

Supporting Statement Section B

Collection of Information Employing Statistical Methods

1. Universe and Respondent Burden

The COVID-19 questions will be included among the annual core and rotating core questions for Quarters 3 and 4 (July 1-December 31), 2020. These questions will continue into 2021 and will be part of the NHIS revision package that will be submitted later this year. The sample adult follow-back will use the same questionnaire. The universe for the sample adult follow-back includes sample adults who completed the 2019 NHIS and were not part of the sample that was provided to the Agency for Healthcare Research and Quality (AHRQ) to participate in the Medical Expenditure Panel Survey (MEPS). Please refer to the currently approved Information Collection Request (ICR) for the National Health Interview Survey (OMB Control No. /ICR Reference No. ICR 0920-0214) for more information on the design of the NHIS.

2. Procedures for Collecting Information

Data collection for the NHIS shifted from personal visit to telephone data collection due to COVID-19 in the in the middle of March. Data collection has continued by telephone since then. Telephone is not an entirely new mode of data collection for the NHIS. Some telephone data collection is used each month to follow up on respondents who were unable to be contacted in person or to complete the interview during a personal visit. Nonetheless, we are monitoring how this shift to entirely telephone data collection affects the quality of the data.

Measures have been taken to achieve adequate coverage of the NHIS address based sampling frame. First, a sample vendor matched telephone numbers to approximately 54% of the addresses included in the sampling frame for the month of April. Next, Census field representatives used a variety of additional databases and search methods to identify telephone numbers for as many of the remaining address in the sample as possible. Analyses of process data collected with the NHIS contact history instrument found that Census FRs made telephone calls to more than 90% of the addresses on the sampling frame. While these initial findings are encouraging, we do not know for sure how many of the telephone numbers were for the correct address when no one ever answered a call throughout the field period. We are continuing to investigate the quality of the telephone numbers being used to assess the coverage properties of our sample with telephone interviews.

In April, the response rate fell from approximately 60% to about 40% due to the switch in modes. This increases the potential for nonresponse error in the data. Initial analyses of the data show that respondents in April are more likely to be older, college educated, own their home, and suburban than the respondents who completed the NHIS in quarter 1 of 2020.

We looked at 17 health estimates that were not likely to be affected by the COVID-19 outbreak. The estimates were weighted with the sample base weights only – no nonresponse weighting is available at this time. Four estimates differed significantly between Q1 and April at the $p=.10$ level. We then examined the differences for these estimates more closely by running regression

models that controlled for ten variables that we use in our weighting process. One of the variables was no longer significantly different over time, while significant differences remained for the other three variables. Additional analyses of the data are planned to investigate the potential for nonresponse bias. Alternative weighting adjustment procedures will also be explored to correct for bias in the data.

The COVID-19 questions will be administered in the same manner as other questions on the NHIS. That is, they will be administered during a personal visit if field conditions allow during the rest of the year. Otherwise, they will be administered over the telephone using the same questionnaire. Please refer to the currently approved Information Collection Request (ICR) for the National Health Interview Survey (OMB Control No. /ICR Reference No. ICR 0920-0214) for more information on the design of the NHIS. We have included a power analysis in Attachment C to demonstrate the expected precision of the estimates from data collected July-December of 2020 and all of 2021. We used the NCHS standards for reliability in determining whether we have adequate sample size (Parker et al., 2017). Reliable estimates can be produced from NHIS when the estimated percentage is greater than 2 percentage points and the sample size for the population of interest is at least 2,000. The NHIS annual sample size is usually about 27,000 sample adults, and 2,000 is about 7.5%. In other words, with a single year of data, NHIS can yield reliable annual estimates for any subpopulation that is at least 7.5% of the total population. By including the COVID-19 related questions in July 2020 and combining the 2020 data with data collected in 2021, in general, NHIS will be able to produce reliable annual estimates for any subpopulation that is at least 2% of the total population. This is why it is beneficial to add these questions at this time.

The sample adult follow-back will also generally use the standard procedures for the NHIS with three exceptions. First, it will be conducted entirely by telephone, even if production interviewing for the NHIS returns to personal visit. Second, rather than rostering the household and randomly selecting a sample adult, the Census field representative will ask to speak with the sample adult who completed the NHIS in 2019. Third, there will be no attempt to conduct a sample child interview.

We conducted power analyses to determine if the sample adult follow-back would have adequate power to detect changes over time in key health estimates. Power in a dependent sample like the sample adult follow-back is a function of the size of the estimate, the correlation between two variables over time, and the size of the difference between the estimated percentages. For example, Table 1 shows that we have adequate power (>.80) to detect 2 percentage point differences in a wide range of variables.

Estimate:	20% (e.g., chronic pain)			30% (e.g., < 7 hours of sleep)		
	.40	.50	.60	.40	.50	.60
Correlation:						
Difference:	Power					
1%	.43	.50	.59	.35	.40	.48
2%	.95	.98	.99	.88	.93	.97
5%	1	1	1	1	1	1
10%	1	1	1	1	1	1

3. Methods to Maximize Response

Since the COVID-19 questions are integrated into the main NHIS, interviewers will utilize the same methods they are already using to maximize the response to the NHIS. For example, advance letters and brochures describing the survey are sent to all sampled addresses prior to the interviewer's arrival. Additionally, interviewers offer to schedule appointments that are convenient for respondents. Please refer to the currently approved Information Collection Request (ICR) for the National Health Interview Survey (OMB Control No. /ICR Reference No. ICR 0920-0214) for more information on the design of the NHIS.

4. Testing of Procedures

NCHS developed the 2020 COVID-19 questions in consultation with the Census Bureau and experts from several agencies, as noted in Supporting Statement A. Due to timing constraints, NCHS was unable to conduct formal cognitive testing of the COVID-19 questions. However, the questions have been reviewed by knowledgeable staff at NCHS and the Census Bureau. In addition, several of the questions will be subject to methodological research conducted by NCHS's Collaborative Center for Questionnaire Design and Evaluation Research using their Research and Development Survey (RANDS). Finally, the COVID-19 questions are subject to the same CAPI testing procedures as are all sections of the NHIS, including instrument testing and output testing.

5. Contact Persons

The following person was consulted in the statistical aspects of the design and collection of the NHIS:

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Attachments

- A. COVID-19 Questions
- B. Proposed Uses of the Data and Duplication with Other Surveys
- C. Power Calculations
- D. ICR 0920-0214 SSA

References

Parker JD, Talih M, Malec DJ, et al. National Center for Health Statistics Data Presentation Standards for Proportions. National Center for Health Statistics. Vital Health Stat 2(175). 2017.