



Environmental Health Activities in Illinois



NCEH in Partnership with Illinois

The National Center for Environmental Health (NCEH) is part of the Centers for Disease Control and Prevention (CDC). NCEH's work focuses on three program areas: identifying environmental hazards, measuring exposure to environmental chemicals, and preventing health effects that result from environmental hazards. NCEH has approximately 450 employees and a budget for 2004 of approximately \$189 million; its mission is to promote health and quality of life by preventing or controlling diseases and deaths that result from interactions between people and their environment.

NCEH and partners in **Illinois** collaborate on a variety of environmental health projects throughout the state. In **fiscal years 2000–2004**, NCEH awarded more than **\$11.7 million** in direct funds and services to Illinois for various projects. These projects include activities related to controlling asthma, planning a state biomonitoring program, and preventing childhood lead poisoning. In addition, Illinois benefits from national-level prevention and response activities conducted by NCEH or NCEH-funded partners.

Identifying Environmental Hazards

NCEH identifies, investigates, and tracks environmental hazards and their effects on people's health. Following are examples of such activities that NCEH conducted or supported in **Illinois**.

Asthma

- **Replication and Implementation of Scientifically Proven Asthma Interventions**—NCEH funded three organizations in **Illinois** to implement a scientifically evaluated asthma intervention that decreases acute-care visits, decreases hospitalizations, and increases compliance with asthma-care plans. These organizations were the **American Lung Association of Metropolitan Chicago** (funded fiscal years 2000–2003), the **PCC Community Wellness Center** (funded fiscal years 2002–2004), and the **Southern Illinois Healthcare Foundation**

(funded fiscal years 2002–2004).

- **Inner-City Asthma Intervention**—NCEH funded the **Cook County Hospital Department of Pediatrics/Pediatric Allergy Division** to provide inner-city families with asthma education and individualized asthma-control plans. Funding began in fiscal year 2000 and ended in fiscal year 2003.
- **Controlling Asthma in American Cities**—To decrease asthma-related morbidity, NCEH funds the **University of Illinois** to use innovative collaborative approaches to improve overall asthma management among urban children up to 18 years of age. Funding began in fiscal year 2001 and ends in fiscal year 2004.
- **Addressing Asthma from a Public Health Perspective**—NCEH funds the **Illinois Department of Public Health (IDPH)** to develop asthma-control plans that include disease tracking, science-based interventions, and statewide partnerships to reduce the burden of asthma in home, school, and occupational environments. Funding began in fiscal year 2000 and ends in fiscal year 2004.
- **Asthma Surveillance and Interventions in Hospital Emergency Departments**—NCEH funded **Northwestern University** to forge partnerships among universities, hospital emergency departments, and state and local health departments to improve asthma care. Funding began in fiscal year 2001 and ended in fiscal year 2003.

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Environmental Public Health Tracking

- **National Environmental Public Health Tracking Program: Infrastructure Enhancement and Data Linkage Demonstration Project**—NCEH is funding **IDPH** to establish an

enhanced environmental public health tracking network (EPHTN) to address the information gap in documenting possible links between environmental hazards and chronic diseases, as well as to relate and report health effects data with environmental data. IDPH is developing a process for reporting infectious diseases using the Internet. Funding began in fiscal year 2002 and will end in fiscal year 2004.

Health Studies

- **Assessing Mercury Exposure Among Young Children in Chicago**—NCEH was asked by the **Chicago Department of Public Health (CDPH)** to examine levels of mercury in the blood and urine in a population of Chicago children who may be exposed to this chemical through its ritualistic or cultural use. Children younger than 10 years of age were enrolled from CDPH clinics and from homes identified during door-to-door visits. Urine and blood samples were collected from participating children, and parents were asked to answer questions about demographic information and potential sources of mercury exposure. Additional anonymous urine samples were collected from three health clinics.

In July 2003, the NCEH laboratory analyzed mercury levels in urine samples from 347 children. The study did not find elevated mercury levels that could be attributed to elemental mercury exposure. Investigators did find a greater-than-background exposure to mercury in blood samples; however, this finding occurred in a small population of children and may have been due to their diets. All levels measured were below the level of concern for mercury exposure. The study began in fiscal year 2003 and will end in fiscal year 2005.

Measuring Exposure to Environmental Chemicals

NCEH measures environmental chemicals in people to determine how to protect people and improve their health. Following are examples of such activities that NCEH conducted or supported in Illinois.

Funding

- **Antiterrorism Funding to Increase State Chemical Laboratory Capacity**—In fiscal year 2003, CDC provided more than \$650,000 to **Illinois** to help expand chemical laboratory capacity to prepare for and respond to chemical-

terrorism incidents and other chemical emergencies. This expansion will allow full participation of chemical-terrorism response laboratories in the Laboratory Response Network.

In addition, NCEH funds laboratory development and the purchase of state-of-the-art equipment in public health laboratories in Illinois to develop a network of chemical laboratories and transfer technology to measure chemical agents.

- **Biomonitoring Grants**—In fiscal years 2001 and 2002, NCEH awarded planning grants to **Illinois** to develop an implementation plan for a state biomonitoring program. In this way, the state could make decisions about which environmental chemicals within its borders were of health concern and could make plans for measuring levels of those chemicals in the Illinois population.

Studies

- **Chicago High-Intensity Targeted Screening**—High-Intensity Targeted Screening is one approach being used to improve our ability to screen children at risk for lead exposure. Using this approach, teams from NCEH and from the local childhood lead poisoning prevention program visited homes in **Chicago** in October 2001 to screen children for elevated blood lead levels. The NCEH laboratory provided training and technical oversight to local staff and analyzed 646 blood samples for lead. Of the 646 children tested, 31% had a blood lead level greater than 10 micrograms per deciliter, the CDC level of concern. Families of children who had elevated blood lead levels were offered appropriate medical treatment and an evaluation of lead hazards in their homes.
- **Age-Related Eye Disease Study**—The National Eye Institute conducted the Age-Related Eye Disease Study, a 10-year multicenter study, to investigate the natural history of age-related macular degeneration and cataracts and the role of various risk factors in their development and progression. The study tested the effects of nutritional supplementation on preventing and controlling these diseases through a randomized, placebo-controlled clinical trial. NCEH measured serum samples for carotenoids; lipids; zinc; copper; and vitamins A, E, and C. **Ingalls Memorial Hospital** in **Harvey** was one of the 10 study centers.

Study results showed that people at high risk for advanced AMD, a leading cause of vision loss, lowered their risk by 25% when treated with a high-dose combination of vitamins C and E, beta-carotene, and zinc. In the same high-risk group, which includes people with intermediate AMD or with advanced AMD in only one eye, the nutrients reduced the risk for vision loss caused by advanced AMD by about 19%. For study participants who had either no AMD or who were in the early stages of AMD, the nutrients provided no apparent benefit.

- **Serum Carotenoids and α -Tocopherol and Risk for Nonmelanoma Skin Cancer**—For this study, NCEH measured carotenoids and tocopherols in blood samples collected from participants for a National Cancer Institute trial conducted at eight clinical centers around the United States, including Northwestern University School of Medicine in Chicago. Findings suggested that the risk for future basal-cell carcinoma was not related to levels of any of the carotenoids measured or to α -tocopherol. Serum levels of α -carotene, β -carotene, lycopene, and α -tocopherol also were not related to the risk for a subsequent squamous cell carcinoma. However, an increased risk of squamous cell carcinoma was associated with higher levels of lutein, zeaxanthin, and β -cryptoxanthin.

Services

- **Newborn Screening Quality Assurance Program**—NCEH provides proficiency-testing services and dried-blood-spot, quality-control materials to monitor and help assure the quality of screening program operations for newborns in **Illinois**. The importance of accurate screening tests for genetic metabolic diseases cannot be overestimated. Testing of blood spots collected from newborns is mandated by law in almost every state to promote early intervention that can prevent mental retardation, severe illness, and premature death.
- **Lipid Standardization Program (LSP)**—NCEH provides two lipid research laboratories in **Illinois** with accuracy-based standardization support for analytic measurement. These laboratories are involved in one or more ongoing lipid metabolism longitudinal studies or clinical trials that investigate risk factors

and complications associated with cardiovascular disease. The LSP, supported by NCEH's Lipid Reference Laboratory, provides quarterly analytic performance challenges and statistical assessment reports that allow program participants to monitor performance over time and thus ensure the accuracy and comparability of study results and findings.

- **Helping State Public Health Laboratories Respond to Chemical Terrorism**—NCEH is working with the **Illinois** public health laboratory to prepare state laboratory scientists to measure chemical-terrorism agents or their metabolites in people's blood or urine. NCEH is transferring analytic methods for measuring chemical-terrorism agents (including cyanide-based compounds and other chemicals) to Illinois. In addition, NCEH instituted a proficiency-testing program to measure the comparability of the state's analytic results with results from the NCEH laboratory.

Preventing Health Effects That Result from Environmental Hazards

NCEH promotes safe environmental public health practices to minimize exposure to environmental hazards and prevent adverse health effects. Following are examples of such activities that NCEH conducted or supported in **Illinois**.

- **Childhood Lead Poisoning Prevention Program**—The **Illinois Childhood Lead Poisoning Prevention Program (IL CLPPP)** has received NCEH funding since 1991. NCEH has also funded the **City of Chicago (Chicago CLPPP)** under a separate cooperative agreement since 2001. Illinois is among the states screening the highest number of children under age 6 years for lead. In 2001, IL CLPPP and Chicago CLPPP together reported screening 187,385 children for lead poisoning. The number of children under 6 years of age who had elevated blood lead levels decreased from 32,061 in 1997 to 15,323 in 2001. These decreases in blood lead levels are due to state program efforts funded in part by NCEH. IL CLPPP and Chicago CLPPP are using NCEH funds to implement a childhood lead poisoning elimination plan for the state and Chicago, respectively, to increase targeting screening and primary prevention activities, to maintain existing surveillance systems, to increase protective policies, and to build strategic partnerships.

- **Center of Excellence in Environmental Health**—NCEH is funding the **Illinois Center of Excellence in Environmental Health**. The center's mission is to lead and support the development of a community of excellence in environmental health in Illinois by building the capacities of local and state environmental health stakeholders, especially departments of public health, to respond to environmental health challenges. Health department partners include **CDPH, IDPH, and the Oak Park Department of Health**. Other center partners include the U.S. Environmental Protection Agency Region 5, the **Illinois Poison Center**, and the **Illinois Environmental Council**.

Resources

NCEH develops materials that public health professionals, medical-care providers, emergency responders, decision makers, and the public can use to identify and track environmental hazards that threaten human health and to prevent or mitigate exposure to those hazards. NCEH's resources cover a range of environmental public health issues. These issues include air pollution and respiratory health (e.g., asthma, carbon monoxide poisoning, and mold exposures), biomonitoring to determine whether selected chemicals in the environment get into people and to what degree, childhood lead poisoning, emergency preparedness for and response to chemicals and radiation, environmental health services, environmental public health tracking, international emergency and refugee health, laboratory sciences as applied to environmental health, radiation studies, safe disposal of chemical weapons, specific health studies, vessel sanitation, and veterans' health.

For more information about NCEH programs, activities, and publications as well as other resources, contact the NCEH Health Line toll-free at 1-888-232-6789, e-mail NCEHinfo@cdc.gov, or visit the NCEH Web site at www.cdc.gov/nceh.