


Identification of Existing Exposure Measurement Methods for Individual-Level Environmental Measures

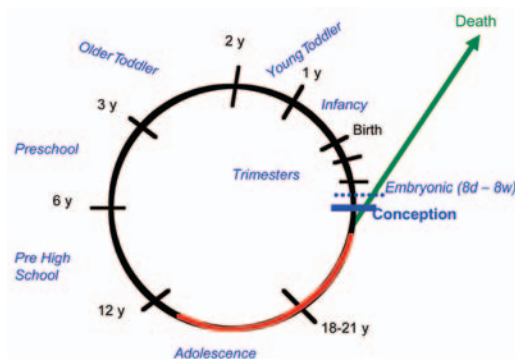
Exposure to Chemical Agents Working Group; Early Origins of Adult Health Working Group; Nutrition, Growth, and Pubertal Development Working Group; National Children's Study Program Office; and the Interagency Coordinating Committee

White Paper

Measurement and Analysis of Exposures to Environmental Pollutants and Biological Agents during the National Children's Study

- Provides a resource to the National Children's Study for addressing issues related to environmental exposures of children. It includes examples of chemicals, chemical classes, and biological agents that *may* be important for exposure assessment associated with specific hypotheses (as of December, 2002). 
- No single exposure method accurately defines exposures for epidemiological studies. Potential methods include: environmental, personal and biologic samples, questionnaires, time activity diaries, and ecologic classifications. Criteria for selection of methods and combinations of methods (e.g., questionnaire +/- environmental +/- biological measures) are discussed.
- The White Paper summarizes and interprets environmental and personal exposure and biomonitoring sampling and analysis information for each critical life stage of a child. Optimal exposure assessment study designs, employing validation subsamples, are also described.
- Structure of the Report:
 - Chapter 1: Introduction to human exposure assessment and potentially relevant chemicals
 - Chapter 2: National Children's Study hypotheses, exposure assessment needs, and considerations
 - Chapters 3 and 4: Environmental and biological matrices, possible collection and analysis approaches at various life stages
 - Chapter 5: Uses of questionnaire data for exposure assessment and to supplement environmental and biological measurements
 - Chapter 6: Synthesis of exposure measurement approaches and epidemiological considerations for Study design.
- Children's Health Mini-Monograph "Assessing Exposures to Environmental Agents during the National Children's Study" *Environmental Health Perspectives* 113(8), Aug. 2005


Life Stages of Interest in the National Children's Study



Workshop

Measuring Physical Activity in the National Children's Study


November 17-18, 2003

- Objectives: to identify measures of physical activity that would be feasible in the National Children's Study; to recommend measures that would be adaptable over the lifespan of a study like the National Children's Study. 
- Considered what types of instruments should be used at each life-stage, and types of information each instrument would need to capture. Need to consider feasibility in context of National Children's Study; comparability of methods across ages; differences in measurements by ethnicity, culture, and SES; and need to anticipate technological advances.
 - Methods include questionnaires and motion sensors
 - Recommendations provided by age-specific groups (e.g., pregnancy, infancy, preschool)

Workshop

Time-Use Data for the National Children's Study


December 9-10, 2004

- Objectives: to identify the potential applications/uses for time-use data information in the National Children's Study; and the strengths and limitations of different approaches to collecting these data.
- Considered
 - Domains for time-use (time-activity) data for assessing chemical exposures, social environment (e.g., media exposure), linking time-use with diet and physical activity, and injury.
 - Methods/approaches, including time-use diary, technical/computer-assisted activity questionnaire, activity recall log, video-camera, GPS, direct observation, beeper studies (experience sampling method), pocket-PC diary, voice-input diary, and photo diary. 
- Provides summary of potential applications/uses (domains) and methods (description, strengths, limitations).

Workshop

Dietary Assessment in a Prospective Epidemiologic Study of Pregnant Women and Their Offspring

September 21-22, 2004

- Objectives: to review the current state of knowledge on methodology, validity, feasibility, and strengths and limitations of various methods; to provide recommendations on dietary assessment in the National Children's Study. 
- Workshop organizers' provided recommendations for measures by age groups which generally correspond to visits in the Study Plan.
 - Methods include food frequency questionnaire (FFQ), 24-hour recall, checklists, food propensity questionnaire
 - Considerations include validity, calibration (e.g., 24-hr recall used to adjust FFQ estimates), and reliability of methods
 - Proposed methods by timing (c.f., visits) by life-stage (e.g., pregnancy, infants, toddler, and preschool)
- Subsequently, National Children's Study Program Office and ICC members met with FDA, USDA, CDC/NCHS, and EPA dietary experts to consider how to include measures or estimates of exposures to chemicals based on dietary intake information and other measurements.