



National Children's Study Overview

Alan E. Guttmacher, MD, Director
Eunice Kennedy Shriver
National Institute of Child Health and Human
Development

May 13, 2011

National Children's Study



- Congressionally mandated by Children's Health Act of 2000
- A set of integrated activities to examine interactions among environmental and genetic factors on growth, development, and health
- Environment is broadly defined: factors such as air, water, soil, dust, noise, diet, social and cultural setting, access to health care, socio-economic status, and learning
- A data and biosample resource, not a conventional study



NCS Vision and Mission



- Data driven
- Evidence based
- Community and participant informed
- The goal of the Study is to improve the health and well-being of children and contribute to understanding of the influence of various factors in health and disease



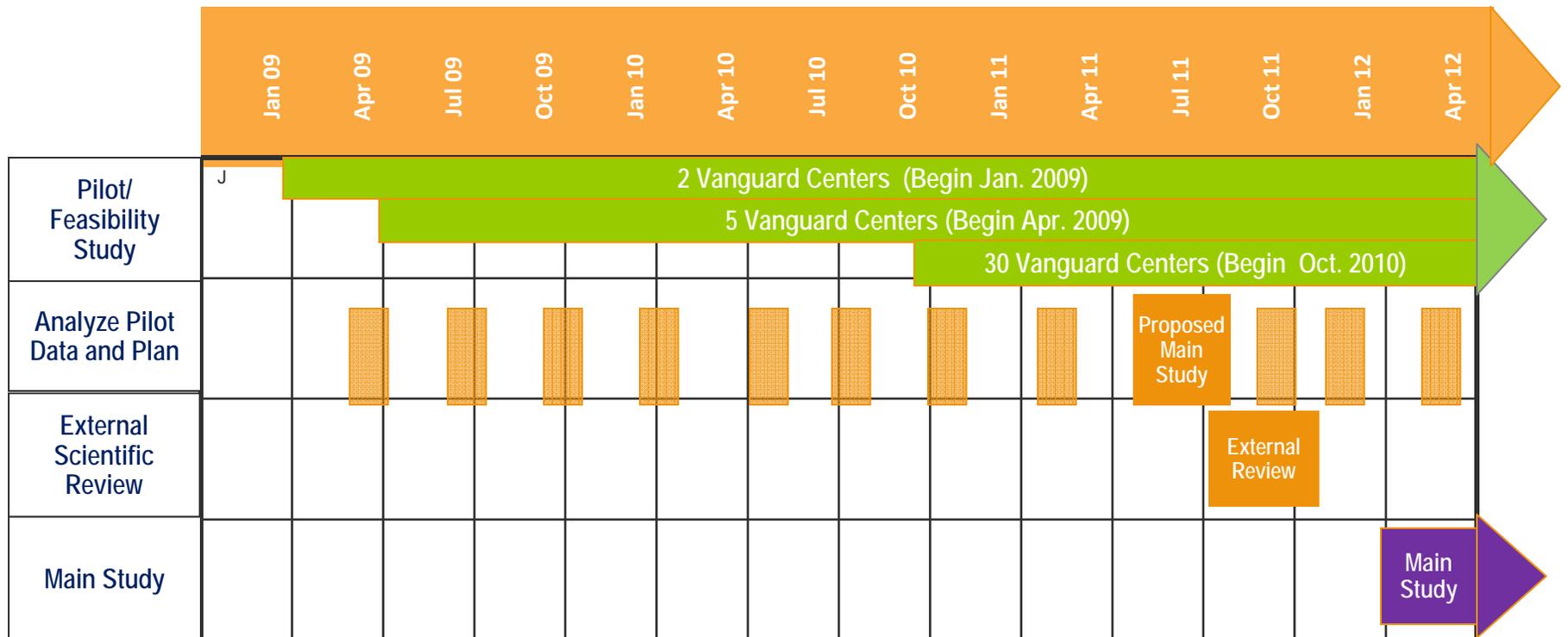
NCS Structure



- All components and phases of its integrated activities together form the NCS
- Current major components:
 - **NCS Vanguard Study:** 21-year pilot phase for methods; started in 2009 with 7 centers; in 2010 added 30 centers
 - **NCS Main Study:** 21-year exposure response phase; runs ~3 years behind Vanguard Study; planned start in 2012
 - **NCS Substudies:** studies within studies
 - **Formative Research:** short term studies, often methods development, to inform the Vanguard and Main Studies



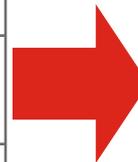
NCS Projected Timeline



Examples of Exposures and Health Outcomes



Exposures	Examples
Physical Environment	Housing quality, neighborhood
Chemical Exposures	Pesticides, phthalates, heavy metals, BPA
Biologic Environment	Infectious agents, endotoxins, diet
Genetics	Interaction between genes and environment
Psychosocial milieu	Family structure, socio-economic status, parenting style, social networks, exposure to media and violence



Health Outcomes	Examples
Pregnancy Outcomes	Preterm, Birth defects
Neurodevelopment & Behavior	Autism, learning disabilities, schizophrenia, conduct and behavior problems
Injury	Head trauma, Injuries requiring hospitalizations
Asthma	Asthma incidence and exacerbation
Obesity & Physical Development	Obesity, diabetes, altered puberty



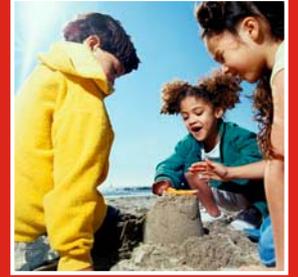
Exposure Questions



- Are there linkages among vulnerability to exposure, developmental stage or age, and health related outcomes?
- Should the NCS collect particular sample types at different developmental stages?
- Should the NCS establish a hierarchy of different analytes to assess at particular developmental stages?



Examples of Schema for Developmental Stages



- AAP: *American Academy of Pediatrics*
- CDC: *Centers for Disease Control and Prevention*
- CDISC: *Clinical Data Interchange Standards Consortium*
- EPA: *Environmental Protection Agency*
- ICH-E11: *International Conference on Harmonisation*
- SNOMED: *Systematized Nomenclature of Medicine*



Further Information



- <http://www.nationalchildrensstudy.gov>

