Poverty Research & the National Children’s Study (NCS)

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Importance of Poverty Research to the NCS

1) Family income and poverty are major determinants of children’s health & wellbeing, globally, nationally and locally.

2) Childhood poverty is an important determinant of adult health & productivity.

3) Adverse prenatal and child health contribute to poverty and economic disadvantage.

4) Though conceived in an economic boom (1990s), NCS was launched during a recession (2009), implemented while >20% of U.S. children are living in poverty.

5) Environmental risk factors, in addition to SES, disproportionately affect children in poverty.

6) “It is health that is real wealth and not pieces of gold and silver.” -- M. Gandhi
Lead Poisoning: Example of a Prenatal/Childhood Antecedent of Adult & Intergenerational Poverty, Amenable to Public Health Intervention

Figure 2-4. Cumulative frequency distribution of verbal IQ scores in children with high and low tooth lead levels

Source: Needleman et al., 1979.

Figure 1 Mean blood-lead levels among primary school children and tons of lead added to gasoline 1976-99. Source: Strömberg et al. (1995) and Strömberg et al. (2003).
Vulnerability of the developing brain to environmental chemicals, NCS Rationale

From The President’s Task Force on Environmental Health and Safety Risks to Children, 2000

– Compared to adults, children are especially vulnerable to environmental exposures – metabolism, behavior, neurodev.
– Exposures to some agents demonstrate potential for serious developmental effects – lead, prenatal alcohol, thalidomide
– Current exposures of high frequency – pesticides, violence, media, …; consequences not fully understood
– Numerous high impact conditions with suspected environmental contribution – learning disabilities, autism, diabetes, asthma, birth defects, premature birth
– Life-course (longitudinal) design needed to correctly link with multiple exposures and multiple outcomes
Effects of Blood Lead Levels on Intellectual Development Minor Compared to Effects of Poverty

Socioeconomic disadvantage and home environment explained nearly 50% of the variance in IQ, while blood lead explained less than 5%.
Is the NCS focusing on rare disorders & not normative child health?

• From a public health perspective, the NCS outcomes of preterm birth, birth defects, autism, intellectual and other neurodevelopmental disabilities, asthma and obesity are not rare or of low impact, & disproportionately affect children in poverty.

• A birth cohort of 100,000, unselected with respect to risk or social factors, and followed for 21 years will also provide normative data on children’s health and development.
Birth Cohort Representativeness

National Collaborative Perinatal Project; 1959-65; 12 Academic Medical Centers; ~58,000 Births
NCS Waukesha County, Wisconsin: Stratification & Segment Selection

17 Strata

- Represent geographic diversity of the county
- Further stratified by:
  - **Water source**: surface v. ground; community v. well
  - **Poverty** (% <200%)
  - **Housing age** (% new housing)
  - **Education** (% bachelors)

- ~ 250 births/stratum/year
- Each stratum divided into ~10 segments, ~25 births/segment
- One segment randomly selected per stratum=17 segments
Waukesha County Births by Birth Hospital

2006 Births
Total 4,140 in 15 Hospitals
22 Home Births
14 Fetal Deaths

Maternal Characteristics
23.2% births to women >35
54.1% college graduates
83% married
93% 1st trimester prenatal care

Birth Outcomes
5.4% low birth weight

Ethnicity
- White 86.3%
- Black 1.3%
- Hispanic 6.6%
- Hmong 0.3%
Is the NCS likely to have an acceptable response rate?

• The Framingham Heart Study had an initial response rate of 68%, with subsequent dropout, and its desired initial sample size was achieved by incorporating volunteers into the cohort. It nonetheless revolutionized understanding and control of heart disease.

• NCS initial experience in 7 Vanguard sites achieved ~90% enumeration, and ~75% participation of eligible women and births.
Will the NCS data, including geographic indicators, be available to researchers?

- The NCS is reputed to be the first large-scale NIH study to be compliant with the Federal Information Security Management Act (FISMA).

- Will it be possible under FISMA for qualified researchers to access, analyze and share NCS data?
NIH Launches Controversial Long-Term Study of 100,000 U.S. Kids

Bush Administration Decides It Can’t Afford Children’s Study

Don't Rob the Cradle

NIH Children’s Study Sparks Fight
Director Elias Zerhouni says the National Institutes of Health (NIH) can’t afford it. But legislators believe that a massive search for the sources of chronic ailments such as asthma and diabetes is worth $3 billion over the next 25 years.

US children’s study escapes knife

Children’s Study Needs Pilot Testing, Panel Finds
Strategies for ensuring the NCS will address health disparities

• “Formative” or methodological studies (funded under current NCS contracts)

• “Adjunct” studies (independently funded)

• Other?