Centers for Children's Environmental Health & Disease Prevention Research

National Institute of Environmental Health Sciences
and
U.S. Environmental Protection Agency

Introduction

- Background on Current Program
- New Program
  - Goals & Objectives
  - Featured Project Descriptions

Executive Order
April 1997

- "Protection of Children from Environmental Health Risks and Safety Risks"
- Charges agencies to consider special environmental risks to children
  - a high priority to identify and assess environmental health risks
  - ensure policies, programs, activities, & standards address environmental health

History

- Established in 1998
  - —NIEHS, U.S. EPA, CDC
- Two Areas Scientific Focus
  - —Respiratory Disease
  - —Growth & Development
- 8 Centers Established

Purpose

- Foster multidisciplinary interactions among basic, clinical, and behavioral scientists
- Support state-of-art research programs addressing environmental contributions to children's health and disease
- Ultimate goal of accelerating translation of basic research findings into clinical or intervention strategies

Purpose

- To develop fully coordinated programs that incorporate exposure assessment and health effects research with development and validation of risk management strategies.
- To establish a national network that fosters communication, innovation, and research excellence, with the ultimate goal of reducing morbidity among children who have exposures to harmful environmental agents

Center Structure

- Support at least two basic research projects
- Support one community-based intervention research project
- Support facility cores
- Establish administrative core and external advisory committee

Centers for Children's Environmental Health

New Program

- Expansion of the existing program
- Developmental Disabilities such as Autism, ADHD, Mental Retardation, Cerebral Palsy
- Cognitive, motor, sensory, and behavioral impairments in children
- Environmental exposures of children which may put them at risk of these disorders

Four New Children's Centers

- University of California, Davis
- UMDNJ - RW Johnson Medical School
- Children's Hospital of Cincinnati
- University of Illinois, Champaign-Urbana

UC-Davis Center: Environmental Factors in the Etiology of Autism

- **Featured Project**
  - **Case-control epidemiological investigation of causes of autism**
    - **2000 children between the ages of 2 and 5 years**
      - **700 autistic; 700 MR without autism; 600 non-MR, non-autistic**
    - **Examine associations between autism risk and a variety of exogenous and endogenous susceptibility factors**
      - **Vaccinations, lead, PCBs, pesticides**
      - **Genes regulating xenobiotic and lipid metabolism, immunologic status, neuropeptides/neurotrophins, cytokines**

UC-Davis Center: Environmental Factors in the Etiology of Autism

- **Featured Project**
  - **Animal Models of Autism**
    - **Establish behavioral tasks that provide sensitive assessments of normal mouse and rhesus monkey social behavior**
    - **Test if prenatal and/or postnatal exposure to relevant xenobiotics decrease normal conspecific social behavior**
    - **Determine if changes in social behavior are associated with alterations of brain regions (amygdala) that have been implicated in autism and social behavior**

UMDNJ-Robert Woods Johnson Center: Center for Childhood Neurotoxicology and Exposure Assessment

- **Featured Project**
  - **Adhesion and Repulsion Molecules in Developmental Neurotoxic Injury**
    - **Lead and methyl mercury selected as model neurotoxicants**
    - **Complementary morphological, biochemical and behavioral assessments of toxicant-induced perturbations of adhesion and repulsion molecules (e.g., NCAM, N-cadherin)**
    - **Elucidate mechanisms by which toxic metals and other xenobiotics alter neural pathway formation and synaptic regulation**

UMDNJ-Robert Woods Johnson Center: Center for Childhood Neurotoxicology and Exposure Assessment

- **Featured Project**
  - **Clinical Science Project**
    - Determine if children with autism are at increased risk for neurotoxicant exposure
    - Examine relation between regressive autism and neurotoxicant exposure
    - Assess relation between neurotoxicant exposure and regional brain growth patterns
    - Examine relation between autism risk and polymorphic variations in genes involved with chemical-induced oxidative stress

More Information

Please visit the Program Website

http://www.niehs.nih.gov/dert/programs/translat/children/children.htm