



NHANES Reimagined for a Changing Data World

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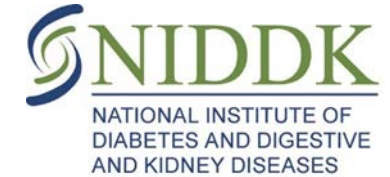
January 2020
Board of Scientific Counselors

NHANES: The Gold Standard

- NHANES is the gold standard for numerous national data
 - Physical examinations
 - Standardized environment
- Produces population-based prevalence estimates and trends on:
 - Health conditions and risk factors
 - Nutrition status and diet behavior
 - Prescription medication and dietary supplement use
 - Environmental exposures

NHANES: A Model of Broad and Deep Partnerships

Over the years, there have been more than two dozen partners with various degrees of collaboration



NHANES Impact

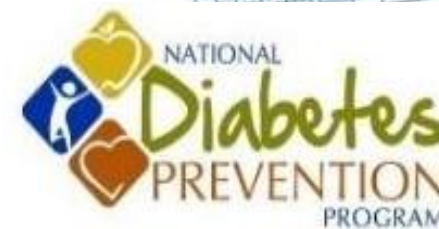
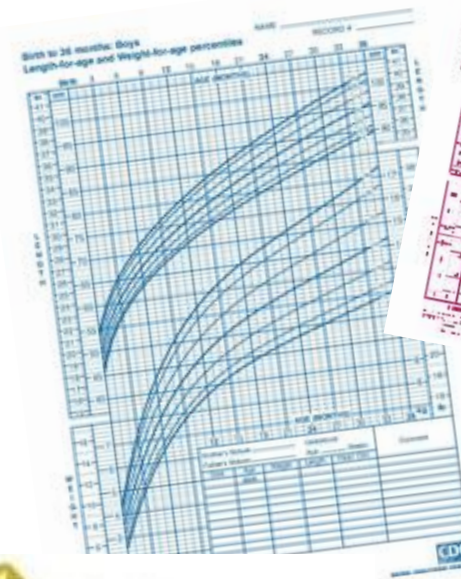
NHANES contribution to the health and nutritional status of Americans is extensive and long standing:

- Provides critical data to inform public health, science, and policy;
- Responsive to current and future data needs

What if there was no NHANES?

We wouldn't know ...

- If children are being exposed to lead, second hand smoke, and other harmful chemicals
- If nutrient intakes are adequate
- How babies and children grow
- How high a chair seat should be
- How much fuel is needed on passenger jets
- If interventions to control diabetes/high blood pressure/cholesterol/hepatitis are working



Why Reimagine NHANES?



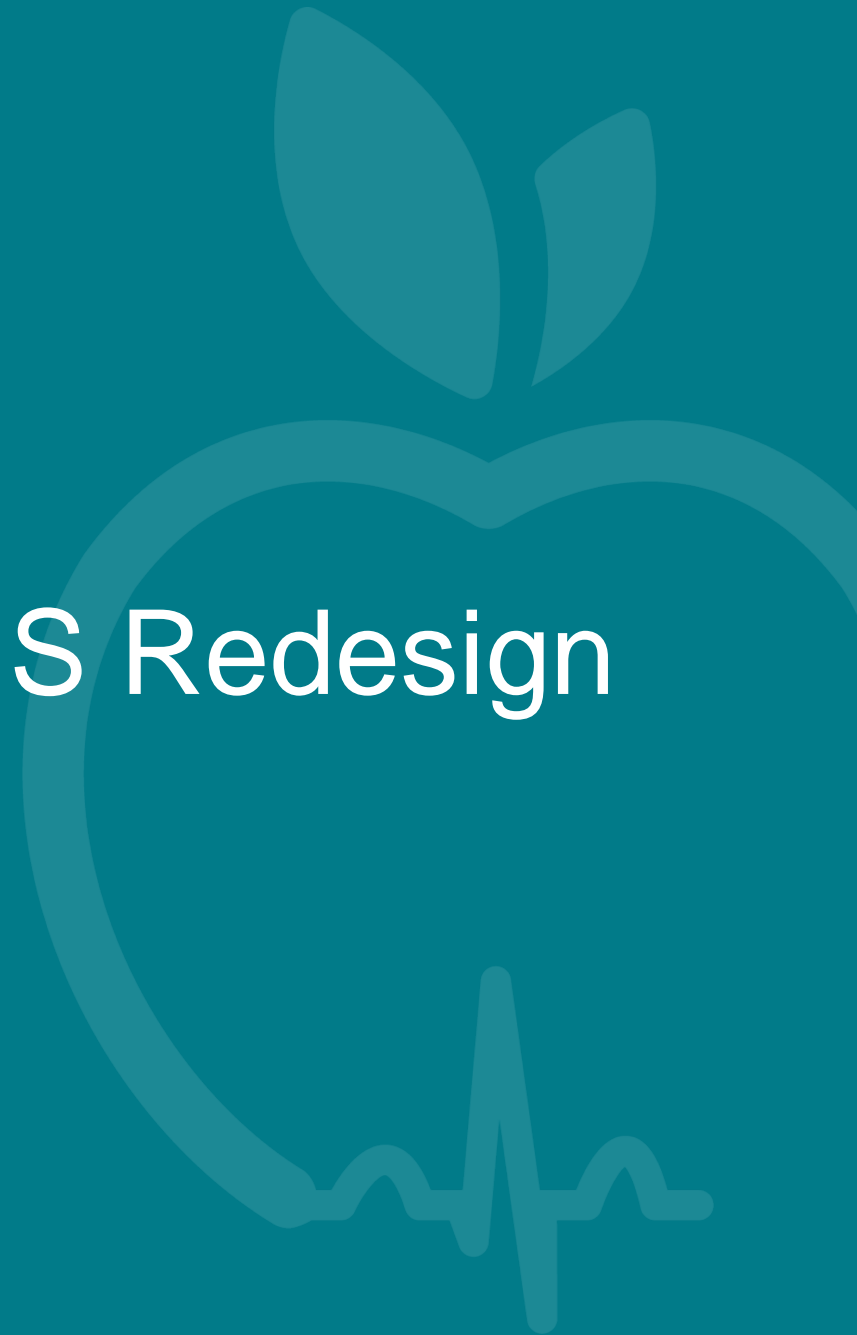
Opportunity for 2023 and beyond

- Current data collection contract ends after the NHANES 2021-22 cycle
 - Need a new contract for NHANES 2023 and beyond
- Take advantage of new data collection innovations

Limitations of Current Survey Design

- 15 locations per year, highly **clustered sample**
- **Data release timeliness** - 15 locations per year and small sample sizes lead to potential disclosure risk, and require 2-year data release
- **Time burden on participant** for screening, in-home interview, and MEC exam
- Dependence on external funding by collaborators

Considerations for NHANES Redesign



Main Considerations for NHANES Redesign

- Maintain high quality, standardized data collection
- De-cluster sample
- Reduce SP burden
- Increase budget control and stability

Additional Considerations for NHANES Redesign

- Maintain current flexibility for adding exams
- Timeliness of data release
- Total operational costs
- Collaborators needs

Proposed NHANES 2023 Core Components



The Statistics That Only NHANES Can Deliver

- Prevalence of chronic diseases, both undiagnosed and diagnosed
 - Obesity
 - Hypertension
 - Diabetes
 - Dyslipidemias
- Dietary intakes and nutrition status
- Population-based prevalence
 - Environmental exposures
 - Infectious diseases

Measures for NHANES Core

	Interview	MEC - Exam	Lab (Phlebotomy / Urine)
Obesity		Height / Length Weight	Pregnancy
Hypertension		Blood Pressure	
Diabetes			Plasma glucose Hemoglobin A1c
Dyslipidemias			Total Cholesterol / HDL LDL / Triglycerides
Dietary Intake / Nutrition Status	30d Dietary Supplements	24h Dietary Intake	CBC / Biochemistry panel Iron / Folic Acid Vitamin D / Vitamin B12 AGP / CRP
Environmental Exposures			Lead / Mercury Volatile Organic Compounds Cotinine
Infectious diseases			Hepatitis A, B, C HSV 1 and 2 HPV

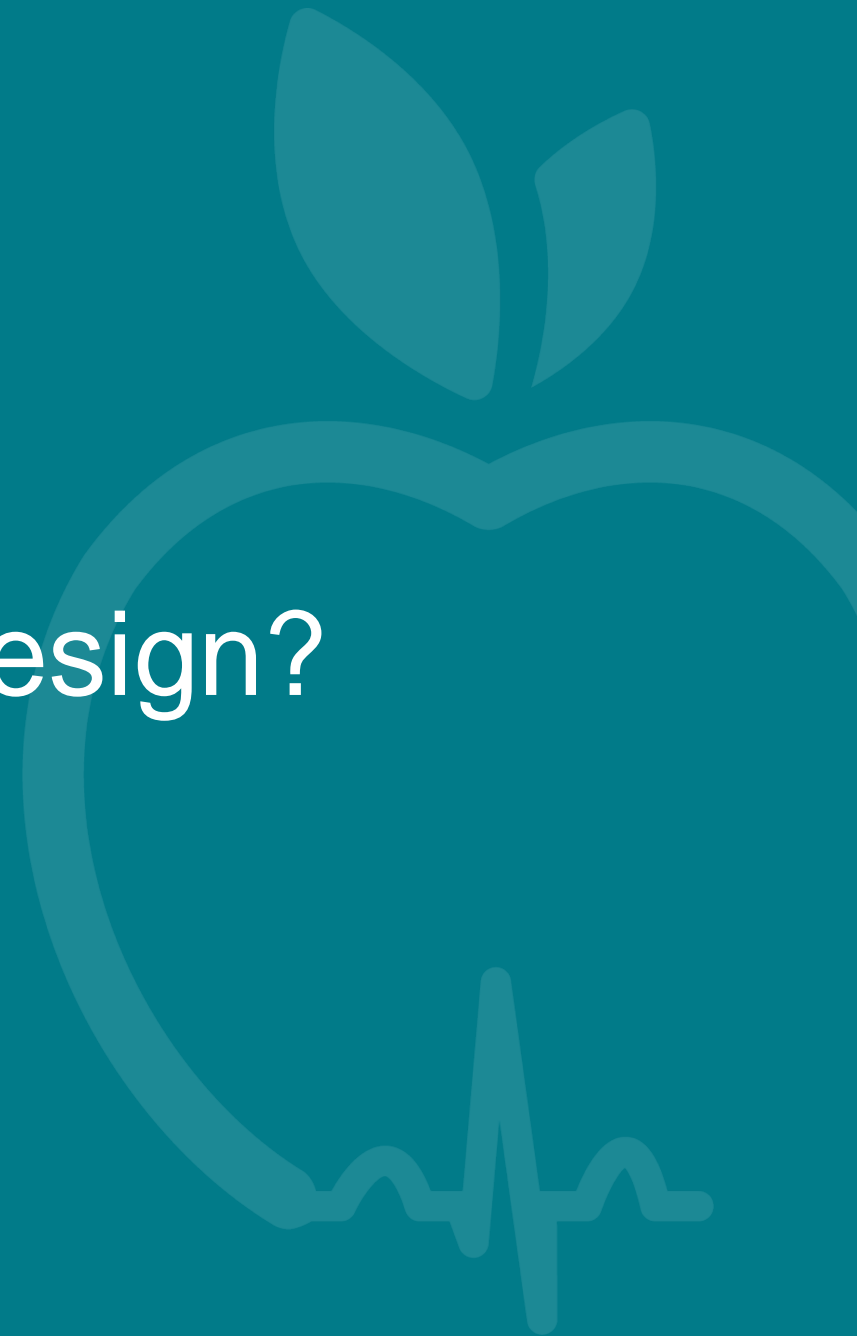
Proposed NHANES 2023 Core Components

- Height/length and weight
- Blood pressure
- 24h dietary intake
- 30d dietary supplements
- Phlebotomy and urine collection

NHANES 2023 Supplemental Components (examples)

- Dental
- Vision
- Hearing
- Spirometry
- Bone mineral density (DXA)
- Body composition (DXA)
- Cardiovascular fitness
- Grip strength
- Liver elastography
- Wearable technology

Where are we with the redesign?



Request for Information (RFI) – August 2017

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CDC Request for Information - National Health and Nutrition Examination Survey (NHANES)
Solicitation Number: 2017-RFI-NHANES
Agency: Department of Health and Human Services
Office: Centers for Disease Control and Prevention
Location: Acquisition and Assistance Field Branch (Pittsburgh)

Notice Details Packages Interested Vendors List [Print](#) [Link](#)

Note: There have been modifications to this notice. You are currently viewing the original synopsis. To view the most recent modification/amendment, [click here](#).

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Original Synopsis
Aug 14, 2017 4:27 pm

Changed
Oct 08, 2017 2:22 pm

Solicitation Number: 2017-RFI-NHANES
Notice Type: Special Notice

Synopsis:
Added: Aug 14, 2017 4:27 pm
DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS)
Centers for Disease Control and Prevention (CDC)
National Center for Health Statistics (NCHS)

Request for Information (RFI) No. 2017-RFI-NHANES
National Health and Nutrition Examination Survey - NHANES

Introduction:
This is a Request for Information (RFI) for market research purposes to obtain innovative/ "outside-the-box" ideas on the sample design and the data collection processes for the National Health and Nutrition Examination Survey (NHANES). It is not a request for proposal and does not commit the Government to issue a solicitation, make an award, or pay any costs associated with responding to this notice. All responses shall remain with the Government and will not be returned. Any contractor who provides a favorable

GENERAL INFORMATION
Notice Type: Special Notice
Posted Date: August 14, 2017
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Set Aside: N/A
Classification Code: A -- Research & Development
NAICS Code: 541 -- Professional, Scientific, and Technical Services/541720 -- Research and Development in the Social Sciences and Humanities

...to **obtain innovative/ "outside-the-box" ideas** on the sample design and the data collection processes for the National Health and Nutrition Examination Survey...

Current Thinking: Increase the Number of PSUs

- Current sample design is too restrictive
- Small number of PSUs → high levels of design effects
- Decrease clustering by increasing #PSUs → favorable impact on the effective sample size
- Even with same # SPs, increasing # PSUs
 - Decreases design effect
 - Increases effective sample size

Current Thinking: Consider Replacing Mobile Exam Centers

- To cover more PSUs, need to consider some changes
- Currently we have 3 Mobile Examination Centers (MECs)
 - Each MEC is made up of 4 trailers
 - Trailers are towed behind motorized vehicles to a location
 - 2 MECs are stationary collecting exam data for limited time at each location
- We could consider...
 - Replacing MECs with mobile vans – increase flexibility, number of visited PSUs, prolong field time
 - Replacing MECs with fixed clinics. Sites could remain open for longer periods
 - A combination of in-home collections on a large sample, and smaller more specialized measures on a subsample

Current Thinking: Consider Replacing Mobile Exam Centers

- Alternate modes (e.g., fixed sites or in-home exams) were examined
 - Lots of information on feasibility
 - Not much on data quality
 - Lab standardization was questionable
- However, a mobile exam center allows
 - Standardized, controlled environment
 - Ensures high quality data collection
- Could consider...
 - reducing to 2-trailer MEC
 - using self-motorized trailers

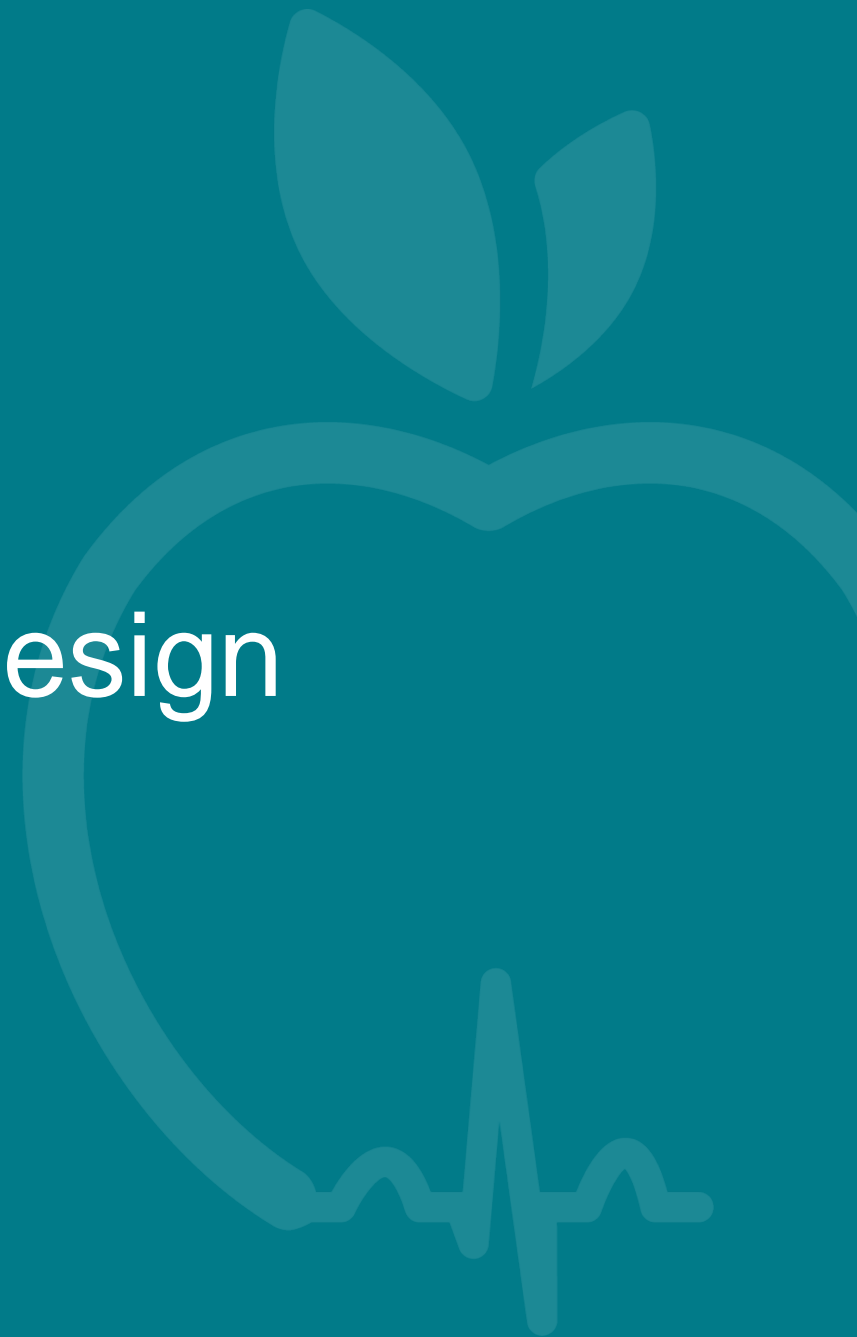
Potential Benefits of Self-Motorized Trailers

- Increased flexibility in moving between locations, and within a location
- Less dependence on hookups (water/sewer/electricity)
- Reduction in advance arrangement costs

Potential Limitations of Self-Motorized Trailers

- Reduction in space for exams that require room for equipment and adequate staff for assessment
 - Current trailer is each 48 or 52 feet
 - Self-motorized trailer – length of body is ~29 feet
- Increased complexity with more exam teams concurrently in operation
- Increased costs with more trailers and maintenance
- Sound of generators may be disruptive to exam

Potential NHANES 2023 Design Under Consideration



NHANES 2023 Core Content with Rotating Supplemental Exams

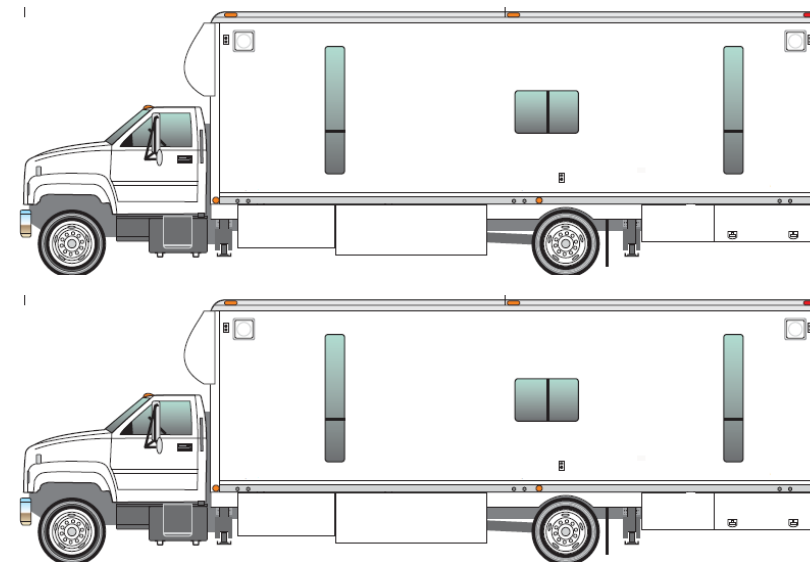
- Core content
 - Continuous data collection
 - Primarily funded by NCHS
- Supplemental exams
 - Fewer exams at a time ↓ SP burden
 - Additional exams if external funding available

NHANES 2023 Sample

- Still to be determined:
 - Oversampling age or race/ethnic subgroups
 - Number of PSUs
 - Number of examined SPs
 - 1- or 2- year sample
 - Split sample or half sample for certain supplemental exams

Potential Design Being Considered

- 2-year design
- ~60 PSUs
- ~10,000 participants / 2 year
- 3-4 teams collecting data



In-home

30d Rx/Supplements



Self-motorized trailer

- Height/length and weight
- Blood pressure
- Dietary Interview
- Lab specimen collection & processing
- Supplemental exams

Advantages

- Maintain high quality data collection
- De-cluster sample
 - Increase effective sample size, increase precision
- Reduce SP burden
 - Decrease exam time
 - Decrease travel distance to exam site
- Increase budget control and stability
- Increase flexibility for doing supplemental exams
 - Additional coaches if funding available

Disadvantages

- Design does not address response rates directly
 - Increase in operational flexibility may help RR
 - Shorter distance for participants to travel may help RR
- Change in design, may affect trend analysis for certain measures
- Reduction in exam content
- Need for improved communication and coordination with collaborators on supplemental exam content

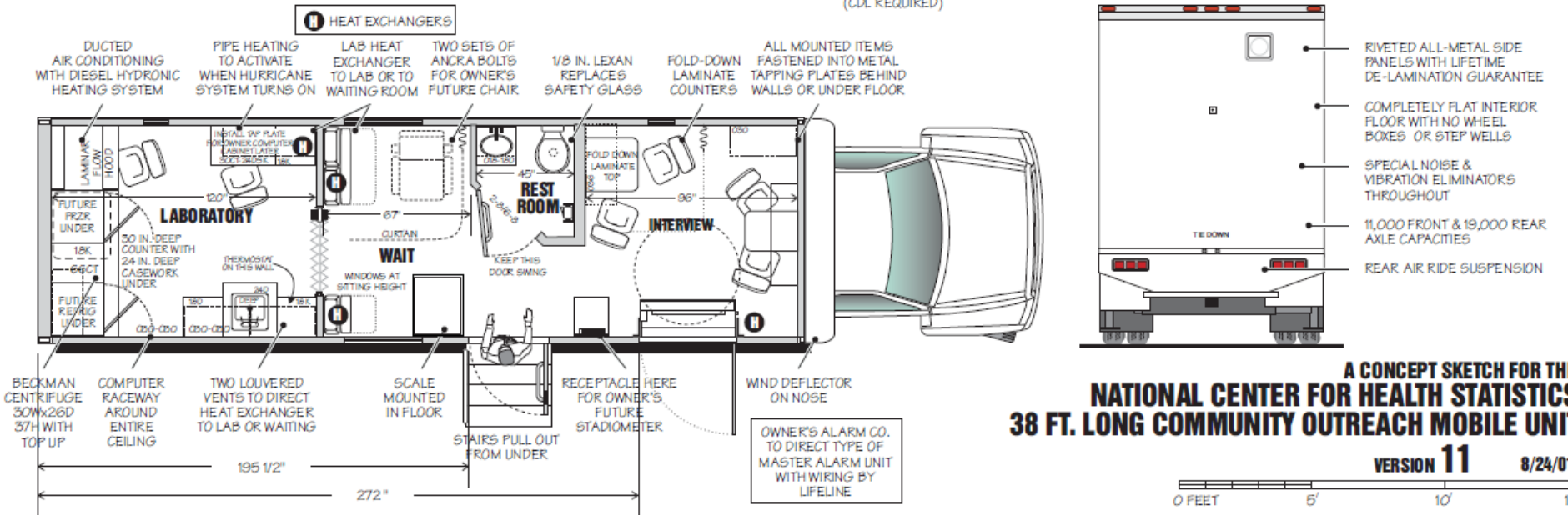
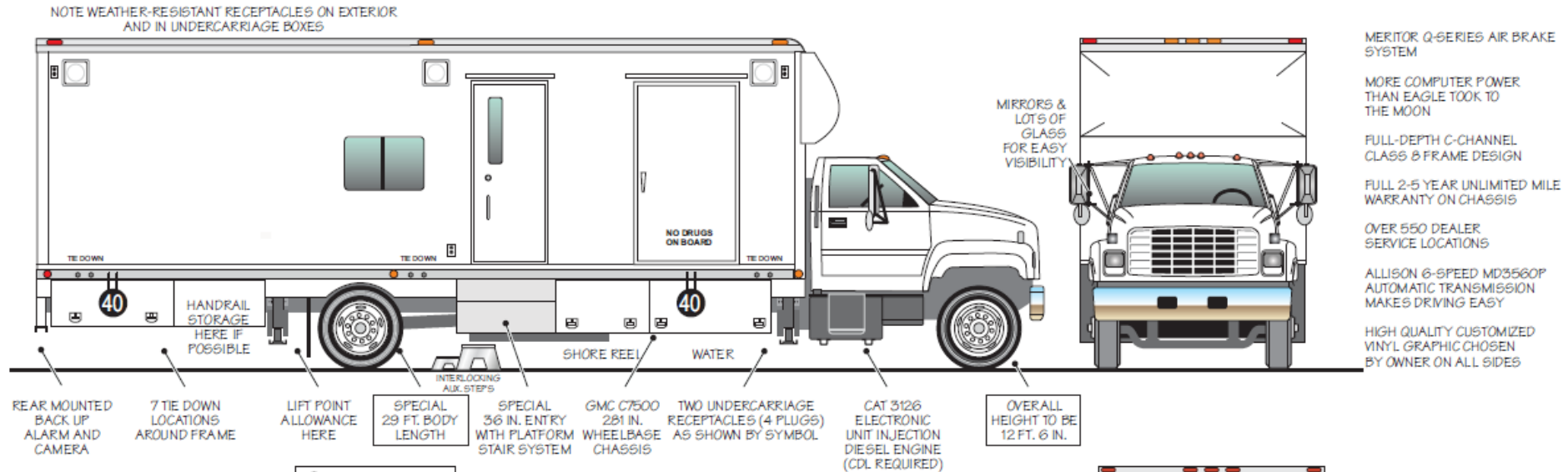
Our Request to the BSC

- How would you like to provide input on the design decisions?

Thank you



Self-Motorized Trailers



The associated "Features" and "Options" listings shall detail the specific items included in any price estimate. For more accurate space planning, some items shown on the drawing may not be included in the price estimate. Consult the scale bar above for room dimensions, which are approximate and may vary somewhat due to construction variables and third party equipment dimensions.