Impact of the Pandemic on National Health Interview Survey Data Collection

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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

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

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

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

- **Monthly response rate**
- **Percent completed by personal visit**
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

<table>
<thead>
<tr>
<th></th>
<th>Number of Addresses</th>
<th>Number of Completed Adult Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Normal operations (January-March)</td>
<td>16,555</td>
<td>8,063 (25.5%)</td>
</tr>
<tr>
<td>2. Telephone only (April-June)</td>
<td>16,652</td>
<td>5,795 (18.3%)</td>
</tr>
<tr>
<td>3. Telephone first (July-December)</td>
<td>17,419</td>
<td>7,297 (23.1%)</td>
</tr>
<tr>
<td>4. Sample adult followback (August-December)</td>
<td>19,409</td>
<td>10,459 (33.1%)</td>
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<tr>
<td><strong>Totals:</strong></td>
<td><strong>70,035</strong></td>
<td><strong>31,614 (100%)</strong></td>
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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
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https://www.cdc.gov/nchs/nhis/index.htm