2016 Sample Redesign of the National Health Interview Survey

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Presentation outline

National Health Interview Survey (NHIS) sample design periods

Timeline for the 2016 NHIS sample redesign

Decision-making process for the year 2016 NHIS "base sample" allocation
NHIS sample design periods

Each sample design period is ~10 years long, based on information from previous decennial census

Most recent completed period: 1995-2005, based on 1990 Census

Some historic NHIS sample design features

Emphasis on producing precise national estimates - sample allocation by state approximately proportional to state population size

Most NHIS sample designs (including current one) have sampled in all U.S. States and D.C.
Motivation for periodic NHIS sample redesigns

Reselect sample areas to take account of changes in the distribution of the U.S. population

Accommodate changes in survey design features and analytical objectives
Recent NHIS sample redesigns: relatively minor changes

1995-2005 design: began using screening as part of the mechanism to oversample black and Hispanic persons

Current 2006-2015 design: expanded oversampling to include Asian persons
Timeline for the 2016 NHIS sample redesign

2012: interagency group (Census Bureau, NCHS) created a milestone schedule for the redesign

2013-2015: workgroups at Census Bureau/NCHS implementing the redesign

January 2016: implementation
2016 NHIS sample redesign: several major changes

Build in more flexibility to increase/decrease overall sample and/or shift sample allocations by State from year to year, if desired (lead time required to implement)

New source of sample addresses
Sample addresses for the 1985-94, 1995-2005, and current NHIS sample designs have come primarily from field listing.

The Census Bureau can share NHIS sample addresses with NCHS.

NCHS uses the addresses for other surveys, record linkage, etc.
2016 NHIS sample design: change in sample address source

Other demographic surveys conducted by the Census Bureau moving toward using the Master Address File (MAF) as the main source of sample addresses

NCHS has been sharing costs for NHIS field listing; NCHS cannot afford the full cost of listing
2016 NHIS sample design address source: address list(s)

NCHS does not want to use MAF addresses for NHIS because MAF addresses are confidential, they cannot be shared

NHIS will use one or more commercial address lists as main sample address source, beginning in 2016
Issues to address when using a commercial address list

Accuracy, geocoding quality, coverage of areas like college dormitories, etc.

How to do periodic updates

How to select annual samples that do not overlap with previous ones
2016 NHIS sample design will still include some field listing

Rural route/highway contract route/P.O. Box addresses not suitable for personal visit interviewing

Situations like large apartment buildings with a single mail delivery point: listing likely needed at least part of the time
NHIS sample redesign: milestones reached

Primary sampling units (PSU) defined, PSU sample selected

National address list has been acquired; preliminary quality assessment completed

Identified areas where field listing is required for year 2016 NHIS
NHIS sample redesign: current work

College dormitory sample frame

Developing methodology for within-PSU sampling stages

Doing necessary field work preparation (listing, training personnel, etc.)
NHIS sample redesign: future milestones

Implementing the year 2016 NHIS sample allocation

Monitoring/evaluating the initial year 2016 implementation

Planning for changes/adjustments identified by monitoring/evaluation

Developing estimation structures
Planning for year-to-year flexibility in allocation

"Base sample" to remain at about ~35,000 completed household interviews annually

~25,000 completed household interviews to remain stable, allocated proportional to state population each year

remaining ~10,000 flexible
The year 2016 NHIS sample allocation

Lead time of at least one year, in general, to decide on a given year's allocation of the flexible ~10,000 completed household interviews

More than one year of lead time for year 2016 sample allocation decision, given this is first year of new sample design
Year 2016 NHIS base sample allocation options

Extensive research conducted on various state-level sample allocations that retained ~25,000 completed household interview stable core

Four options presented to the NCHS Office of the Director in October 2014
Year 2016 NHIS sample allocation Option #1

Similar to historic NHIS sample allocations - goal is to maximize precision of national-level estimates

Allocate entire sample proportional to state population

One-year estimates for 21 states; three-year estimates for 40 states
Year 2016 NHIS sample allocation Option #2

Modify Option #1 by reducing sample in 40 most populous states to increase sample in 10 least populous states and DC to ~250 completed household interviews

Enables three-year estimates for all 50 states and DC

Slight loss of national precision
Year 2016 NHIS sample allocation Option #3

Modify Option #1 by reducing sample in 25 most populous states to increase sample in 25 least populous states and DC to ~525 completed household interviews

Enables two-year estimates for all 50 states and DC

Noticeable loss of precision
Year 2016 NHIS sample allocation Option #4

Modify Option #1 by reducing sample in 11 most populous states to increase sample next 30 populous states to ~650 completed household interviews

Enables one-year estimates for 41 states

Loss of precision (less than #3)
Year 2016 NHIS sample allocation decision

Option #2

Retains precision of national-level estimates as highest priority

Enables three-year estimates for all 50 states and DC
Year 2016 NHIS sample augmentation

On March 23, 2015, we learned that funds are being provided for year 2016 NHIS sample augmentation

Major challenge to implement the augmentation simultaneously with keeping the overall sample redesign on schedule

Recently finished implementation
The NHIS undergoes periodic sample redesigns every ~10 years.

Next NHIS sample design will be implemented in January 2016.

Year 2016 NHIS base sample allocation decision has been made.

Funds provided in March 2015 for year 2016 sample augmentation.