Environmental Health Activities in Nevada

NCEH in Partnership with Nevada

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 those diseases or deaths that result from interactions between people and their environment.

NCEH and partners throughout **Nevada** collaborate on a variety of environmental health projects throughout the state. In **fiscal years 2000–2004**, NCEH awarded more than $1.8 million in direct funds and services to Nevada for various projects. These projects include activities related to environmental public health tracking, mercury exposure among schoolchildren, and a cancer cluster investigation. In addition, Nevada 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 **Nevada**.

Environmental Public Health Tracking (EPHT) Project

- **Planning and Capacity-Building for the EPHT Network**—NCEH is funding a cooperative agreement with the **Nevada State Health Division**. This project's four major goals are to

  1. identify and increase the capacities of the public health; surveillance; and reporting infrastructures at the state, local, and tribal levels;

  2. improve the public's understanding of the relation between exposure to environmental hazards and chronic diseases and conditions;

  3. facilitate the integration of an environmental public health surveillance system with Nevada's National Electronic Disease Surveillance System, the U.S. Environmental Protection Agency's National Environmental Information Exchange Network, and the surveillance system being established under the Health Resources and Services Administration's hospital bioterrorism preparedness initiative; and

  4. cultivate partnerships that will facilitate implementation of a national EPHT system.

  During 2003, the cooperative agreement yielded a comprehensive inventory of environmental hazards, chemical inventories, and noninfectious-disease surveillance systems. Nevada also launched a statewide campaign to educate the public and policy makers about the relation between human exposure to environmental hazards and chronic diseases and conditions.

  Nevada proposes to establish a partnership with a local community to implement the Protocol for Assessing Community Excellence in Environmental Health, which would provide a real-time evaluation tool against which to compare the developed surveillance system's ability to appropriately identify, classify, report, track, and respond to incidents of human exposure to environmental public health hazards. Funding began in fiscal year 2003 and continues through fiscal year 2005.

> ***In fiscal years 2000–2004, NCEH awarded more than $1.8 million in direct funds and services to Nevada.***

Environmental Public Health Studies Projects

- **Cross-Sectional Exposure Assessment of Environmental Contaminants in Churchill County**—In 2001, a statistically significant increase was reported in the number of acute lymphocytic leukemia (ALL) and acute myelocytic leukemia (AML) cases diagnosed in **Churchill County** children—15 children

by the end of 2001. The **Nevada State Health Division** asked NCEH to evaluate risk factors for or etiologic exposures linked to this cluster of ALL and AML cases and to design and conduct a cross-sectional exposure assessment of selective contaminants using environmental and biologic specimens collected from case-families and from a reference (control) population.

During 2001 and 2002, NCEH conducted a cross-sectional exposure study of environmental contaminants in the region. NCEH opened a field clinic in **Fallon** to collect biologic samples and worked with the **Nevada Division of Environmental Protection** to collect the environmental samples. Specimens were collected from approximately 200 people, including case-children and their families and control-children and their families. NCEH analyzed blood samples for four metals (lead, mercury, cadmium, and selenium); 13 persistent pesticides; 15 volatile organic compounds; 38 polybrominated hydrocarbons; and genetic and microbial markers. Urine specimens were analyzed for 43 nonpersistent pesticides and 26 metals, including seven species of arsenic.

Levels of most chemicals in urine and blood samples from Churchill County study participants were not elevated compared with national estimates. Levels of arsenic and tungsten were elevated in Churchill County participants' urine but were not higher in case-children than in control-children and families. Levels of some nonpersistent pesticides in Churchill County participants' urine samples were slightly elevated, but the levels did not differ between case- and control- children or families. Levels of DDE (a breakdown product of the pesticide DDT) were elevated in blood samples of Churchill County participants but the levels did not differ between case- and control-children or their families.

Exposure to arsenic exceeded health-based reference levels in 34% of the Churchill County study population. Exposure levels were not higher among case-children or families than among control-children or families.

In February 2003, NCEH reported that elevations of some chemicals were identified but that these elevations did not explain the incidence of childhood leukemia in the county. Information about the tungsten study is in the Studies section of this fact sheet.

- **Mercury Exposure Among Children at a Nevada Middle School**—In January 2004, NCEH assisted the **Nevada State Health Division** in assessing exposure of children, faculty, and staff at a middle school in **Gardnerville** after a student brought a large amount of liquid mercury to the school. NCEH administered questionnaires and obtained urine samples from 200 (23%) of 854 students and 80 staff who responded to announcements offering free testing after the mercury spill. NCEH then compared participants' urine-mercury and creatinine levels with those documented in the National Health and Nutrition Examination Survey.

  No significant association was found between participants' urine-mercury levels and self-reported exposure to elemental mercury at the school. Only children who reported touching mercury on a previous occasion had significantly higher creatinine-corrected urine mercury levels than did participants who denied ever touching mercury. These results suggest that transient exposures to mercury, such as when children find and play with its elemental form, are associated with negligible absorption.

  Only the boy who brought the mercury to school had an elevated mercury level. This level was slightly above levels in the general population. Health officials used this information to determine that no one else needed testing for mercury, and no one required medical treatment as a result of exposure.

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 **Nevada**.

Funding

- **Antiterrorism Funding to Increase Capacity of State Chemical Laboratories**—In fiscal year 2003, CDC provided more than $663,000 to **Nevada** to assist 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.

Studies

- **Exposure to Tungsten in Three Nevada Cities**—NCEH assisted the **Nevada State Health Division** in conducting a cross-sectional assessment of human exposure to tungsten in **Yerington**, **Lovelock**, and **Pahrump**. The purpose of the study was to determine whether the elevated levels of tungsten found in human urine samples collected as part of a childhood leukemia investigation in **Churchill County** were unique to the county. The three communities were chosen because their hydrogeology and history of tungsten mining were similar to those of Churchill County. Results of this study suggested that Churchill County's tungsten exposure is not unique. Results were sent to study participants and released to the participating communities.

Services

- **Blood Lead Laboratory Reference System (BLLRS)**—In **Nevada**, three 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.
- **Newborn Screening Quality Assurance Program**—NCEH provided proficiency-testing services and dried blood-spot quality-control materials to monitor and help ensure the quality of newborn screening program operations in **Nevada**. 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.

Preventing Health Effects from Environmental Hazards

NCEH promotes safe environmental public health practices to minimize exposure to environmental hazards and prevent adverse health effects. Childhood lead poisoning prevention is an example of such activities. NCEH has not recently conducted or supported any such activities in **Nevada**.

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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