



NHANES: What's New and What's the Same

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Centers for Disease Control and Prevention
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Presentation Objectives

- **Content update (new and ongoing)**
- **Changes in sample design**
- **Other special projects**
- **Update on BSC subcommittee recommendations for NHANES**

Goals of NHANES

U.S. population-based estimates of:

- Health conditions
- Awareness, treatment and control of selected diseases
- Environmental exposures
- Nutrition status and dietary behaviors

New Content Evaluation Criteria

- **Public health significance**
- **Scientific merit**
- **Relevance to the exam component**
- **Feasibility**

Frequently included questionnaire topics

- Acculturation
- Blood pressure
- Cholesterol
- Chronic conditions
- Demographic
- Diabetes
- Dietary behavior
- Dietary supplements
- Early childhood
- Food security
- Oral health
- Physical activity
- Physical function
- Prescribed medicines
- Reproductive health
- Sex, drugs, alcohol, tobacco
- Weight history

Frequently included exam components

- Anthropometry
- Audiometry
- Blood pressure
- Dietary recall
- Dual x-ray absorptiometry
- Oral health
- Urine collection
- Venipuncture

Frequently included laboratory tests

- CBC
- Lipids
- Chemistry panel (kidney, hepatic function)
- Folate/RBC folate
- Iron status measures
- HIV, Herpes, Hepatitis
- Cotinine
- Lead, mercury, cadmium
- C-reactive protein
- Urinary creatinine and albumin
- Diabetes (glucose, insulin, HbA1c)

Content being cycled out in 2011-12

- Blood pressure methodology study
- Inflammatory back pain
- Bowel health
- Dietary screener module
- DXA-Femur, spine

Content being cycled out in 2011-12

- PSA
- Iron parameters
- Home water collection
- Flexible Consumer Behavior Survey
- Skin Folds

New Exam Content NHANES 2011-2012

- Cognitive function (60+)
 - WAIS digit symbol subtest
 - Animal fluency test
 - CERAD word list learning test
- Self-assessed pubertal maturation (6-19)

New Exam Content NHANES 2011-2012

- Age changes for audiometry (20-69)
- Dual x-ray absorptiometry with new densitometer
 - Total Body (8-59)
- Sagittal abdominal diameter (8+)

New Exam Content NHANES 2011-2012

- Physical activity monitor (6 +)
 - Also monitors sleep activity
- Muscle strength (ages 6+)
 - Grip test
- Chemosensory—smell and taste (40+)

New Exam Content NHANES 2011-2012

- Tuberculin skin testing
- Modified oral health examination (1+)



New Lab Content NHANES 2011-12

- Seroprevalence cytomegalovirus (ages 1-5)
- Testosterone (6+)
- Changes to urine, serum and blood metal panels (for example selenium is being added to all)

New Lab Content NHANES 2011-12

- Smoking exposures (supplement 1/3 subsample with smokers)
 - Urine hydroxy polycyclic aromatic hydrocarbons ,
 - Cadmium, lead and thallium,
 - Volatile Organic Compound metabolites (new)
 - Thiocyanate

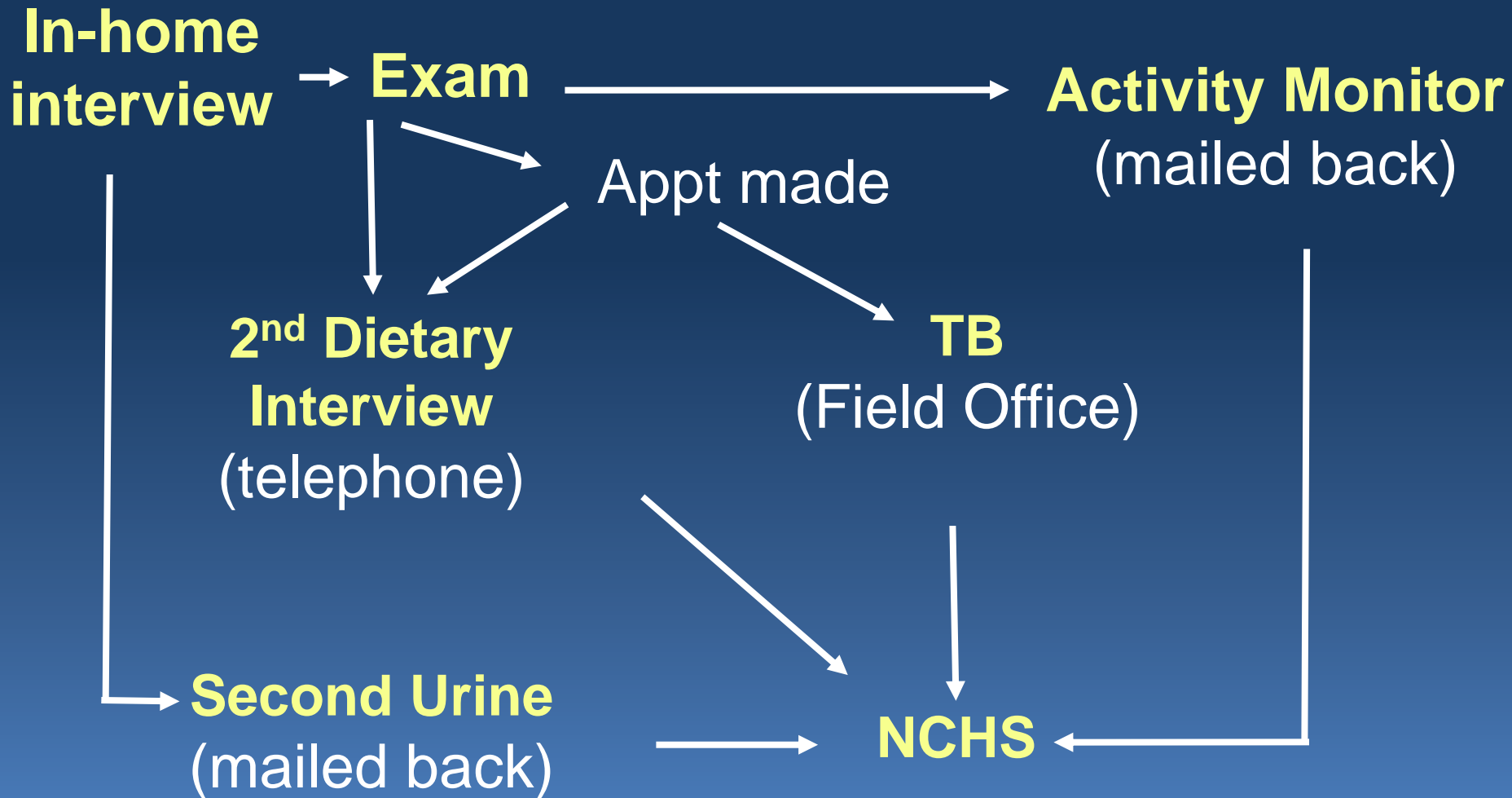
New Questionnaire Content NHANES 2011-12

- Changes to acculturation, hearing, IMQ, OHQ, DMQ
- TB
- Taste and smell
- 2 new questions related to cognitive function

New Questionnaire Content NHANES 2011-12

- Aspirin use
- Linking answers on prescription drug use for HBP, high cholesterol, diabetes and asthma to RXQ

NHANES 2011-2012 Data Collection Process





Changes in Sample Design: NHANES 1999-2014

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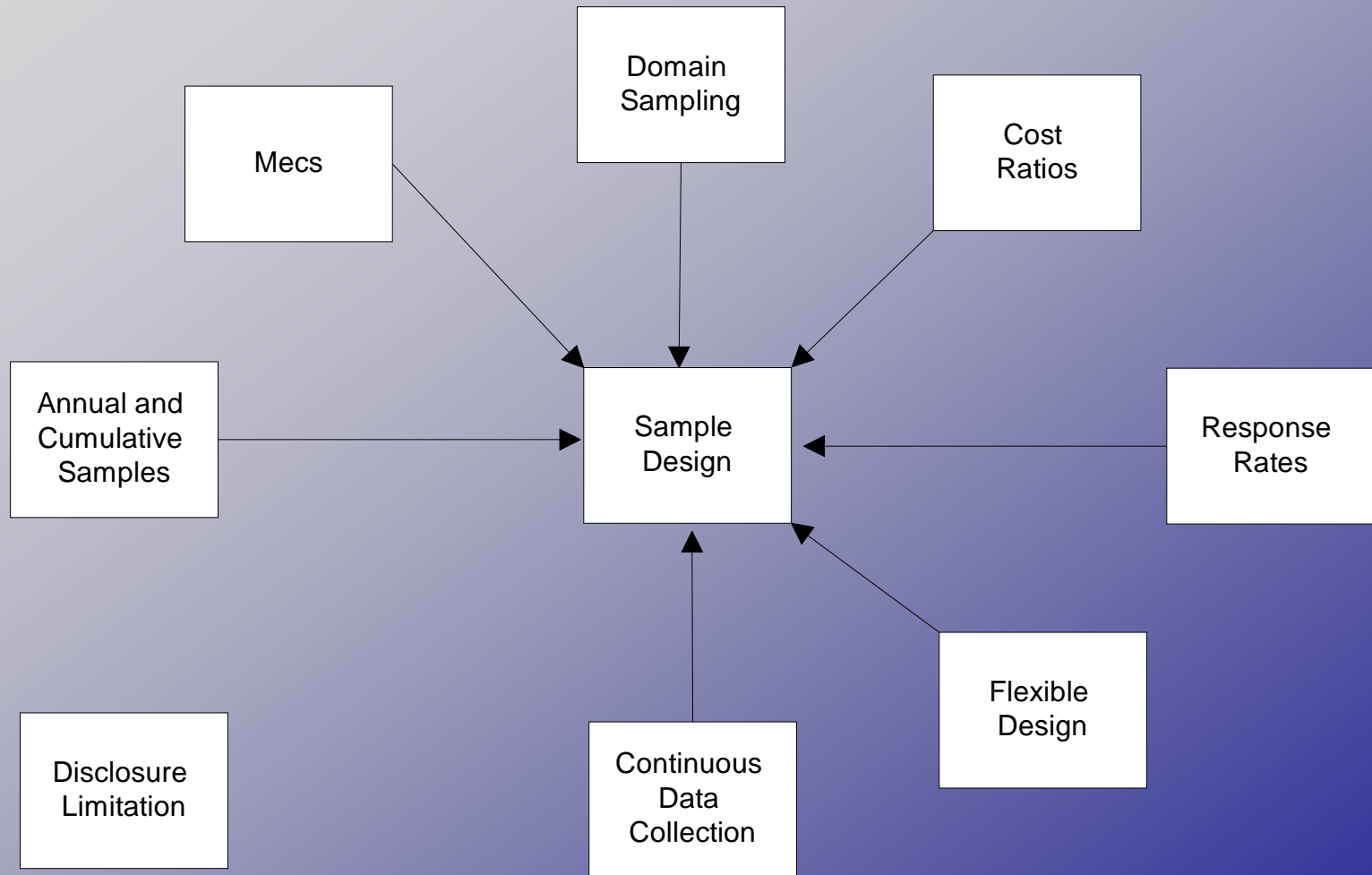


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Practical Aspects of NHANES Design

- Civilian non-institutionalized population
- Primary sampling units limited to counties to reduce travel time to MEC
- Annual sample limited to 15 locations and 5,000 examined persons
- Weighted MOS designed to yield a self-weighting sample for each domain while producing efficient workload in each PSU
- Maximum number of persons selected per household

Major Factors Affecting Sample Design



NHANES Sampling Domains in 1999

53 subdomains consisting of age-sex groups for:

- Mexican Americans
- Blacks
- White/other
- Pregnant women 15-39 years old

NHANES Sampling Domains in 2000-2006

79 subdomains consisting of age-sex groups for:

- Mexican Americans
- Blacks
- White/other
 - Low-income
 - Non low-income
- Pregnant women 15-39 years old

NHANES Sampling Domains in 2007-2010

72 subdomains consisting of age-sex groups
for:

- Hispanics
- Blacks
- White/other
 - Low-income
 - Non low-income

NHANES Sampling Domains in 2011-2014

87 subdomains consisting of age-sex groups for:

- Hispanics
- Blacks
- Asian (as defined by Census)
- White/other
 - Low-income
 - Non low-income

Expected Percent Distribution of Sample for 2007-2014

	2007-2010	2011-2014
Hispanic	32	25
NonHispanic Black	21	25
“other” low income	13	13
Other Non-low income	32	24
Asian	<2	14

Other NHANES activities in 2011

- Birth certificate linkage study
- Additional state food assistance program and economic data linkages
- 24-hour urine validation study
- Dried blood spots

Other NHANES activities in 2011

- Oral health fluorosis pilot study
- Additional physical fitness and activity measures in children pilot
- Text messaging pilot study
- Electronic record of calls

National Health and Nutrition Examination Survey Review Panel

Observations and Recommendations

National Center for Health Statistics



Panel's Key Issues: Vitality in Light of Lower Funding

- Program advisory mechanisms
- Survey design
- Staffing
 - Succession planning
 - Composition and roles of examination staff
- Longitudinal HANES

Panel Recommendations

1. Aggressively market NHANES
2. Create standing external advisory body
3. Conduct retrospective review of statistical benefits of oversampling
4. Examine utility of USPS delivery sequence files for household enumeration

Panel Recommendations

5. Explore possibilities of NHIS-NHANES design integration
6. Pursue opportunities with large states and municipalities to use portions of the NHANES sample for local area data
7. Seek mechanism to add longitudinal follow-up of NHANES

The Panel Concludes That:

- NHANES is a critical component of the nation's health information system
- For over 50 years it has produced data that have been used to set policies and direct programs
- NHANES now faces serious challenges in funding, survey design, operations and infrastructure
 - NHANES has an opportunity to rethink its program based on external and internal input to ensure its continued viability and exceed past accomplishments

Definition of the NHANES Asian Population

- *Asian Indian* (including Bengalese, Bharat, Dravidian, East Indian, Goanese)
- *Chinese* (including Cantonese, Taiwanese)
- *Filipino*
- *Japanese* (including Nipponese)
- *Korean*
- *Vietnamese*
- *Cambodian*
- *Hmong* (including Laohmong, or Mong)
- *Laotian*
- *Thai* (including Siamese)
- *Other Asian* (including Bangladeshi; Bhutanese; Burmese; Indochinese; Indonesian; Iwo Jiman; Madagascar; Malaysian; Maldivian; Nepalese; Okinawan; Pakistani; Singaporean; Sri Lankan)