3 Methods to Maximize Response Rates and Address Non-Response

B.3.1 Maximizing Response Rates

We expect the following response rates for the RDD screener and interview of HINTS:

- 67 percent response rate for the initial RDD screener, and
- 68 percent response rate for the telephone interview.

Response rates will be calculated in the following manner.

$$\text{RDD Screener Response Rate} = \frac{\text{Completed RDD Screeners}}{\text{Working telephone numbers attempted}}$$

$$\text{Interview Response Rate} = \frac{\text{Completed Interviews}}{\text{Screener and subsampled persons}}$$

These response rates will be calculated as both weighted and unweighted rates. Nonresponse could occur at either the initial screening attempt or the subsequent interview attempt with a subsampled member of the household. However, steps to minimize nonresponse are built into the study protocol. As mentioned earlier, the study will take proactive measures to help ensure that high response rate goals are met. These include:

- **Household Advance Letter.** Although the study will use RDD methodology, advance materials will be sent to all households for which an address can be obtained. The advance letter will describe the study's goals and objectives and will give assurances of confidentiality. Letters will be sent to households approximately 2 weeks before the telephone number is released to the telephone center for data collection (see Attachment 3a).
- **Sampled Person Advance Letter.** If the extended interview is not completed at the time of the household screener, a letter will be sent to the sampled person explaining the study's goals and objectives, as well as providing assurances of confidentiality. If respondents are selected to receive an incentive, the incentive amount will be included in this letter. A toll-free number will also be included for respondents to call if they have any questions about the study or would like to conduct the interview. If they provided their email address, an electronic version of this letter will be sent to respondents who are to complete the survey on the web (see Attachment 3b).

- **Experienced, well-trained interviewers.** Interviewer training will focus on gaining cooperation in the first minute or so of the initial contact with a potential respondent. Further emphasis will be placed on successfully making the transition from the screener to the interview, with special emphasis on situations where the screener respondent and the subsampled interview respondent are different members of the household.
- **Refusal Conversion Letters.** For refusing households or sampled respondents within households (with an address available), a refusal conversion letter will be sent. The refusal letter will address some of the main reasons for refusals. (See Attachment 3c).
- **Refusal Conversion Calls.** Data collection supervisors will select a group of the most effective interviewers to recontact refusing households or individuals in an attempt to gain cooperation.
- **Multiple Modes.** The interview is being conducted over the telephone and on the Internet. Initially, respondents will be randomly assigned to a mode for completing the interview. However, as part of the refusal conversion process, respondents will be offered either mode to complete the interview to try to increase response rates.
- **Incentive Experiment.** As previously described, we will be conducting an incentive experiment to determine the effects on response rates of promising respondents an incentive for completing the extended interview.

B.3.2 Addressing Nonresponse

Sample weights will be provided for each completed interview to allow for unbiased estimation of national percentages. The sample weights are products of the base weight, a nonresponse adjustment, and a poststratification adjustment. The base weight is the reciprocal of the probability of selection of each sampled adult. The nonresponse adjustments are designed to reduce the potential bias caused by differences between the responding and nonresponding population, and are equal to the reciprocals of weighted response rates within carefully selected response cells. The poststratification adjustment modifies the nonresponse-adjusted base weights to the most recent Current Population Survey (CPS) (OMB No. 0607-0049, Expiration 06/2002) totals of adults by race, ethnicity, age, region of the country, and other demographic factors. This adjustment has the effect of reducing variance, and also of partially adjusting for the loss of persons who reside in nontelephone households.

Replicate weights will be produced which will allow for the computation of consistent variance estimators for a wide range of estimates and analyses. These weights are based on the jackknife method, in which the sampled telephone numbers are assigned to groups based on the RDD sample

design, with each replicate weight corresponding to the dropping of one group. The weights will be used to produce consistent variance estimators for totals, means, ratios, regression coefficients, logistic regression coefficients, and so forth. The replicate variance estimator is designed to give unbiased variance estimates for any linear statistics (such as totals and means) under full response, and to give consistent variance estimates for any other statistics. The nonresponse and poststratification adjustments will all be replicated as well so that the jackknife variance estimator correctly accounts for these adjustments. Stratification information necessary to compute linearization variance estimates will also be available using software packages such as SUDAAN.

B.4 Test of Procedures or Methods to be Undertaken

This is the second administration of HINTS. As such, the procedures for providing a prepaid incentive to respondents and conducting the interview by telephone have been previously tested. The prior survey also served as a test of many questions in the HINTS II instrument (i.e., approximately half of the questions are the same). In addition to the experience gained from HINTS I, we are conducting the following activities to test the procedures for HINTS II.

- **Cognitive Pretesting.** Two rounds of cognitive testing with nine respondents each were conducted on different versions of the questionnaire. The point of these interviews was to get enough information about respondents' comprehension and preparation of a response to assess whether they understood questions and responses as the researchers intended. These one-on-one sessions provided valuable insight into how individuals comprehend a question and how they generate their response. Results of this process have brought about revisions to the questionnaires included with this package.
- **Usability Testing.** Usability testing will be conducted with the web-based survey instrument to ensure that respondents (representative of the survey sample) are able to complete the steps of accessing the web site, complete the survey, and submit their data. One of the problems inherent in fielding a web survey is that there is likely to be variation among potential respondents in their browser capabilities and line transmission speeds. Westat will thoroughly test the web site and the online instrument using our in-house Usability Laboratory. Results from the usability testing of the web-based version of the instrument will be used to refine the administration procedures and presentation of the online version.
- **Research Laboratory Experiment.** The experiment in the research laboratory will randomly assign 100 respondents to complete the HINTS II instrument either through a Web-based questionnaire or a telephone interview. Each respondent will complete the survey twice, with one week separating the two administrations. This design is

intended to measure the reliability of responding in each mode, as well as probing in more detail why respondents may change their answers across the survey administrations. This study will provide further insight into the usability of both the telephone and Web-based versions of the survey.

- **Dress Rehearsal.** A full-scale telephone field test or “dress rehearsal” will be conducted immediately prior to the main data collection. The interview conditions for the dress rehearsal will simulate the actual survey as closely as possible. Approximately 150 English-speaking respondents will be randomly screened and interviewed and 50 Spanish-speaking respondents will be interviewed. Spanish-speaking respondents will be purposively selected, rather than randomly selecting them using an RDD sample, because it will be disproportionately expensive to find 50 Spanish-speaking respondents who would prefer taking the Spanish version of the survey solely through RDD sampling. The dress rehearsal interviews will be conducted over a 5-day period and will provide an important check on CATI programming as it will offer insight into further training issues (if needed), and it will provide an initial set of data to examine for variability. In light of the results, revisions can be made to both the programming and training program.

B.5 Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The following individuals were critical in developing the research plan, the conceptual framework, survey questions, and sampling strategies underlying HINTS. Many of the same individuals will be involved with analysis of HINTS data once those data are collected.

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