

Population Health Survey Planning, Methodology  
and Data Presentation (PHSPMDP)  
Workgroup Report on Weighting of the 2020  
NHIS Data

NCHS Board of Scientific Counselors Meeting  
May 19, 2021

# PHSPMDP Workgroup

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# Special Thanks

- Jonaki Bose, Matthew Bramlett, James Dhalhamer, Aaron Maitland, Stephen Blumberg and all the NCHS researchers involved in developing and presenting the options
- Sayeedha Uddin and Gwen Mustaf

# Purpose

To obtain external input on NHIS weighting options for data collected during 2020 under different designs.

# Goals

- Submit an opinion to the BSC at the September 2020 meeting on the questions posed by the program team
- BSC workgroup goals:
  - Provide feedback on the general weighting methodology.
  - Provide input on several alternative options.
- Meeting on April 14<sup>th</sup>

# Background

- In-person data collection was suspended on March 19, 2020, due to COVID-19
- NHIS data collection did not stop, and multiple frames and data collection protocols were used
  - January—March 19: In-person/telephone
  - March 19—June 30: Telephone (matching and searches)
  - July: Telephone first, in-person in limited areas
  - August—December: Telephone first, in-person in all areas (half sample)
  - August—December: Telephone only, 2019 sample adults

# Datafiles for Weighting

- **Component 1** is a normal quarterly file from Q1 from interviews conducted in-person as done in previous years;
- **Component 2** is a quarterly file from Q2 with interviews conducted via telephone, using the sample previously designated by normal operations;
- **Component 3** includes truncated Q3 data including a normal sample for the month of July, half of a normal sample from August and September conducted via telephone, and in-person interview;
- **Component 4** included a normal sample from roughly half of the original Q4 participants, yielding half of a normal quarter's data; and
- **Component 5** is a followback sample of adults including half of the 2019 Q1-Q3 sample adults and all of the 2019 Q4 sample adults (less noncontacts and refusals) reinterviewed via telephone using the 2020 questionnaire.

# Needed Weights

- Longitudinal weight
- Combined annual weight (regardless of whether single-year or for multi-year analysis)



# Longitudinal Weight

- Use substantive variables from 2019 to inform adjustments
  - Demographic characteristics
  - Socio-economic characteristics
  - Geographic indicators
  - Health and healthcare measures
- Use a tree-based method (recursive partitioning model, RPM) to identify variables and combinations of variables to form adjustment cells
  - Allowed multiple levels but mindful of node size
- Alternative raking to combinations of demographics and the 24 nodes
- Evaluated using the 2019 sample adult file

# Combined Annual Weight

- The regular production 2020 (P20) samples follow a different nonresponse adjustment stream, using propensity stratification, consistent with production weighting
- Key issue is how to combine the followback and P20 samples
  - Whether to control the relative contribution of the followback sample
  - If controlling the relative contribution (i.e., a proportional adjustment), whether to do that before or after raking to 2020 population control totals

# Options

1. Rake followback to internal 2019 control totals, rake Production 20 (P20) to external 2020 control totals, then rake (followback + P20) to external 2020 control totals;
2. Rake followback to internal 2019 control totals, then rake (followback + P20) to external 2020 control totals;
3. Rake followback to internal 2019 control totals, rake P20 to external 2020 control totals, combine them via proportional adjustment, then rake (followback + P20) to external 2020 control totals; or
4. Rake followback to internal 2019 control totals, rake P20 to external 2020 control totals, re-rake followback to external 2020 control totals, then combine followback & P20 with a proportional adjustment.

# Workgroup Tentative Opinions

- BSC members formed the tentative opinion that the general weighting approach to the followback sample is appropriate
- BSC members formed the tentative opinion that proceeding with Option 3 is preferable, although Option 4 will likely yield similar results

# Discussion