

# CALIFORNIA TRACKING

The Newsletter of the California  
Environmental Health Tracking Program

No. 14 - summer - 2006

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CALIFORNIA  
ENVIRONMENTAL  
HEALTH TRACKING  
PROGRAM

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The California Environmental Health Tracking Program (CEHTP) is pleased to announce that we have been awarded funding from the Centers for Disease Control and Prevention (CDC) to implement a statewide Environmental Public Health Tracking (EPHT) Network.

Over the past four years, with the guidance and support of many partners, we have been building a foundation for an EPHT Network through various planning and pilot activities.

During the next phase (2006-2011), CEHTP will build on the achievements, relationships, and lessons learned to carry out our program mission of implementing an EPHT Network in California that can inform environmental public health policies and actions.

In this issue, we review major accomplishments of the past four years and outline the goals of the implementation phase of our program.

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## Building a Foundation :: Planning and Pilot Phase Accomplishments

During the past four years, the California Environmental Health Tracking Program (CEHTP) has undertaken planning, assessment, infrastructure building, pilot project, and stakeholder capacity-building activities through the following CDC Environmental Public Health Tracking (EPHT) Cooperative Agreements:

- Infrastructure Enhancement Project (with planning and capacity building components).
- Data Linkage Demonstration Projects.
- Supplemental EPHT Project (a multi-state collaborative to develop methods for tracking exposures to drinking water contaminants).

Additionally, we have been involved in collaborative efforts to carry out several legislative mandates in California:

- Senate Bill 702: Establishing an Expert Working Group to develop approaches and recommendations for an EPHT Network in California.
- Senate Bill 189: Assessing the feasibility of integrating existing hazard, exposure and health data, and collecting relevant information from state agencies for the purpose of making the most efficient use of existing information for EPHT.

During the planning and pilot phases, the goal of CEHTP was to establish a foundation for implementing a state EPHT Network that could provide information on environmental hazards, exposures and environmentally-related diseases to the public, governmental agencies, non-governmental organizations, and policy makers in a timely, accessible, useful, transparent, and responsible manner.

We have been very fortunate, in working toward this goal, to have the support and involvement of key stakeholders including:

- State agency counterparts within the California Department of Health Services (CDHS) and the California Environmental Protection Agency (Cal/EPA).
- Senate Bill 702 Expert Working Group.
- CEHTP Planning Consortium and Pilot Project Advisory Groups.

- Data system owners (data stewards).

Those partners were key contributors to the following accomplishments.

### We developed and utilized participatory approaches to program planning and implementation:

We explored, utilized, and evaluated participatory approaches to establishing partnerships, presenting and discussing data, developing guiding principles, and determining program strategies. This facilitated meaningful involvement – transforming advisors into collaborators. It also increased communication, collaboration, and coordination among partners, and established standards for program responsiveness, transparency, and competency. By being committed to participatory approaches, we were able to establish strong relationships and working partnerships with essential stakeholders, including data stewards, community-based organizations, and state agency counterparts.

### We assessed California's EPHT capacity and stakeholder needs:

We conducted needs assessments with diverse stakeholders including local health departments, non-governmental organizations, and tribes. Through surveys, facilitated discussions, and other assessment methods, we documented: (1) environmental hazards/exposures and diseases of concern; (2) priority data and information needs; and (3) capacity and training needs related to understanding and utilizing environmental health data.

We also determined effective strategies for developing a state EPHT Network infrastructure by assessing the needs and capabilities of data stewards. We learned about their: (1) quality of data and the applicability for EPHT; (2) capacities, challenges, and needs for system interoperability and data enhancement; and (3) technical and organizational capabilities as well as administrative and policy barriers to data exchange. Results of these assessments have facilitated many of the accomplishments described in this issue.

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**We developed an infrastructure to enhance, integrate, and exchange health and environmental data:**

Central to an EPHT infrastructure are technologies and services for enhancing data quality and interoperability. We worked with data stewards to develop technologies and services that will address the following shared needs of data stewards and CEHTP: (1) enhanced data system interoperability (efficient, automated, and secure data exchange) and content (data quality, completeness, and timeliness); (2) established or enhanced GIS functionality; and (3) streamlined data collection and dissemination processes.

For example, we developed and piloted several information technology services: (1) spatial and temporal data integration/linkage service to calculate traffic exposure based on CalTrans vehicle counts; (2) an automated service to calculate pesticide emissions within user-specified spatial and temporal intervals based on the Department of Pesticide Regulation’s Pesticide Use Reports as refined by field polygons from the California Department of Water Resources; and (3) enterprise services for address validation, standardization, and geocoding.

**We increased data analysis and information dissemination capabilities:**

By conducting a pilot project for Alameda County, a diverse, urban county in the San Francisco Bay area, we refined methods for analysis, visualization, and communication of birth outcomes, asthma, and traffic-related pollution. A second pilot project for California’s Central Valley and South Coast air basins enabled us to examine birth outcomes, Sudden Infant Death Syndrome (SIDS), autism, idiopathic mental retardation, and exposure to pesticides and air toxics.

Through these projects, we: (1) determined ways in which EPHT could serve useful functions and the utility of various forms of environmental health information; (2) gained expertise in communicating epidemiological concepts and issues around the surveillance of disease clusters; (3) utilized spatial statistics and analysis to visualize and evaluate geographic variations in health outcomes; (4) explored methods for predicting geographically related exposures in populations; (5) analyzed health outcomes related to pesticides, air toxics, and traffic-related exposures; (6) developed protocols and tools to field test materials that communicate EPHT data and findings.

**We increased stakeholder capacity to access, understand, and utilize environmental health data and information:**

We enhanced stakeholder capacity in various ways: (1) awarded mini-grants for building or demonstrating local capacity to utilize data; (2) enabled education and two-way dialogue through advisory group meetings; (3) collaborated with UC Berkeley to conduct an environmental health data workshop; (4) partnered with a community-based organization to conduct a “using information for action” training, and to disseminate community-specific environmental health information through web-based visualization and mapping tools; and (5) sponsored “mapping and analyzing your community” trainings for governmental and non-governmental organizations.

These activities have facilitated stakeholder use of information from currently available health surveillance and environmental monitoring systems. These activities have also prepared stakeholders to take advantage of EPHT-generated information to protect and improve the health of Californians.

**Next Steps :: Plans for the Implementation Phase**

On August 1, 2006, we transition from a planning and pilot phase to an implementation phase of Environmental Public Health Tracking. We are excited to begin working with our local, state, and national partners to build on the foundations that were established over the past four years. Our five-year plan for the implementation of California’s EPHT Network builds on our commitment to scientific rigor, technological innovation, and participatory approaches to realize our program goals.

**GOAL 1: Develop an information technology infrastructure.**

During implementation, CEHTP will develop an EPHT Network infrastructure through a service-oriented strategy that: (1) satisfies the standards and specifications for the national EPHT Network and the Public Health Information Network; (2) enhances data systems’ functionality and content; and (3) supports the needs of end-users of EPHT-generated information. We will continue to facilitate the secure and well-informed

enhancement, linkage, exchange, analysis, reporting, visualization, and dissemination of environmental health data and information. The following services will be developed for CEHTP and will be made available to stakeholders via a web portal.

**CEHTP Goals (2006-2011)**

- 1. Develop a state EPHT Network information technology infrastructure that is consistent with national standards and architecture.**
- 2. Improve the availability and utility of existing data or facilitate the creation of new data to ensure the accessibility of core and other EPHT measures.**
- 3. Inform policies, practices, and other actions to prevent or reduce illnesses, injury and death related to environmental risk factors.**

- Metadata (data about data) services: enables the efficient use of environmental health data by (1) providing a central access point for EPHT stakeholders to search and discover relevant data (2) assisting stakeholders to understand the characteristics, availability, intended uses, and limitations of data.
- Data exchange services: enables timely access and utilization of EPHT data by providing stakeholders the ability to electronically transfer data in a secure and standard manner.
- Spatial enhancement services: enables stakeholders to enhance their data through automated processes such as geocoding.

- Spatiotemporal integration services: enables the linkage and analysis of health indicators and geographically-related exposures to environmental hazards.
- Record-level integration/linkage services: enables dynamic integration of confidential datasets, facilitates trend and associations analysis, and generates de-identified public-use information.
- Visualization and dissemination services: enables creation of dynamic, custom materials in the forms of maps, charts, graphs, tables, and reports.

**GOAL 2: Improve the availability and utility of data.**

CEHTP’s priority for this goal is to track nationally-consistent environmental health indicators. We have also selected several supplemental indicators identified as priorities in California. We will phase in the initial set of indicators listed below during the next five years. Additional indicators will also be identified by the Centers for Disease Control and Prevention.

HAZARD INDICATORS:

- Particulate Matter and Ozone.
- Water Contaminants.

HEALTH INDICATORS:

- Hospitalizations for Asthma and Myocardial Infarction (heart attacks).
- Vital Statistics: preterm birth, low birthweight, and Sudden Infant Death Syndrome (SIDS).
- Short-Latency Cancers.
- Neurodevelopmental Disorders: autism and idiopathic mental retardation.
- Birth Defects.
- Lead Screening and Child Blood Lead.

In addition to the required activities above, we will explore – via the following supplemental activities – ways to maximize the utility of EPHT data to inform public health practice.

- Biomonitoring: validation of pesticide and drinking water monitoring (see spotlight).
- Tracking community vulnerability and disproportionate exposure (see spotlight).
- Climate change impacts on public health: Assessing the health effects of ozone under changing climatic conditions.
- Evaluation of methods for disease mapping and cluster surveillance: Improving the ability to predict geographically-related exposures.

**GOAL 3: Inform policies, practices, and other actions.**

Key components that will determine the utility and effectiveness of EPHT include: (1) stakeholder contribution to and support of EPHT activities, and (2) appropriate communication and dissemination of the information. During the implementation phase, we will develop and implement:

- An outreach plan to inform and explain the functions and activities of EPHT to various stakeholders, address key questions and concerns, and provide examples of program efforts and lessons learned.
- An information communication and dissemination plan to interpret, present, and disseminate EPHT-generated information in an accessible, comprehensible, and relevant manner.

Information can be a powerful asset. However, stakeholders need the skills, resources, relationships, and tools to integrate data, take action, and become stronger partners in the delivery of essential public health services. To that end, we will also conduct activities aimed at increasing:

- Stakeholder knowledge, skills, and abilities in the underlying concepts and methods of EPHT.
- Stakeholder capacity and resources to effectively apply EPHT information (i.e. translate information to policies and actions).

**Advisory Bodies for Implementation:**

For the implementation phase of EPHT, we will coordinate an advisory and decision-making structure by building on our existing base of support. CEHTP’s Coordinating Committee (CC) will be composed of partners from a range of governmental, non-governmental, and academic organizations at the state, local, and national levels. The CC will also comprise topic-specific working groups, which will be created on an as-needed basis for specific program components or activities (e.g. biomonitoring and IT infrastructure).

The CC will provide guidance and recommendations for the implementation of a state EPHT Network and ensure its interoperability and compatibility with national standards and architecture. The CC will also inform specific issues around core indicators, such as data analysis, visualization, and dissemination. The CC will work to promote resource and information sharing, and facilitate the use of EPHT-generated information for public health actions.

**SPOTLIGHT**

**Biomonitoring:**

Biomonitoring is a key component of EPHT, as it provides measures of contaminants in biological media that correspond to human exposures and their effects. CEHTP has been exploring the utility of the California Pesticide Use Reporting (PUR) system for tracking pesticide exposures. We will determine how well PUR data predict actual pesticide exposures to local residents. We will select 4-5 pesticides for assessment in a single community to validate the utility of PUR data and evaluate a dispersion model for estimating pesticide exposures. In addition, we will be validating the use of drinking water concentrations as a marker of exposure to common drinking water contaminants.

**Community Vulnerability:**

A prominent issue in EPHT discussions in California has been the disproportionate burden of environmental hazards and related diseases borne by some communities, as well as the social factors that may operate to leave such communities particularly vulnerable to environmental pollution. Building on a collaboration between U.S. EPA Region 9, UC Santa Cruz, and CEHTP to examine indicators of community demographics, civic engagement, and measures of segregation, we will incorporate additional measures reflecting housing conditions, social stressors, and availability of health services. We will conduct a comprehensive assessment of the feasibility, quality, and availability of these data for Environmental Public Health Tracking.

## Read All About It :: CEHTP's Article in Preventing Chronic Disease

The July 2006 issue of Preventing Chronic Disease (PCD) features a two-part article describing the methods and results of CEHTP's Alameda County Pilot Project. Full-text, open-access versions of the articles can be accessed via the PCD links below.

TITLE: Progress in Pediatric Asthma Surveillance I: The Application of Health Care Use Data in Alameda County, California

EXCERPT: "The ability to conduct community-level asthma surveillance is increasingly crucial for public health programming and child health advocacy. We explored the potential and limitations of health care use records from both public and private sources for asthma surveillance in a California county."

URL: [www.cdc.gov/pcd/issues/2006/jul/05\\_0186.htm](http://www.cdc.gov/pcd/issues/2006/jul/05_0186.htm)

TITLE: Progress in Pediatric Asthma Surveillance II: Geospatial Patterns of Asthma in Alameda County, California

EXCERPT: "As with many diseases, the epidemic of asthma among children over the past few decades has been shaped by a social and environmental context that is becoming progressively more evident. Commonly used methods for asthma surveillance, however, are based on national rather than local data. The purpose of this study was to develop high-resolution asthma surveillance techniques responsive to the needs of health care professionals and local child health and social justice advocates."

URL: [www.cdc.gov/pcd/issues/2006/jul/05\\_0187.htm](http://www.cdc.gov/pcd/issues/2006/jul/05_0187.htm)

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The California Environmental Health Tracking Program (CEHTP) is a collaborative initiative of the California Department of Health Services, the California Environmental Protection Agency, and the University of California and is funded by the Centers for Disease Control and Prevention (CDC).

This publication is supported by Cooperative Agreement Numbers U50/CCU922449 and U50/CCU923293 from CDC. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.



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