



## 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**

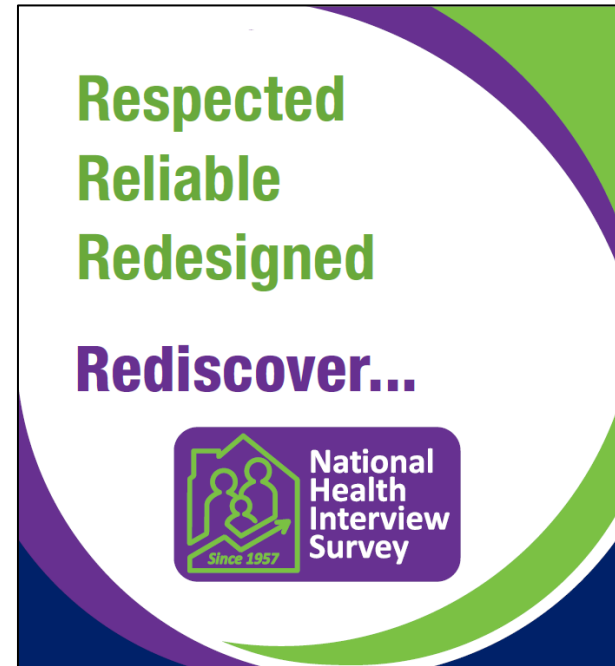
**November 2, 2021**

# 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

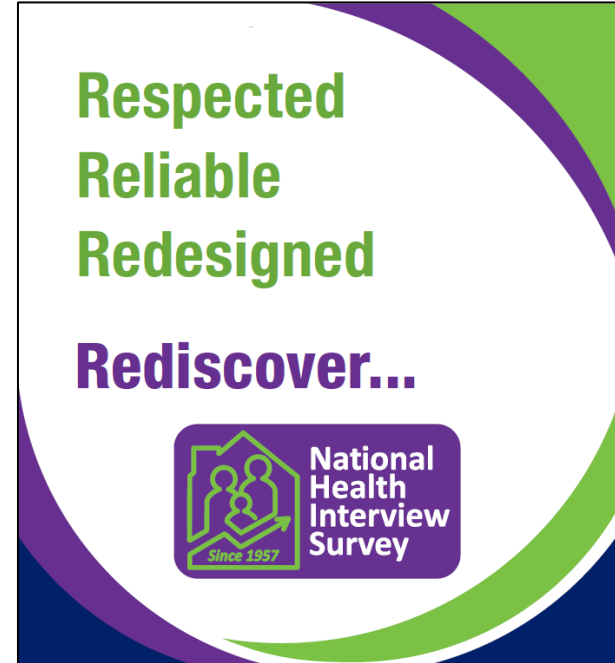
# 2019 NHIS Questionnaire Redesign

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

	2020 Q1	2020 Q2
<b>Own residence</b>	65.1	73.1
<b>Years at current residence</b>		
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
<b>Total family income</b>		
Less than \$35,000	26.0	20.5
\$100,000 or more	26.6	29.2

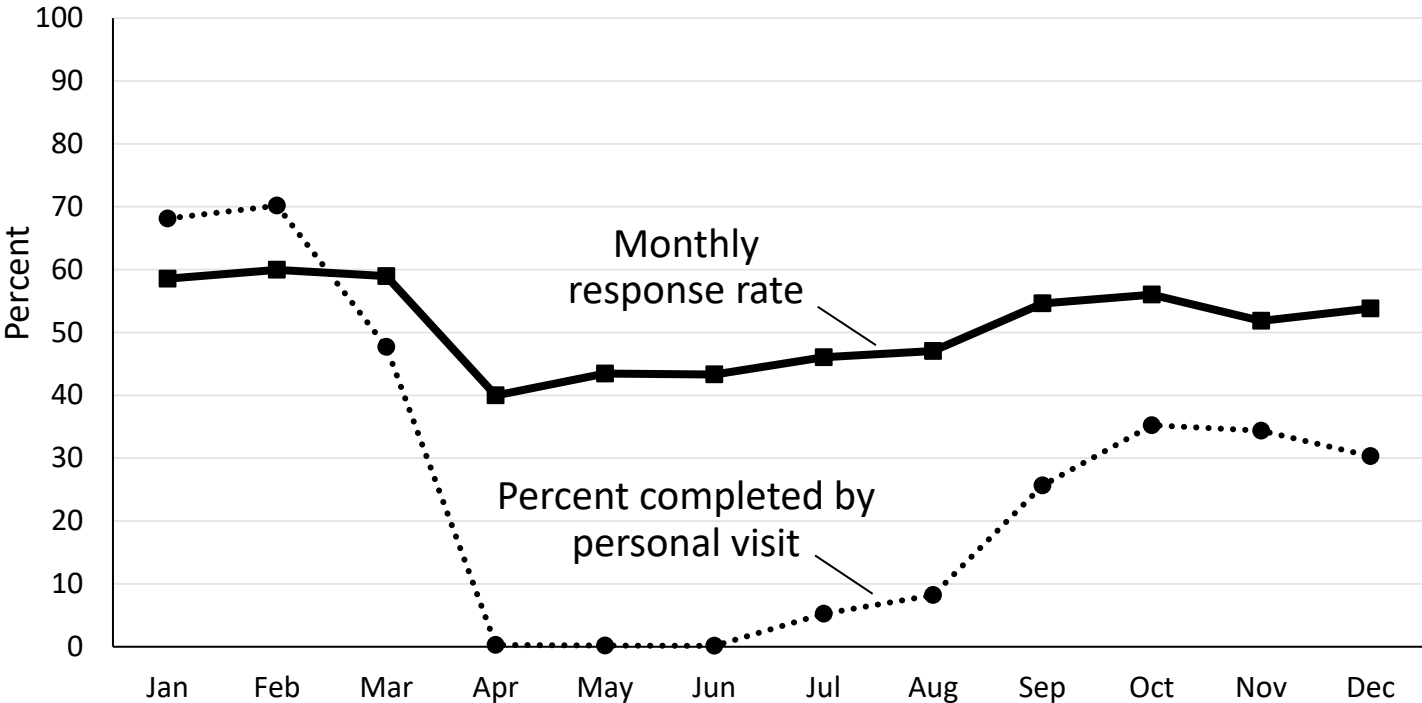
Estimates are weighted by the initial household base weight which is the inverse of the probability of household selection.

# 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%)
<b>Totals:</b>	<b>70,035</b>	<b>31,614 (100%)</b>

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