The Multi-cohort Eating and Activity Study for Understanding Reporting Error (MEASURE)

Cohort Consortium Steering Committee Presentation
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How Project Established

• NCI had long-standing interest in the structure of measurement error with respect to diet and physical activity assessment tools used in epidemiology
  • Goal: To conduct comparable data collection in multiple cohorts including NIH-AARP Diet and Health Study
  • New data collection required
  • Pool data
  • The project was presented at the 2008 Cohort Consortium annual meeting.
• White paper written by NCI staff provided framework for study design
• FOA published for ARRA funding: White paper referenced (2009)
• Three cohorts funded: (2010-2011)
  • NIH-AARP Diet and Health Study: NCI contract using ARRA funds
  • Harvard Nurses Health Study: ARRA grant funds
  • Harvard Health Professionals Follow-up Study: R01 grant funds
• Coordinating center: NCI contract using ARRA funds
Common Data Elements

• Diet:
  • FFQs
  • ASA24 (web-based 24-hour dietary recall)
  • Food records
  • Recovery biomarkers: 24-hour urinary nitrogen, sodium, potassium
  • Doubly labeled water (DLW): total energy

• Physical activity
  • Physical Activity Questionnaires
  • ACT24 (web-based 24-hour activity recall)
  • Activity monitors
  • DLW
Accomplishments so far

• Cooperation, given differences between studies, to have reasonably comparable study designs and data collection methods allowing for pooled analyses
• Completion of data collection and biologic specimen analyses across all three cohorts
• Cooperation to provide data to NCI Coordinating Center for harmonization for pooled analyses
• Publication policy signed by all collaborators
  • Individual studies will first publish findings
  • Notification to collaborators of analyses being conducted using data from individual studies
• Conference calls as necessary to report progress and plan for future pooling
• Analyses for individual studies well underway; a few publications from NHS (first to complete data collection)
Reflections on Process and Accomplishments

• Generally, all three studies were willing to collect data comparably and consistent with NCI white paper

• Each study included additional data collection specific to their study reflecting different objectives and interests

• Some differences arose between PIs in prioritizing dietary assessment instruments in data collection (ASA24)

• Overall, the level of trust regarding providing data to the Coordinating Center for future analyses was high

• Analyses for individual studies have required cooperation and sharing of experiences: ASA24, ACT24, PA monitors
Future Directions

• Pooled analyses for measurement errors in commonly used diet and physical activity assessment tools

• Other projects that are building on this project
  • None yet!
  • Potential in the future as we analyze pooled data
Involvement of Junior Investigators

- Harvard has brought on several doctoral students and post-doctoral fellows for data analysis
  - Several participated in our recent working group phone call
- Junior investigators at NCI led the NIH-AARP study project.
- NCI publicly released AARP study data and is actively analyzing
  - NCI investigators actively analyzing AARP-based data
  - No new junior investigators currently involved in data analyses, but likely in the future
  - Publicly available data insure that junior investigators have access to NCI data
Success or Challenges

• Successes
  • Discussed above – harmonization of methods, data collection, analyses and data files
  • Congenial collaboration between Harvard and NCI investigators – some NCI scientists included on Harvard papers

• Challenges
  • Obtaining funding for each study to collect new data
  • Including more diverse population (age, race/ethnicity)
Lessons Learned

• Data harmonization/standardization is done before data collection.
• A coordinating center is important to efficiently manage the project.
• Regular and frequent communications among investigators
• Quality control plan across DLW labs
• More to come as we work with harmonized data and potential conflicts arising from different approaches
Recommendations to Other Working Groups

• If collecting new data
  • Harmonize data collection and methods as well as possible
  • Agree on publication policy early on
  • Involve all partners in conversations regarding data collection methods and data harmonization, QC, etc.

• Share expertise within each study center for the good of the entire project