

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 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**

**Current period: 2006-2015, based
on Census 2000**

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

NHIS sample address source, 1985-2015

**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**

NHIS sample redesign: current work

**Assessing the quality of the
national address list**

**Identifying areas where field listing
is required**

College dormitory sample frame

NHIS sample redesign: future milestones

**Developing methodology for
within-PSU sampling stages**

**Doing necessary field work
preparation (listing, training
personnel, etc.)**

**Implementing the year 2016 NHIS
sample allocation**

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 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

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

Summary

The NHIS undergoes periodic sample redesigns every ~10 years

Next NHIS sample design will be implemented in January 2016

Year 2016 NHIS sample allocation decision has been made