

Summary of Known Environmental Health Indicators Work at the Federal/National Level

This document summarizes the work of several national groups to identify, categorize, and compare environmental public health indicators for the purpose of enhancing environmental health practice.

A public health indicator as defined by the Centers for Disease Control and Prevention (CDC) provides information about a population's health status regarding environmental factors. Indicators can measure health or a factor associated with health in a specific population. The best indicators are those that reliably predict the relationship between human health and the environment, are routinely collected, and have well accepted definitions and data collections standards¹.

In 2000, the CDC, in collaboration with the Council of State and Territorial Epidemiologists (CSTE), began work to identify a set of indicators of environmental hazards and health effects for state health departments to use in developing a comprehensive environmental public health program. The resulting Environmental Public Health Indicators (EPHI) framework was to assist states in meeting Healthy People 2010 environmental health objectives (See Appendix A for Healthy People 2010 Environmental Health Objectives). The framework also provided a foundation for developing environmental public health surveillance (i.e. Environmental Public Health Tracking).

In 2002, the Environmental Public Health Tracking Network (EPHT) program began investigating methods to link environmental and health data for use in public health surveillance. The State Environmental Public Health Indicators Collaborative (SEHIC) was established in 2004 to develop a pilot set of environmental public health indicators, in part to help support the work of the EPHT program. The primary goal of SEHIC was to convene a group of state-level environmental health practitioners to develop and compare indicators for use within environmental health surveillance and practice. The CDC and CSTE provide support to SEHIC.

In late 2006, the EPHT program's Content Workgroup, a group of environmental and public health professionals, began compiling work done by the CDC, CSTE, and SEHIC to develop guidelines for defining environmental public health indicators and analyzing, presenting, and interpreting indicator results. To facilitate this, the Content Workgroup formed teams focused on each of the core measures that the national EPHT program will initially develop (i.e. air quality, water quality, vital stats, birth defects, childhood lead exposure, cancer, and hospitalization data). The Content Workgroup also formed additional teams to address carbon monoxide poisoning, climate change, and biomonitoring. These teams will identify indicators and measures related to the topic area

¹ (CDC) Centers for Disease Control and Prevention National Center for Environmental Health Division of Environmental Hazards and Health Effects, 2006. Environmental Public Health Indicators, Atlanta, Georgia, 38 pp.

and develop a “how-to guide” to analyze, present, and interpret these indicators. These indicators will be part of the surveillance information provided to EPHT users.

The following is a brief description of the work of CDC, CSTE, SEHIC, and the EPHT Content Workgroup teams.

Environmental Public Health Indicators (EPHI) Project led by the CDC and the Council of State and Territorial Epidemiologists (CSTE)

The goal of the project was to “identify a set of indicators of environmental hazards and health effects that a state health department can use to develop a comprehensive environmental public health program.” The objectives were to:

- ✚ Incorporate non-infectious diseases into a national public health surveillance system.
- ✚ Identify program and policy needs.
- ✚ Bridge the gap between environmental protection and public health data and programs.

The full report on this project is viewable at the following web site:

<http://www.cdc.gov/nceh/indicators/pdfs/ephi.pdf>. The report provides a summary of the project and information on using environmental public health indicators for surveillance. Page seven of the report provides a summary of the core environmental public health indicators followed by measures and data sources for the indicators. A shorter brochure version of this report is viewable in Appendix B and at the following web site: <http://www.cste.org/pdffiles/Environmentalpublichealthindicators.pdf>.

The website for the Public Health Indicators Project is:

<http://www.cdc.gov/nceh/indicators/>.

State Environmental Health Indicators Collaborative (SEHIC)

The Council of State and Territorial Epidemiologists (CSTE) convened SEHIC in 2004 using volunteers from state level environmental health practitioners with the goal of developing and comparing indicators for use in environmental health surveillance and practice. The purpose and goals of the indicators generated by SEHIC are to:

- ✚ Serve as summary measures describing elements of environmental sources, hazards, exposures, health effects, and intervention and prevention activities that describe their interaction.
- ✚ Assess positive and negative environmental determinants of health including measures of the built environment and “healthy people in healthy places”.
- ✚ Serve as communication tools for making environmental health information available to stakeholders.
- ✚ Identify areas for intervention and prevention and evaluate the outcomes of specific policies or programs related to improving environmental public health.

SEHIC's indicator work is focused on developing pilot indicators related to air quality, asthma, and drinking water. Preliminary indicators have been identified and selected states are piloting these indicators using state level data resources (See Appendix C for examples of SEHIC indicators). Future goals of SEHIC include: evaluate the findings of the initial pilot of the indicators; refine indicator templates (a template is a mechanism to evaluate the strengths and weaknesses of each indicator measure) and guidance documents for wider implementation; standardize reporting formats; and expand the number of indicators and topic areas.

For more information, please review the SEHIC fact sheet at:
<http://www.cste.org/pdf/files/2006/AboutSEHICforCSTE%205.25.pdf>

To view current SEHIC indicators work see the website at:
<http://envirohealth.berkeley.edu/SEHIC2007/index.htm>

Environmental Public Health Tracking Network's Content Workgroup

The EPHT Content Workgroup started working on environmental public health indicators in late 2006. The work of the Content Workgroup has been mostly organizational to date, with the formation of teams tasked with developing at least one indicator for each of the major environmental public health related topic areas. The topic areas of these teams are:

- ✚ **Air** – The Air Team has compiled indicators of air quality and public health from a variety of sources (See Appendix D1). This team works with the PHASE project (see below). The focus of this team is on many of the air indicators that SEHIC used, including: ambient concentrations of particulate matter (both 2.5 and 10 μm) and ozone as well as traffic exposure. There has been a suggestion of looking at global warming issues. Hospitalization data has been explored for linkage.
- ✚ **Birth Defects** – The Birth Defects Team has been investigating state birth defects registries and information that can be gleaned from fetal death and birth records. Part of this work included looking at the different ways of coding birth defects across states and systems as well as the impact of coding on national indicators. The Team also developed a priority list of birth defects based on diagnostic accuracy. The Team is discussing candidate birth defect indicators and whether “lumping” categories of birth defects is appropriate. Drinking water contaminants, air toxics, and residential proximity to hazard sites are the environmental factors under consideration for linkage.
- ✚ **Cancer** – The Cancer Team has only met a few times and is working on organization and goals. Members include representatives from large cancer organizations such as the North American Association of Central Cancer Registries and the National Program of Cancer Registries. The discussions to

date are about the types of cancers to include and inclusion of occupationally related cancers.

- ✚ **Carbon Monoxide** – This group is not part of the major topics in Environmental Public Health Tracking. However, several states are interested and have worked on indicators and measures for carbon monoxide poisoning. Therefore, the Carbon Monoxide Team was added as a supplemental team. Discussions on indicators are focused on calls to poison control centers and treatment with hyperbaric oxygen.
- ✚ **Hospitalizations** – This group is focused on asthma and myocardial infarctions and is mostly looking at the work done by SEHIC. The Hospitalizations Team has gathered together asthma indicators used by various groups (See Appendix D2).
- ✚ **Lead** – The Lead Team has gathered together indicators used by various groups (See Appendix D3) and has discussed guidelines to improve blood lead testing among at risk children and children in high risk areas. Discussions are around defining the first indicators.
- ✚ **Public Health Air Surveillance Evaluation (PHASE)** project - PHASE is a joint project among CDC, EPA, and the health departments of Maine, New York, and Wisconsin. EPA created a spatially distributed modeling system for ozone and particulate matter (2.5 μm) levels for three participating states. The PHASE team then developed methods to extract a modeled pollution level for the home address of an asthma or acute myocardial infarction hospitalization case and investigated case-crossover methods. The air modeling is hourly for a 36 km horizontal grid of the states of interest.
- ✚ **Vital Statistics and Birth Outcomes** – The Vital Statistics and Birth Outcomes Team is focused mostly on birth records. The most common topics have been infant mortality, birth rates, and very low birth weights. The team will focus on one to two indicators initially.
- ✚ **Water** – The Water Team is focused on drinking water and has gathered together indicators used by various groups (See Appendix D4). Two analyte groups of potential interest to water pollution and human health have been identified (arsenic and total trihalomethanes) and the team is looking at the work of SEHIC. This team divided itself into four sub-teams by the following activities: compile existing indicators/information resources; compile and assess existing data resources; develop surveillance goals; and develop proposed indicators and measures for 2007.

Currently Oregon has four members participating in the Content Workgroup Teams. The Oregon EPHT Manager participates in the full Content Workgroup. The three other

members participate on the Air Team (Rodney Garland), Lead Team (Rick Leiker), and Water Team (Curtis Cude). When the Oregon EPHT program is fully staffed, we anticipate participation in some of the other Content Workgroup Teams.

If any members of Data Use and Network Content work group would like to participate on a team, please contact the DUNC facilitator (Rodney Garland) for more information. Access to Content Workgroup documents can be provided from a secured website on request. A username and password will be provided.