



# science in ACTION

BUILDING A SCIENTIFIC FOUNDATION FOR SOUND ENVIRONMENTAL DECISIONS

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## HUMAN HEALTH RESEARCH PROGRAM

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### RESEARCHING TRENDS IN HUMAN HEALTH AND THE ENVIRONMENT

**Issue:**

Protecting the health of Americans from environmental pollution is a top priority of the U.S. Environmental Protection Agency. To accomplish this mission, it is clear that we need to understand the current state of the environment and how it may be changing over time. EPA launched an Environmental Indicators Initiative in 2001 to develop better indicators that the Agency can use to measure and track the state of our environment and support improved environmental decision-making. In 2003, the Agency generated the Report on the Environment (ROE) to describe what is known and what is not known about the nation's environment. The ROE found that:

- Many studies had demonstrated an association between environmental exposure and certain diseases and other health problems, including radon and lung cancer, arsenic and cancer, and lead and developmental nervous systems disorders.
- Several measures such as life expectancy, the number of infant deaths, and the major causes of deaths are useful in assessing health trends over time.

- Measurements of outside pollutant concentrations in air, water, or land – combined with estimates or measures of frequency and duration of human exposures to contaminated media – have provided a valuable foundation for many regulatory and non-regulatory actions taken by the Agency to limit exposure to environmental pollutants.

**Science Objective:**

EPA's Office of Research and Development (ORD) is developing the scientific basis for the use of health outcome measures to evaluate environmental policy decisions or interventions. It is also developing health indicators that could provide a clearer understanding of how environmental factors contribute to public health. Many other factors may also be linked to the manifestation of disease in addition to exposure to environmental pollutants, providing a scientific challenge.

**Application and Impact:**

ORD has provided scientific support for the use of outcome measures such as mortality data to document the success of major public health programs. For example, research supported the promulgation of anti-smoking campaigns

aimed at males, which related to a decrease in deaths from lung cancer. Other EPA research supported the development of biomonitoring data through the National Health and Nutrition Examination Survey and other databases, which documented decreases in the presence of specific environmental agents following regulatory decisions.

ORD is conducting research to address the need for more disease-specific indicators (i.e., cardiovascular, pulmonary, and reproductive) that can be linked to actual exposure information at different geographic scales (i.e., local, regional, national) and to improve understanding of the linkages between source, exposure, and health effects.

**REFERENCES:**

2003 Report on the Environment  
<http://epa.gov/indicators/roe/html/roehealth.htm>

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