

Impact of the Pandemic on National Health Interview Survey Data Collection

Stephen Blumberg

Director, Division of Health Interview Statistics

CDC/National Center for Health Statistics

2021 FCSM Research and Policy Conference

November 2, 2021

National Health Interview Survey

- **Purpose:** To monitor the health of the US population through the collection and analysis of data on a broad range of health topics
- **Sample:** Address-based, clustered sample of housing units from every state, to be representative of the civilian noninstitutionalized US population
- **Mode:** In-person interviews by Census interviewers, with follow-up by telephone if needed
- **Questionnaire:** Includes sample adult and sample child sections
- **Data collection:** Continuous, with quarterly and annual data files
- **Sample size:** Complete interviews for 27,000+ sample adults and 9,000+ sample children annually

2019 NHIS Questionnaire Redesign

- Improve the relevance of covered health topics, better meeting the needs of DHHS and other data users
- Harmonize overlapping content with other federal health surveys
- Reduce respondent burden and improve data quality
- Shorten questionnaire and reduce variation in interview times
- Eliminate or reduce content better covered by other methods
- Establish a long-term structure of periodic content



2019 NHIS Questionnaire Redesign

- Reduced the total possible number of respondents from 3 to 2
 - Dropped the family interview
 - Shortened overall length of the interview from 73 minutes to 48 minutes (median)
 - Eliminated use of flashcards, simplified answer categories
- All of which made it easier to transition to a telephone survey



National Health Interview Survey and the Pandemic

- **Personal visits and field listing halted on March 19**
- **Telephone contacts only from March 19 to June 30**
 - Phone numbers obtained for:
 - 60% of addresses from commercial address list supplier
 - 33% of addresses from internet searches and interviewer effort
 - Phone contact made with 61% of addresses (April-June)

National Health Interview Survey and the Pandemic

- **Personal visits and field listing halted on March 19**
- **Telephone contacts only from March 19 to June 30**
 - No impact on March response rates (~59%)
 - Response rates declined in April-June (~42%)
 - Respondents were older and more affluent

Sociodemographic Comparisons

	2020 Q1	2020 Q2
Age group		
18-29 years	13.6	11.1
65 years and over	28.8	31.5
Race/ethnicity		
Hispanic	14.4	11.3
Non-Hispanic black	11.2	9.4
Non-Hispanic white	66.7	71.9
Educational attainment		
Less than a HS diploma	9.5	6.7
BA/BS or higher	36.5	40.5

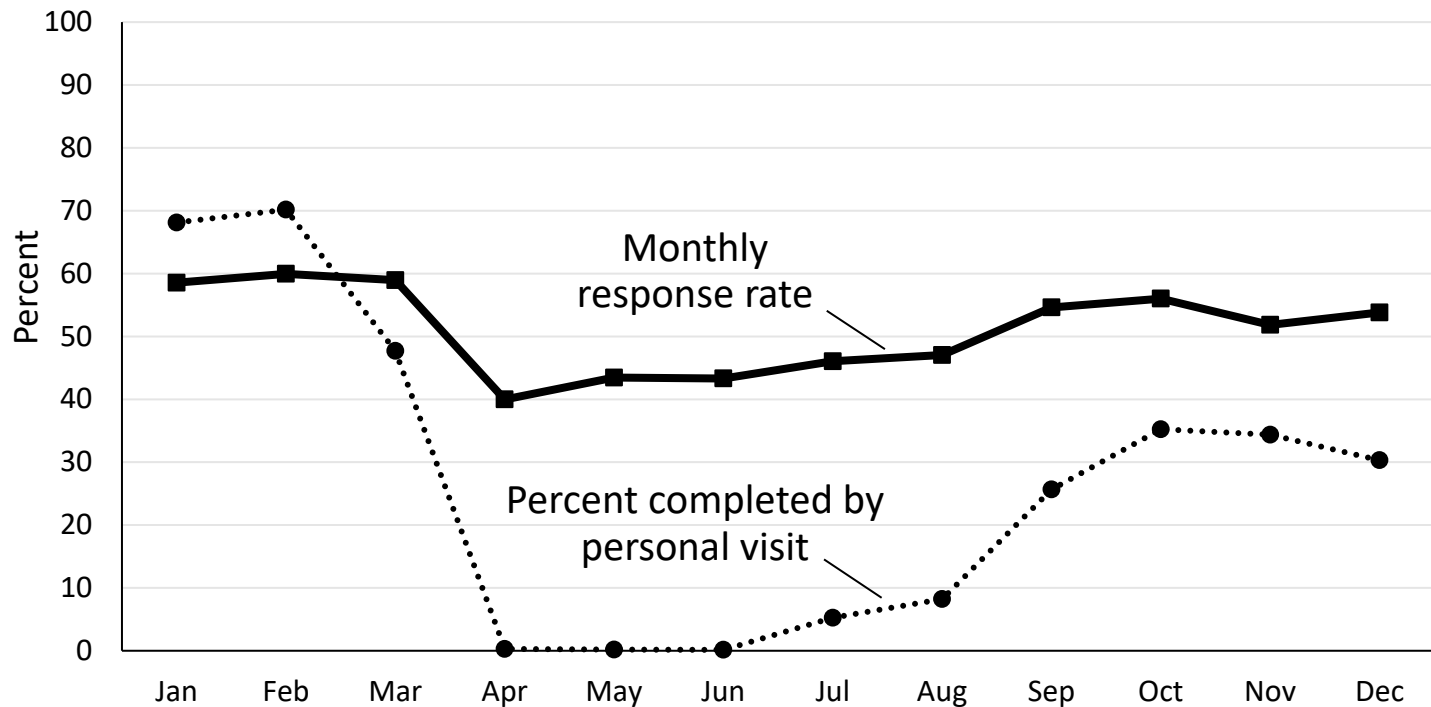
	2020 Q1	2020 Q2
Own residence	65.1	73.1
Years at current residence		
Less than one year	13.0	8.5
1 to 3 years	21.6	20.0
4 to 10 years	24.8	24.8
11 to 20 years	19.2	22.2
More than 20 years	21.4	24.5
Total family income		
Less than \$35,000	26.0	20.5
\$100,000 or more	26.6	29.2

Estimates are weighted by the initial household base weight which is the inverse of the probability of household selection.

National Health Interview Survey and the Pandemic

- **Personal visits in limited areas resumed July 1**
 - Resumed in all areas by September 1
- **Telephone first approach**
 - In-person visits to follow-up on nonresponse, to deliver recruitment materials, and to conduct interviews when telephone numbers were unknown
 - Response rates increased as personal visits increased

Household Response Rates and Percent of Household Interviews Completed In Person, by Month: NHIS 2020



Sample Adult Followback Survey

- **In August – December 2020, NHIS attempted to recontact by phone about 20,000 sample adults who completed interviews in 2019**
 - Sampling frame has known coverage properties
 - About 97% of the sample adults provided a phone number in 2019

Sample Adult Followback Survey

- **In August – December 2020, NHIS attempted to recontact by phone about 20,000 sample adults who completed interviews in 2019**
 - Completion rate was 55%
 - This denominator excludes 10% of eligible sample lost to follow-up due to insufficient contact information (no name), death, incarceration, or placement in institutional group quarters
 - Younger adults, renters, and adults with less formal education were less likely to be reinterviewed
 - Adults reporting excellent or very good health in 2019 and adults with greater use of preventive health care were more likely to be reinterviewed

Sample Adult Followback Survey

- **In August – December 2020, NHIS attempted to recontact by phone about 20,000 sample adults who completed interviews in 2019**
 - Used the same questionnaire as the 2020 NHIS
 - Sample can be combined with 2020 NHIS production sample
 - Data users can examine intraindividual changes in health, health care, and well-being from before and during the pandemic

Four Different Designs, Same Questionnaire

	Number of Addresses	Number of Completed Adult Interviews
1. Normal operations (January-March)	16,555	8,063 (25.5%)
2. Telephone only (April-June)	16,652	5,795 (18.3%)
3. Telephone first (July-December)	17,419	7,297 (23.1%)
4. Sample adult followback (August-December)	19,409	10,459 (33.1%)
Totals:	70,035	31,614 (100%)

Note: Final data files include 31,568 completed interviews after dropping 46 cases with data quality concerns.

Weighting Challenges

- **How to combine and weight the four samples**

Weight #1: For 2020 official statistics, with recalculated base weights

Weight #2: For longitudinal analyses using followback sample

Weight #3: For production sample if analysts combine years

Weighting Challenges

- **How to incorporate additional nonresponse and calibration approaches**
 - Recursive partitioning models (RPM) to model response propensity for nonresponse adjustment with followback sample
 - RPM nodes also to be used when calibrating followback sample data
 - Addition of housing tenure to age, sex, race/ethnicity, and education when calibrating production sample
- **Even after weighting adjustments, some biases remained**
 - Adults living alone and those in poverty are underrepresented

2020 Public Use Data File Release

- Occurred on September 30, 2021
- Three analytic files for sample adults (instead of the usual one)
 - **Sample Adult Interview** for single-year 2020 estimates and trend analyses
 - **Sample Adult Longitudinal** for analyses of data from 2019 and 2020 for the same individuals
 - **Sample Adult Partial** for combining data from multiple years that include 2019 and 2020
- Data users are strongly encouraged to read the documentation

New COVID-related Content Added in July 2020

- Doctor-diagnosed and testing-confirmed history of COVID-19 infection
 - Immunosuppression
 - Reduced access to care due to the pandemic
 - Use of telemedicine
 - Change in perceived social support
 - Ability to maintain social distancing at work
-
- New questions on vaccine receipt and reduced taste and smell sensitivity following COVID-19 infection were added for 2021.

For More Information

sblumberg@cdc.gov

<https://www.cdc.gov/nchs/nhis/index.htm>

https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2020/nonresponse-report-508.pdf