



Environmental Health Activities in New York



NCEH in Partnership with New York

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 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 throughout **New York** collaborate on a variety of environmental health projects throughout the state. In **fiscal years 2000–2004**, NCEH awarded more than **\$21.5 million** in direct funds and services to New York for various projects. These projects include activities related to asthma, environmental public health tracking, and pesticide use among pregnant women. In addition, New York 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 has conducted or supported in **New York**.

Asthma

- **Addressing Asthma from a Public Health Perspective**—NCEH is funding **New York** to implement a comprehensive, statewide asthma-control plan. Funding began in fiscal year 2002 and continues through fiscal year 2005.
- **Controlling Asthma in American Cities**—To decrease asthma-related morbidity, NCEH is funding **New York City** to use innovative, collaborative approaches to improve asthma management among urban children younger than

18 years of age. Funding began in fiscal year 2002 and continues through fiscal year 2007.

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- **Development of Asthma-Care Models**—In fiscal year 2005, NCEH funded the **Woodhull Medical and Mental Health Center in Brooklyn** to develop and test a comprehensive model of care for children and adolescents younger than 19 years of age who have asthma. This model melds the education of patients and providers with environmental assessments, follow-up care, and state-of-the-art information technology to address the complex needs of families managing asthma.
- **Inner-City Asthma Intervention**—NCEH is funding grantees in **New York** to provide inner-city families with asthma education and individualized asthma-control plans. Funding began in fiscal year 2002 and continues through fiscal year 2004.
- **Asthma-Related Disaster Relief**—NCEH is funding **New York** to implement community-level asthma interventions, asthma surveillance activities, and environmental monitoring related to the 2001 World Trade Center disaster. Funding began in fiscal year 2002 and continues through fiscal year 2006.
- **Replication and Implementation of Scientifically Proven Asthma Interventions**—NCEH is funding two grantees in **New York** to implement two scientifically evaluated asthma interventions that decrease acute-care visits, decrease hospitalizations, and increase compliance with asthma-care plans. The first grantee, the **Asthma and Allergy Foundation of America**, is implementing Asthma Care Training for Kids (ACT). The goals for ACT are to increase asthma-control compliance behaviors and to decrease emergency department visits and number

of days spent in the hospital. The second grantee, the **American Lung Association**, is implementing Open Airways for Schools (OAS). The goals for OAS are to increase school performance and self-management behaviors and to decrease the number of asthma episodes. Funding began in fiscal year 2001 and continues through fiscal year 2004.

Environmental Public Health Tracking (EPHT) Projects

- **Infrastructure Enhancement and Data-Linkage Demonstration for the National EPHT Network**—NCEH is funding a cooperative agreement with the **New York State Department of Health (NYSDOH)** to evaluate the feasibility and usefulness of linking health-effects data with human-exposure data and environmental-hazard data. Funding began in fiscal year 2003 and continues through fiscal year 2005. The project's goals are to

1. enhance the state's ability to assess the relation between air pollution and pregnancy outcomes, asthma development, and childhood mortality;
2. develop the state's ability to track the public health significance of exposures to contaminants in drinking water; and
3. develop the state's ability to track neurologic conditions, autoimmune diseases, developmental disabilities, diabetes, chronic diseases other than reproductive outcomes, cancer, and asthma.

NYSDOH also is developing strategies for quickly communicating information generated by the national EPHT Network to local, tribal, and federal governments; health-care providers; nongovernment organizations; the public; and other stakeholders. The state also will work with the universities active in the EPHT program to develop and provide training to state and local staff on surveillance practices, environmental assessment, biomonitoring, evaluation, and risk communication and to evaluate the environmental public health indicators.

- **Data-Linkage Demonstration for the National EPHT Network**—NCEH is funding two grantees—**NYSDOH** and the **New York City Department of Health and Mental Hygiene (NYC DOHMH)**—to conduct demonstration projects for the national EPHT Network. The

NYSDOH project will link public water supply monitoring data geographically with birth-outcome data according to water district. NYSDOH and NCEH will work together to ensure that this demonstration project is compatible with the developing national EPHT Network.

The purpose of the NYSDOH project is to demonstrate and evaluate methods for linking data from existing health effects surveillance systems with data from existing human exposure and environmental hazards surveillance and monitoring systems in New York. NCEH and its partners will use the methods, tools, and best practices developed through this project to advance the development of the national EPHT Network.

The NYC DOHMH project will link hazard, exposure, and health-outcome data associated with heavy metals and pesticides. Ongoing surveillance of these environmental and health concerns will allow the city to report data publicly, evaluate progress toward the reduction of heavy metals and pesticides, launch interventions to reduce health risks, and improve environmental quality.

Lessons learned through the NYC DOHMH project will be used to expand the NYC DOHMH Environmental and Health Effects Tracking program. NYC DOHMH has completed a preliminary inventory of data related to heavy metals and pesticides, convened an advisory panel of stakeholders, and begun assessing the city's technical-infrastructure needs.

Funding for both projects began in fiscal year 2004 and continues through fiscal year 2006.

- **Planning and Capacity-Building for the National EPHT Network**—NCEH is funding a cooperative agreement with **NYC DOHMH** to assess, evaluate, and enhance the city's surveillance systems that track health effects, exposure, and hazard surveillance data. This project, titled Environmental Connections, will build on NYC DOHMH's existing environmental public health tracking systems, and on the tracking systems of the department's sister agencies. Environmental Connections also will cultivate NYC DOHMH's partnerships with local academic institutions, community-based organizations,

private-sector employers, unions, and federal agencies. Funding began in fiscal year 2003 and continues through fiscal year 2005.

Environmental Public Health Studies Projects

- **Assessing Physical and Mental Health and Other Conditions After the Attack on the World Trade Center in New York City**—At the request of the **New York City Commissioner of Health**, NCEH collaborated with and provided technical assistance to **NYC DOHMH** to assess physical and mental-health needs among lower Manhattan residents after the September 11, 2001, attack on the World Trade Center.

Researchers found that in the three surveyed areas of lower Manhattan, basic community services (such as utilities and medical or pharmacy services) were available. However, residents were tremendously concerned about air quality and its potential effects on health. The high proportion of the local population experiencing health problems potentially related to respiratory irritants supported this concern. Another major concern in all three areas surveyed was mental health. Thousands of people living in lower Manhattan potentially may be at risk for posttraumatic stress disorder and could benefit from supportive mental health services. Many of these people may not have access to or be aware of available mental health programs.

- **Assessing Mercury Exposure Among Young Children in New York City**—Requested by **NYC DOHMH**, this ongoing study is designed to determine whether children in **New York City** communities are being exposed to mercury, and, if so, what sources of mercury might be responsible for exposures. Researchers will enroll a total of 400 children from three public health clinics in the study. Parents are approached during visits to the clinics and asked to enroll their children in the study. Researchers will seek an additional 50 children for a door-to-door pilot study conducted in conjunction with this study.

New York State will analyze all of the urine samples. NCEH will analyze all of the blood samples and, for quality control, a subset of approximately 10% of the urine samples. Funding began in fiscal year 2004.

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 has conducted or supported in **New York**.

Funding

- **Antiterrorism Funding to Increase State Chemical Laboratory Capacity**—In fiscal year 2003, CDC provided more than \$1.4 million to **New York** and more than \$90,000 to **New York City** to assist them in expanding chemical laboratory capacity to prepare and respond to chemical terrorism incidents and other chemical emergencies. This program expansion will allow for full participation of chemical-terrorism response laboratories in the Laboratory Response Network. NCEH also continues to fund laboratory development and the purchase of state-of-the-art equipment in the state's and city's public health laboratories in support of developing a network of chemical laboratories and of transferring technology to measure chemical agents.
- **Biomonitoring Grants**—In fiscal years 2001 and 2002, NCEH awarded planning grants to develop a plan for implementing a biomonitoring program for the state. In this way, the state could make decisions about which environmental chemicals within its borders were of health concern and could make plans to measure levels of those chemicals in the **New York** population. In 2003, **New York** also received a grant to implement the biomonitoring program in the state.

Studies

- **Pesticide Use Among Pregnant Women in New York City**—In this study, **Mt. Sinai School of Medicine's Children's Environmental Health Center** and NCEH collaborated to evaluate pesticide use among 426 pregnant women. The women were from three racial or ethnic groups living chiefly in **East Harlem** and surrounding neighborhoods in **New York City**. NCEH measured levels of 12 breakdown products (or metabolites) in the urine of these women. The metabolites represented exposure to a range of organophosphate and synthetic pyrethroid pesticides. **Mt. Sinai** researchers investigated the prevalence of exposure in relation not only

to reported use of pesticides, race or ethnicity, housing stock (kind and geographic location), and seasons of the year, but also to maternal age. Study data indicate that exposure to indoor pesticides is common and preliminary results show that pesticide levels in urine differ by educational status of the women and season of the year but not by reported pesticide use during pregnancy. Data on levels of various metabolites and demographic correlates of exposure are being evaluated.

- **The Effect of Prenatal Exposure to Ambient and Indoor Pollutants on Birth Outcomes, Neurocognitive Development, and DNA**—In collaboration with **Columbia University's Center for Children's Environmental Health**, NCEH measured levels of 29 pesticides or their metabolites in blood samples collected at birth from 142 mothers and 155 newborns enrolled in this prospective cohort study. Seven of the pesticides, among them the organophosphate pesticides chlorpyrifos and diazinon, were detected in 54%–97% of the maternal and umbilical cord blood samples, and levels in these samples were significantly correlated. However, levels of these chemicals in the air were not correlated with blood levels. A fungicide known as *o*-phenylphenol was detected in 100% of personal air samplers worn by the pregnant women but not in their blood samples. The remaining pesticides were detected in less than 30% of the personal air and blood samples. Levels of two pesticides were significantly higher in the personal air samples of women who reported using exterminators, can sprays, or pest bombs during pregnancy than in women who reported no pesticide use or who used only boric acid, traps, or gels. Findings indicate frequent, but decreasing, pesticide exposures among this minority group, but findings also show ready transfer of pesticides to the developing fetus. Researchers also evaluated exposure levels in relation to adverse birth outcomes; results indicated that prenatal exposure to the pesticide chlorpyrifos impaired fetal growth and that exposure to diazinon may contribute to the effects. These findings support recent regulatory action to phase out the residential uses of certain pesticides such as chlorpyrifos.
- **Relation of Exposure to Hormonally Active Chemicals and the Onset of Puberty in Young Girls**—Building on an earlier study which suggested that African Americans were more likely than whites to achieve puberty at an early age (9 years), the **Mt. Sinai School of Medicine's Breast Cancer and Environment Center** is conducting a longitudinal study to further evaluate environmental exposures and their impact on the onset of puberty in young girls. NCEH will collaborate on the study and measure levels of phytoestrogens, phthalates, alkylphenols, pesticides, and other chemicals in the blood and urine of study participants. This study is in the late planning stages; field work should begin during the late summer or early fall of 2004.
- **Ross School Study**—For several years, the Ross boarding school in **Long Island** has promoted a wellness program that includes physical activity and meals that contain organically produced food. To evaluate the effectiveness of these meals in reducing overall exposure to pesticides, NCEH collaborated with Massachusetts General Hospital and Harvard University in a cross-sectional study of students and faculty who ate meals prepared primarily at the school. Meals prepared at Ross School had been hypothesized to be lower in pesticide residues than meals that did not contain organically produced foods. Researchers compared levels of pesticide metabolites in this group and in a group of age-matched people who did not eat organically produced foods. Study data are being analyzed. Results probably will be available in summer 2004.
- **New York City Health and Nutrition Examination Study (HANES)**—Many states and cities are keenly interested in assessing their residents' exposure to a host of environmental chemicals to determine whether those levels are higher, lower, or similar to background levels in the general U.S. population. NCEH is providing support for measuring levels of organophosphate and pyrethroid pesticide metabolites in a 400-sample subset of the 2,000 samples that will be collected by **New York City** health officials. Study protocols are being developed. NCEH already has transferred methods for measuring organophosphate pesticides and trace metals in urine and will supply quality-control materials to **NYSDOH**, which eventually will analyze samples for the New York City HANES.

- **Perchloroethylene Study**—NYSDOH is evaluating exposure to the dry-cleaning chemical perchloroethylene. Researchers will examine possible adverse health effects (including neurologic effects) among children and adults who live in buildings that also house dry-cleaning facilities using this chemical. NCEH is evaluating blood levels of perchloroethylene in both case- and control-participants. NCEH also will measure levels of lead and mercury in the blood and urine of study participants. The study is ongoing.

- **Transdisciplinary Tobacco-Use Research Centers/International Tobacco Consortium**—This ongoing project is a collaborative effort between the **Roswell Park Research Institute** in **Buffalo** and NCEH. It is designed to assess the influence of policies that regulate product characteristics on cigarette design, the chemical composition of smoke (also known as “smoke chemistries”), smokers’ behaviors and perceptions, and biomarkers of exposure. NCEH will establish and maintain a repository of cigarette packs from multiple countries and will characterize samples from those packs for many features, including the weight and blend of the tobacco, filter type and weight, and filter ventilation.

NCEH will assess smoke chemistries, including substances such as tar, nicotine, carbon monoxide, free nicotine, tobacco-specific nitrosamines, and polycyclic aromatic hydrocarbons. The laboratory also will assess smoking topography—how people smoke cigarettes—using portable devices and biologic markers of exposure. In another project, NCEH will assess changes in design and smoke chemistries over time in various brands and will assess smoke chemistries of fire-safe cigarettes (cigarettes capable of self-extinguishing). Researchers will determine whether smokers’ behaviors (e.g., reported number of cigarettes smoked daily, puff patterns, brand switching, quitting) and perceptions (relative hazards and acceptability of various brands) change once changes in policy occur.

- **Exposure Study of Persistent Pollutants in Urban Anglers**—This pilot study, in collaboration with the **Mt. Sinai School of Medicine**, is designed to examine the possibility of a relation

between exposure to polybrominated diphenyl ethers (PBDEs) and health effects among people who obtain their fish and shellfish from the **Hudson River in New York Harbor**. Although adverse health effects from PBDE exposure are not well understood, limited data support the hypothesis that PBDEs may affect the thyroid gland and influence estrogen function. Experimental data also indicate that PBDEs may negatively affect the developing nervous system. NCEH will measure levels of PBDEs as well as levels of other persistent organic pollutants—dioxins, furans, and polychlorinated biphenyls—in the serum of about 100 people who catch and eat fish and shellfish from the Hudson River in New York Harbor. The laboratory is analyzing samples.

- **Assessing Exposure to Arsenic**—This ongoing study will evaluate the relation between soil contamination from and human exposure to an arsenical pesticide produced in a plant in **Middleport**. Study participants are children younger than 7 years of age.

Services

- **Blood Lead Laboratory Reference System (BLLRS)**—In **New York**, 21 laboratories participate in NCEH’s standardization program to improve the overall quality of laboratory measurements of blood lead levels. This program assists laboratories nationwide in evaluating their performance on these critical laboratory tests. NCEH provides BLLRS materials to the laboratories four times a year without charge. Additionally, NCEH is a reference laboratory for several New York State proficiency-testing programs involved in analyzing other trace and toxic metals.

- **Lipid Standardization Program**—CDC provides accuracy-based analytical measurement standardization support to seven lipid research laboratories in **New York** involved in one or more ongoing lipid metabolism longitudinal studies or clinical trials investigating risk factors and complications associated with cardiovascular disease.

- **Cholesterol Reference Method Laboratory Network (CRMLN)**—NCEH established the CRMLN to assist manufacturers in calibrating diagnostic products used for lipid and lipoprotein

testing. The **Wadsworth Center for Laboratories and Research** in **NYSDOH** is one of four U.S. laboratories in the CRMLN. These laboratories use CDC reference methods or designated comparison methods closely linked to CDC reference methods. This ensures that diagnostic products are properly calibrated and traceable to the accuracy base maintained at CDC. More than 95% of the participants in the proficiency-testing surveys of the College of American Pathologists have been certified through the CRMLN. This is directly attributed to manufacturers properly calibrating their products through the CRMLN.

- **Helping State Public Health Laboratories Respond to Chemical Terrorism**—NCEH is working with **New York's** public health laboratory to prepare state laboratory scientists to measure chemical terrorism agents or their metabolites in people's blood or urine. NCEH has conducted training on operating state-of-the-art laboratory instruments and on using specific methods to analyze these agents. Additionally, NCEH has transferred methods for measuring nerve agents, cyanide, and trace metals to the state laboratory and has instituted a proficiency testing program to test the comparability of analytical results from the state laboratory and NCEH.

Preventing Health Effects 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 has conducted or supported in **New York**.

- **New York State Childhood Lead Poisoning Prevention Program**—The **NYSDOH** and **NYC DOHMH** lead poisoning prevention programs have received CDC funding since 1991. New York is among the states screening the most children younger than 6 years of age for lead. In 2001, New York and New York City together reported 432,944 children screened for blood lead levels. Furthermore, the number of children younger than 6 years of age with elevated blood lead levels decreased 62% from 1997 to 2001—from 25,627 to 9,771. The **NYSDOH** Health Lead Poisoning Prevention Program leverages NCEH funds

to provide funding and technical assistance to 57 local health departments and New York City.

- **Monitoring of the Emergency Responders to the World Trade Center Attack September 11, 2001**—CDC used funds received from the Federal Emergency Management Agency to award two grants: \$4.8 million to the **New York City Fire Department** and \$2.3 million to **NYSDOH** to conduct medical evaluations of responders at World Trade Center Ground Zero. These medical evaluations will serve as a baseline to monitor any long-term health outcomes associated with the rescue workers. Evaluations and interviews are nearly complete; the project is now in the assessment phase.
- **Public Health Inspections of Cruise Ships**—NCEH established the model Vessel Sanitation Program in 1975 to combine cruise-ship industry cooperation with CDC's ability to take aggressive actions to protect the health of travelers. The program assists the industry in developing and implementing comprehensive sanitation programs to minimize risks for gastrointestinal diseases. Every vessel that has a foreign itinerary and carries 13 or more passengers is subject to two unannounced inspections each year. In 2003, NCEH's Vessel Sanitation Program conducted 17 inspections of cruise vessels that stopped at **New York City**. Since the program's inception, rates and outbreaks of diarrheal disease among passengers have continued to decrease because of environmental sanitation inspections.
- **Environmental Health Specialists Network (EHS-Net)**—As part of an eight-state cooperative agreement with NCEH and the Food and Drug Administration (FDA), the **New York EHS-Net** Program has received NCEH funding since 2000. These funds have enabled New York to describe the number and type of retail markets, institutions, and restaurants of the local food programs in the New York EHS-Net catchment area and the status of the FDA Model Food Code in these areas; to identify high-risk egg-handling practices; to evaluate behavioral factors that influence safe food-handling practices; and to evaluate the knowledge, attitudes, and behaviors of environmental health specialists regarding food safety and inspections. Thus far, New York

has performed research evaluations of many food-service establishments (both disease and nondisease outbreaks) and has led revision of the EHS-Net data collection instrument. New York and the other EHS-Net partners have been working toward the national goal of reducing foodborne disease outbreaks caused by pathogenic organisms.

Resources

NCEH develops materials that public health professionals, medical-care providers, emergency responders, decision makers, and the public can use to identify and track hazards in the environment that threaten human health and to prevent or mitigate exposure to those hazards. NCEH's resources cover a range of environmental public health issues, including air pollution and respiratory health (e.g., asthma, carbon monoxide poisoning, and mold exposure), biomonitoring to determine whether and how much of selected chemicals in the environment get into people, 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 and 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.



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