Supporting Statement B

Revision Request for Clearance

NATIONAL HEALTH INTERVIEW SURVEY

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B. Collection of Information Employing Statistical Methods

1. Respondent Universe and Sampling Methods

The NHIS is a cross-sectional household interview survey. The respondent universe is the civilian, noninstitutionalized population of the US. Approximately every ten years, the NHIS sampling plan is revised following the decennial census of the population. From 2006-2015, the sampling plan was based on the 2000 decennial census. In 2016, a new sampling plan was implemented to keep the sample current with population distribution changes over the decade. The details of the sampling design are documented, Moriarity et al. (2022), in a National Center for Health Statistics: Vital and Health Statistics report available on the NCHS website (https://www.cdc.gov/nchs/data/series/sr_02/sr02-191.pdf).

The 2016 NHIS sample design is structured with a nationally focused design as its core and contains large reserve samples that can be used to increase the overall sample size or achieve state or minority estimation objectives. The sample design considers demographic shifts in the U.S. civilian, noninstitutionalized population, and allows for additions and contractions in the sample size to reflect funding availability and to meet estimation goals. The annual base sample for the 2016 design includes approximately 58,800 addresses. With the questionnaire redesign in 2019 and the 2019 response rates, the base sample is expected to yield approximately 28,800 sample adult and 8,400 sample child completed interviews in 30,000 households annually. In general, the sample is allocated proportionally to state populations to maximize the precision of national-level estimates. However, a small portion of the sample in the most populous states is shifted to increase sample in the 10 least populous states, enabling slightly more precise state-level estimates of key variables to be produced for these states when pooling multiple years of data. This flexibility reflects the increasing demand for state-level health outcomes. The sample for 2024 includes an oversample of non-metropolitan areas to help provide more stable estimates of health characteristics of adults in rural areas. This oversample may be continued in future years depending on funding availability.

While the sampling frame for the NHIS had traditionally used field listing by the Census Bureau, in order to contain costs, the frame used from 2016 onward employs a commercial list that covers addresses within all 50 states and the District of Columbia. Supplementary field listing is undertaken to improve coverage in rural areas with poorly defined addresses and in high density areas with addresses that are too general (such as drop boxes for apartment buildings).

The sample design implemented in 2016 has not been found to affect estimates generated using NHIS data compared to previous years. To monitor the design's performance, NHIS analysts perform monthly checks as part of routine data quality reviews. In addition to comparing the unweighted and weighted frequencies, the input and output specifications are reviewed, and the flowcharts are compared to the skip instructions and universes for each question. If a difference is found, steps are taken to determine whether the change is legitimate or whether there is a factor other than the programming of the questionnaire such as the location or context of the question in the questionnaire. If a difference persists, the paradata are reviewed to determine whether there are changes in the mean or median time spent on that question, whether interviewers had a high rate of backing up to return to that question, and whether other questions in that battery were similarly affected. Persistent differences are examined to determine whether there is any other interviewer effect, such as differences between newly hired and experienced interviewers or newly added primary sampling units compared to continuing primary sampling units. In addition, national estimates on the key set of indicators that are released in a quarterly report as part of the Early Release program are monitored by NHIS analysts.

One follow-back study to the NHIS may be continued if funding is available. The NHIS Teen follows up with adolescents age 12-17 in the NHIS by web, phone, or mail to ask them questions about topics that were already included in the NHIS and some new content specifically for the follow-back. The annual NHIS selects one sample child from each household that includes children age 17 or under. Approximately 3,000 NHIS sample children age 12-17 years could be invited annually to participate in the NHIS. We expect approximately 30 percent these adolescent children age 12-17 to complete the adolescent follow-back survey.

2. Procedures for the Collection of Information

The U.S. Bureau of the Census is responsible for drawing the final sample and for performing the necessary field procedures related to data collection and initial processing. Specifications for the field operations are provided by the Division of Health Interview Statistics (DHIS) staff at NCHS.

DHIS staff provides to the Census Bureau specifications for the sample design, specific content of the questionnaire, detailed instructions for the administration of the interview, and procedures to carry out quality control measures, such as reinterview and paradata analysis. The Census Bureau, in addition to drawing the sample, performs supervisor and interviewer training and conducts the field operations. These operations include first contacting all households via an advance letter (Attachment 10a), followed by a personal visit. The roughly 900 trained interviewers working on the NHIS are directed by survey supervisors in the six U.S. Census Bureau Regional Offices. Interviewers (also referred to as Field Representatives or FRs) receive initial and/or annual refresher training in common interviewing procedures, the concepts and procedures unique to the NHIS, and survey content changes. In some cases, contact via telephone is also used under certain circumstances: telephone interviews may be attempted when efforts to make personal contact have not been successful, when the respondent requests a telephone interview, when part of the interview needs to be completed and it is not possible to schedule another personal visit, or when road conditions or travel distances would make it difficult to schedule a personal visit.

DHIS staff monitor the field activities through observation and communication with Census during all phases of data collection and through the analysis of paradata (such as audit trails, contact history, and item timing). Frequent status meetings are held to assess progress toward data collection goals.

The 2019 survey redesign provided an opportunity to evaluate weighting processes that had been in place since 1997. Based on that evaluation, the 2019 weighting process was updated to include person-level weighting classes based on response propensity and calibration based on more detailed demographic data. Starting from 2019, data are weighted to produce national estimates using the following components: the reciprocal of the probability of selection; household- and person-level nonresponse adjustments based on the inverse of the median response propensity within the propensity quintile, and raking adjustments to the U.S. population by age, sex, race-ethnicity, education, Census Division and MSA.

Standard errors may be calculated using a Taylor linearization approach as applied in SUDAAN variance software. (See: Research Triangle Institute. SUDAAN Language Manual; Release 11.0. Research Triangle Park, NC: Research Triangle Institute. 2012.)

A small sample of respondents is reinterviewed by the Census Bureau to ensure that interviewers are not submitting falsified information. NHIS reinterviews are conducted primarily by telephone, by staff at one of the Census Bureau's centralized call centers. The reinterview is very brief and verifies that the original

interview was completed. Typically, the NHIS reinterview is conducted within two to three weeks of the main survey with the same respondent who originally participated in the NHIS. The reinterview questionnaire is shown in Attachment 9d.

Additional technical details on routine survey execution can be found in the National Center for Health Statistics (2021) Survey Description Document available at https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2021/srvydesc-508.pdf.

A sample of adult respondents that is not part of the sample set aside for MEPS (OMB# 0935-0118, expires 11/30/2025) may be selected to participate in follow-back surveys and special methodological projects. For instance, NHIS respondents may be included as participants in methodological projects and cognitive testing that will inform the development of new rotating and supplemental content using web and/or mail survey tools. Additional details about these methodological activities are provided in Attachment 6.

3. Methods to Maximize Response Rates and Deal with Nonresponse

As 2023 NHIS data collection is still underway, the latest year of available data is from the 2022 survey. In 2022, the household response rate was 53.5 percent. The sample adult response rate was 51.4 percent. The sample child response rate was 50.6 percent. Response conform to the American Association of Public Opinion Research (AAPOR) Response Rate Definition # 2, or AAPOR RR2 (AAPOR, 2016).

The NHIS, like most surveys, has witnessed steadily declining response rates. Reasons for declining response rates may include decreased interest in and sense of civic duty to complete surveys, particularly as surveys proliferate across sectors, and growing time constraints. In 2022, NHIS FRs also reported, via a survey, conference activities, and focus groups, increased mistrust of and hostility toward the government and CDC in particular and an acceleration in the proliferation of access barriers including gated communities, locked buildings without door attendants, and video front door screening devices such as Ring doorbells.

To help address these challenges, in 2023 NHIS will implement a series of new FR supports and tools designed to help them overcome access barriers and motivate response. The first is a brief training program in writing short personal notes to leave at the door, a program inspired and informed by the insights of FRs who currently use this strategy effectively. The second and third are a quarterly FR newsletter with tips for converting reluctant respondents and updates on NHIS in the news and NHIS research that FRs can use to demonstrate the impact of the data, and containers such as bags or envelopes with handles FRs can use to leave materials or notes on doorknobs or gateposts. The fourth is a set of customized communication tools designed to pique the interest of the demographic groups that are hardest to contact and least likely to respond to the survey.

To provide respondents with advance notification of the interview in an attempt to maximize response rates, an advance letter is sent to all sampled addresses prior to the interviewer's arrival (Attachment 10a). The letter legitimizes and justifies the survey, increasing the probability that the respondent will cooperate. It references the authorizing legislation of the survey, a statement of confidentiality and an explanation of how the data will be used, as well as the voluntary nature of the survey and other elements for informed consent. The letter further explains the purpose of and need for the survey and tells the respondent that there is some chance that they may be contacted more than once. If at the time of the initial contact the interviewer is told that the letter was not received, another letter is provided prior to the interview and time is allowed for the person to read it before proceeding. Additional written materials have been developed in recent years to supplement the advance letter, most recently a letter the FR may leave for or send to the Sample Adult (SA),

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if different from the household respondent. This letter explains why no one can take the SA's place either as the subject of the SA interview or as the SA respondent. This letter was developed in response to a request for such a letter from the FRs. (Attachment 10b). In addition, targeted interviewer training modules on improving respondent cooperation (such as gaining cooperation, accessing respondents through gatekeepers, and averting refusals) are presented at initial training for new interviewers and at least once a year during their annual refresher training. This year, refresher training will be augmented with the note writing guidance, communication tools, and newsletter content.

If the time of contact is inconvenient for a respondent, interviewers offer to schedule an appointment for a more convenient time. If the respondent declines the interview with one interviewer, the field work supervisor often reassigns the case to an interviewer with more experience at converting reluctant respondents. Although face-to-face interviews are preferred, interviewers are allowed to substitute telephone interviews if attempts to get a face-to-face interview are not successful.

An incentive of $5 in cash was provided to adolescents who completed the 15 minute NHIS Teen survey as a token of appreciation, which reflects a similar rate seen in other adolescent surveys (e.g., the National Survey on Drug Use and Health offers $30 for an hour-long interview). An additional non-conditional $5 cash token of appreciation was offered to adolescents who had not completed the survey after the first weeks of the study period.

In the third quarter of 2016, an adaptive design experiment (OMB # 0920-0214, approved 6/9/2016;) was carried out to test the impact of adaptive case prioritization on sample representativeness and nonresponse bias, while maintaining survey costs and minimizing any possible negative effect on the overall response rate. Initial analysis suggests that the last two criteria were met: cost neutrality and no reductions in response rates. However, the primary goal of the experiment, reduction of nonresponse bias, does not appear to have been met. Although R-indicator values indicated greater sample representativeness in the treatment group, compared to the control group, for the first month of the experiment, corresponding values for the last two months indicated either no differences or less sample representativeness in the treatment group. In addition, and using past nonresponse bias analyses as a guide, comparisons of key health estimates between the treatment and control groups provided no evidence that the treatment estimates represented an improvement (i.e., reduction of nonresponse bias) compared to the control estimates. In sum, initial results were not indicative of an overall improvement in data quality due to the adaptive design protocol. Therefore, the decision was made for 2017 to return to data collection procedures in place prior to the experiment. A revised case prioritization protocol may be tested and/or implemented in a future NHIS data collection. Case prioritization would affect only interviewer activities and would neither affect nor alter public burden from conducting the NHIS.

4. Tests of Procedures or Methods to be Undertaken

For 2024-2026, a series of small-scale projects is planned to evaluate and inform future content for the questionnaire, building on and extending the findings from prior follow-back surveys and methodological experiments described in Supporting Statement A and Attachment 6. These projects will serve to inform the development of new rotating and supplemental content, by testing new and updated questionnaire items, evaluating the impact of different response options on response frequencies, and measuring respondents' comprehension of health care-related terms and concepts.

Other developmental work related to the NHIS questionnaire is conducted by the NCHS Collaborating Center for Questionnaire Design and Evaluation Research (CCQDER) under their clearance (OMB No. 0920-0222, expires 01/31/2026).

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

The following people were consulted in the statistical aspects of the design and collection of the NHIS:

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References

The American Association for Public Opinion Research (AAPOR). (2016). Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys (9th edition). AAPOR.