NHANES 2023
The Future is Now

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Overview

- Background
- Opportunity
- Market research
- Innovations from NHANES Longitudinal Study – Feasibility Component
- Multiple paths forward
- Core content for NHANES 2023+
- Discussion
Background
NHANES sample design and selection

Probability sampling

Domain sampling

Multistage, stratified, clustered design
Data collection: work in three locations @ time

NHANES PSUs
(real locations not shown)
Limitations

- Few PSUs, highly clustered sample
- A lot of screening required to meet target domains
- Limited time to do field work in each location
- Lately not meeting our annual target of examined participants
  - Declining response rates
- Difficult to produce estimates from two-year cycles
- Expensive
Opportunity
Opportunity

- Current data collection contract ends after the NHANES 2021-22 cycle
- Need a new contract for NHANES 2023 and beyond
- April 2020 – deadline for posting SOW to FedBizOpps if survey is redesigned
Market Research
…to obtain innovative/"outside-the-box" ideas on the sample design and the data collection processes for the National Health and Nutrition Examination Survey...
Responses to the RFI

- Several responses followed by open houses
- Themes:
  - Sample design
  - Data collection procedures
  - Gaining respondent cooperation
Responses to the RFI:
Themes on the Sample Design

- **Limitation:**
  - Small number of PSUs $\rightarrow$ high levels of design effects

- **Solution:**
  - Decrease clustering by increasing the number of PSUs (60 or 100 PSUs/2 yrs.) $\rightarrow$ favorable impact on the effective sample size
Responses to the RFI:
Themes on the Data Collection

- **Limitation:**
  - Only three Mobile Examination Centers (MECs), two are stationary collecting exam data for limited time in each location

- **Solution:**
  - Consider self-propelled vans to cover a larger number of PSUs, or
  - Consider using brick and mortar fixed sites
  - Consider a combination of:
    - in-home data collection w/ physical measures and specimen collection on a larger sample
    - a select number of specialized exams in MECs, self-propelled vans or fixed sites on a subsample of participants
Responses to the RFI:

Themes on the Data Collection

- **Limitation:**
  - High burden study

- **Solution:**
  - Consider electronic health records
  - Multi-mode data collection
Responses to the RFI:
Themes on Gaining Cooperation

- **Limitation:**
  - High burden study

- **Solution:**
  - Market segmentation to identify respondent groups and tailor recruitment materials accordingly
  - Outreach campaigns
  - Incentivize participants at the different stages (i.e. at the screener and interview) and not only after the completion of the exam
Innovations

NHANES Longitudinal Study – Feasibility Component
Local health representatives with remote supervision

- Simultaneously carry out data collection at multiple locations
- Remote supervision
- Refresher training via web access
Improved advance materials

- Race-Hispanic origin specific infographic embedded to highlight survey results
- Packaging materials with different design for each contact
Staged incentives

- Pre-incentive of a two-dollar bill included in the first advance mailing
- Promised incentive with blank debit card included in the second advance mailing
- Initial Report of Findings at the end of home visit
- Final Report of Findings mailed in 3-10 weeks
Home exam: new components and specimen collection

- Measurements of weight, waist circumference and blood pressure, and a foot sensation assessment by monofilament
- Capillary blood and spot urine sample collection
Multiple Paths Forward
1. Keep the current design the same

NHANES PSUs (real locations not shown)
2. Increase the number of PSUs
2a. Split design: Home-based data collection with mobile or fixed site exam (subsample)

- Home only
- Home and mobile or fixed exam site
2b. NHIS – NHANES Integration

NHIS PSUs
(real locations not shown)
2b. NHIS – NHANES Integration

NHIS PSUs
(real locations not shown)

Cluster for MEC exam
Work in progress

- Add questions to NHIS 2019 about willingness to have an exam
- Test new protocol for staged incentives in current NHANES survey
- Learn about home-based phlebotomy and blood processing
  - Plan a pilot test in NHANES 2019
- Write tasks orders (CDC’s OPHSS Blanket Purchase Agreements)
  - Follow-up study of nonresponders
  - Evaluation of current protocol to obtain cooperation, make recommendations
  - Pilot test new procedures to obtain cooperation
Core Content NHANES 2023+
Work in progress

- Identify what statistics are needed in 2025 and beyond that *only NHANES* can deliver
  - Total burden of chronic disease – undiagnosed conditions
  - Dietary intakes and nutrition status
  - Environmental exposures
  - Population-based prevalence of infectious diseases
  - Reference values

- Identify statistics that are needed for trends
NHANES Funding

Internal funding

Collaborators
NHANES Funding

Internal funding

[Image of CDC National Health and Nutrition Examination Trailer]
NCHS funded CORE

- Overweight, obesity (anthropometry)
- Hypertension, prehypertension (blood pressure measurements)
- Dietary intakes (24-hour dietary recall)*
- Dietary supplement use*
- Prescription opiate use, antibiotic use (prescription drug component)

- Specimen collection and processing (blood and urine)
- Specimen banking

* Partially funded
Collaborator funded content to consider moving forward

Exam
- Oral health
- Respiratory health
- Mental health
- Cognitive functioning
- Sensory impairments
  - Hearing, vision, balance
- Fitness
- Bone densitometry (DXA)

Blood, urine, other
- Diabetes
- Dyslipidemias
- Cotinine
- Infectious diseases
- Nutritional biomarkers
- Environmental chemicals
Avoid duplication
Before we open the program across the United States, we are enrolling a limited number of people as beta testers.
Study Sample
1. Non-probability sampling design used to recruit from health care provider organizations (HPOs) or direct volunteers (DV)
2. Adults 18+ years
3. 1 million over 10 years

Measurements:
1. Online or at DV/HPO site.
2. Physical measurements and biospecimen collections at DV/HPO site or data collected from EHRs.

Limitation
1. Standardization of all measurements
2. External validity (representativeness)
Discussion
Questions to the NCHS BSC

- Since the survey design is dependent on the statistics needed, how should we go about identifying the NHANES 2023 content?

- How much of a limitation is the current design (small number of PSUs, high oversampling?)

- Many moving parts, what should we work on first?
  - Content? Design? Oversampling?
http://www.cdc.gov/nchs/nhanes