MAINE

Keeping Track, Promoting Health

Building a Network

Without question environmental contaminants are affecting people's health. Environmental hazards are among parents' top health concerns for their children, according to the American Academy of Pediatrics. Understanding how these contaminants and other environmental factors are linked to chronic disease is essential to disease prevention—and to protecting the health of our communities.

The Centers for Disease Control and Prevention (CDC) is leading the initiative to build the National Environmental Public Health Tracking Network. The Tracking Network is being developed in response to calls for better understanding of how the environment can affect people's health. This Web-based system will integrate health and environmental data and provide information to address public health concerns, educating the public about ways to protect themselves from possible contamination and disease.

States and communities can act upon data generated through tracking. Today, because of tracking, public health officials in Washington State can do more than determine mercury levels in fish. They can also compile information from many sources and use the data to educate citizens about healthy fish choices with greater speed and accuracy. In Maine, tracking has allowed researchers to examine high arsenic levels in well water and its effects on reproduction. Consequently, state public health officials can now warn well users about the hazards of exposure to arsenic during pregnancy.

The Tracking Network will enable and encourage communities, health care providers, state and local health departments and others to take control of their health.

The building blocks of this network are grants to state and local health departments and universities around the country to build capacity and demonstrate just what tracking can do.

Building the Foundation: Maine (2002—2006)

In 2002, the Maine Department of Health and Human Services received CDC funding to plan for a statewide Environmental Public Health Tracking Network that will be part of the national tracking network. Maine used the funding to build capacity and enhance infrastructure. The results range from starting or improving surveillance to enabling faster responses to environmental public health questions and faster action to prevent disease.

Why Tracking Matters to Maine

After an ice storm in 1998 knocked out power to more than half of the state's population, Maine's health department began receiving reports about carbon monoxide poisonings as people turned to gasoline-powered generators. Two people died from the deadly gas, and 285 fell ill. Without a tracking system, the department's most powerful tool for recording these incidents proved to be the telephone. The state toxicologist called each of Maine's hospital emergency departments every day to find out how many people had been poisoned by carbon monoxide.

The state's tracking grant helped Maine begin to establish a system to effectively track carbon monoxide poisoning and the use of carbon monoxide detectors in the home. Maine, along with other states developing carbon monoxide surveillance, shared their knowledge with a CDC response team after Hurricane Katrina in 2005. Maine also helped the New York State Department of Health launch an emergency carbon monoxide surveillance system after Buffalo lost power in an early winter storm in 2006. Tracking provided the resources to collect the information needed to protect the public.

"Infrastructure is rarely at the top of the public's agenda, yet it is essential to improve the health care in the United States."

Thomas Burke, Ph.D.,
Professor, Co-Director, Risk Services and Public Policy, Johns Hopkins University

Tracking in Action

	What is the problem?	What did tracking do?	Improved public health
Promoting Healthy Pregnancies	Approximately half of Maine's population obtains drinking water from private wells. The state's Environmental Toxicology Program says that for every 100 private household wells, between 10 and 30 may have arsenic levels higher than the federal government allows in public water supplies. Exposure to arsenic can increase the risk of some cancers and is also linked to adverse reproductive outcomes such as low birth weight.	The Maine Tracking Program linked private well water data on arsenic with birth records to evaluate an association between arsenic concentrations in well water and low birth weight. The project, performed in collaboration with the University of Southern Maine, did find an association between very low levels of arsenic and low birth weight. While the project could not determine a dose-response relationship, the findings were consistent with other studies reporting associations between arsenic levels and low birth weight. Maine's Tracking Program mapped areas of the state to identify regions more likely to have high arsenic levels in well water and has surveyed residents with wells to determine what proportion had tested their water for arsenic.	The Maine Tracking Program updated its well water quality hotline to include precautions related to drinking well water for pregnant women. Pregnant women in Maine now have a resource to help them make healthy decisions about water consumption. Maine's Tracking Program is also supporting efforts to increase the testing of well water for arsenic.
Reducing Carbon Monoxide Poisoning	Annually, an estimated 15,200 individuals seek medical attention in an emergency department or miss at least one day of work due to exposure to carbon monoxide. Carbon monoxide poisoning is largely preventable by correctly installing, maintaining, and operating carbon monoxide-emitting devices and by appropriately using carbon monoxide detectors. While no national surveillance system exists for acute carbon monoxide poisoning, a body of literature describes excess cases of carbon monoxide poisoning due to power outages from storms, floods, and hurricanes. However, Maine did not have an active tracking system capable of identifying risk factors for carbon monoxide poisoning.	Tracking staff sought to improve the carbon monoxide poisoning surveillance system to better protect residents from exposure to carbon monoxide. Staff developed a statewide surveillance system for carbon monoxide poisoning using existing hospital discharge/visits data and geographical information to identify groups at a higher risk for potential exposure. In addition, tracking staff developed a module to be added to the state's Behavioral Risk Factor Surveillance System that questions people about their individual carbon monoxide detector use.	The Maine Tracking Program's surveillance system identified and characterized carbon monoxide poisoning risk behaviors by age, sex, education, income, and geography. This information was used by partners, such as the Maine Department of Labor, to develop carbon monoxide poisoning prevention outreach programs. In response to a Maine Centers for Disease Control and Prevention initiative for developing health indicators at the public health district level, a carbon monoxide poisoning indicator was developed for eight new districts in Maine. One district was had twice the rate of carbon monoxide poisonings than the state average. This example shows how tracking can direct public health officials to affected groups and provide health officials with audience-specific prevention information.
Tracking the Impact of Outdoor Air Quality on Health	Asthma is one of the most common and costly illnesses in the United States, and Maine has one of the highest rates of asthma in the country. About 130,000 Maine citizens, 28,000 of them children, have asthma. The prevalence of asthma among children is 10.6% and among adults is 9.7%. Because Maine is a non-attainment state for ozone, there is concern about the effects of ozone on asthma. Ozone is a main ingredient in smog; it is a gas that occurs in both the upper atmosphere and at ground level. At ground level, ozone can be a significant health risk. Studies have shown that, as ozone levels increase, asthma-related hospitalizations tend to increase.	Maine's Tracking Program successfully linked outdoor ozone data with asthma-related hospital emergency department visit data to estimate asthma morbidity attributable to ozone at both the community and statewide level. This tracking project estimated asthma morbidity attributable to ozone levels and characterized asthma morbidity to ozone by age, sex, and geography.	Tracking the association between asthma and outdoor air quality can identify populations at risk. This type of environmental health information can prompt physicians to provide preventative tips to their patients with asthma and can guide public health professionals to target and evaluate the impact of intervention programs, such as efforts to improve asthma management.

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For more information about the National Environmental Public Health Tracking Program please visit: www.cdc.gov/nceh/tracking