



CDC-Funded Environmental Public Health Tracking Projects

April 2006

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States:

California

Infrastructure Enhancement and Data Linkage Demonstration Project

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| <i>Grantee:</i> | California Department of Health Services |
| <i>Contact:</i> | Paul B. English, PhD, MPH |
| <i>Telephone:</i> | 510-622-4508 |
| <i>E-mail:</i> | PEnglish@dhs.ca.gov |
| <i>Address:</i> | Environmental Health Investigations Branch California Department of Health Services 1515 Clay Street, Suite 1700 Oakland, CA 94612 |
| <i>Web site:</i> | http://www.ehib.org/cma/project.jsp?project_key=EHSS01 |
| <i>Funded Since:</i> | September 30, 2002 |
| <i>Funded Program:</i> | National Environmental Public Health Tracking Program, Part B |

Program Description:

The California Environmental Public Health Tracking Network (EPHTN) Program has six objectives. These are to:

- Involve stakeholders by convening a planning consortium (comprising technical experts from the U.S. Environmental Protection Agency, California Department of Health Services, California Environmental Protection Agency, University of California, local public health and environmental officials, community-based and non-governmental organizations, and environmental advocacy groups) that will facilitate effective planning, implementation, and evaluation of the proposed program
- To identify and prioritize state and local needs for development of an EPHTN by assessing needs using survey questionnaires and phone interviews; assessing the feasibility of using Environmental Public Health Indicators and other indicators for surveillance; and identifying and prioritizing organizational, hardware, software, and informational needs
- Enhance EPHTN capacity by assessing needs of current state and local EPHTN capacity, resources, skills, and assets, collaborating with the Centers for Excellence in developing, implementing, and evaluating training programs
- Develop plans for a standards-based EPHTN, including testing protocols for data transfer and modeling; data refinement, augmentation, and linkage; security; dissemination and accessibility tools; and integration with other systems
- Develop an outreach and education strategy for communicating information generated by EPHTN by assessing needs of stakeholders to determine the most effective forms and content for receiving EPHTN information and their current capacity to educate the public; developing, field testing, and evaluating communication strategies
- Conduct a pilot project that will track asthma prevalence and adverse pregnancy outcomes and link these data to environmental hazard data on traffic exhaust exposure.

Data Linkage Demonstration Project

Grantee: California Department of Health Services
Contact: Eric M. Roberts, MD, MPH
Telephone: 510-622-4534
Address: California Department of Health Services
Environmental Health Investigations Branch
P.O. BOX 942732
Sacramento, CA 94234-7320
Funded Since: September 15, 2003
Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

This linkage demonstration project, “Tracking Perinatal Exposures to Airborne Toxics, Blood Lead Levels, and Health Outcomes of Pregnancy and Early Childhood,” is based in the Environmental Health Investigations Branch (EHIB) of the California Department of Health Services (CDHS) and involves several state agencies and the University of California at Berkeley. The project will be coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Network.

The overall purpose of this project is to demonstrate and evaluate methods for linking data from ongoing, existing health effects surveillance systems in California with data from existing human exposure and environmental hazards surveillance/monitoring systems. Methods, tools, and best practices developed through the project will be used in advancing the development of an EPHT network at the state, local, and national levels.

The specific goals of this project are to:

- Demonstrate linkage capacities to assess environmental health concerns
- Solidify partnerships for interagency and interdepartmental cooperation
- Involve experts and stakeholders in planning, evaluating, and disseminating findings
- Expand the technical and collaborative capacity of the California Environmental Health Tracking Program.

The project will use and enhance existing surveillance and monitoring systems to link exposures to lead and airborne toxicants (specifically, pesticides, industrial pollutants, and mobile source pollution) with adverse health outcomes of pregnancy and early childhood such as preterm birth, low birth weight, sudden infant death syndrome (SIDS), autism spectrum disorders, and mental retardation. The project will link health effect surveillance data that have not been previously utilized in tracking systems.

Birth records from California’s Center for Vital Statistics will serve as the central link, enabling the program to count nonduplicate cases, geographically link birth records with environmental datasets, and create individual-level linkage with health and social service datasets. The project will use the

Environmental Protection Agency's (EPA) Hazardous Air Pollutant database, the California Pesticide Use Reports system, and the California Air Resources Board's Community Health Air Pollution Information Systems (CHAPIS). Biomonitoring and clinical data will be available through RASSCLE, the Childhood Lead Poisoning Prevention Branch surveillance system. Clinical information about birth outcomes, infant mortality (particularly SIDS), autism spectrum disorders, and mental retardation will be available through the several sources including the Vital Statistics Birth Cohort files and records from the California Department of Developmental Services and the California Department of Education.

Partners include the California Environmental Health Tracking Program, the California EPA's Air Resources Board, the CDHS Childhood Lead Poisoning Prevention Branch, the California Center for Autism and Developmental Disorders Research and Epidemiology, and the University of California at Berkeley's Center for Environmental Public Health Tracking.

Connecticut

Planning and Capacity Building Activities

Grantee: Connecticut Department of Health
Contact: Brian Toal, MSPH
Telephone: 860-509-7741
E-mail: brian.toal@po.state.ct.us
Address: Connecticut Department of Health
Environmental Epidemiology and Occupational Health
410 Capitol Avenue
Hartford, CT 06134-0308
Web site: <http://www.ct.gov/ctepht>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The State of Connecticut, Department of Public Health (DPH), plans to develop a comprehensive plan that will lead to a coordinated and integrated environmental public health tracking network (EPHTN) that allows linkage and reporting of health effects data with human exposure data and environmental data. The Connecticut Department of Environmental Protection (DEP) will be an active partner in developing this program.

Within DPH, the Division of Environmental Epidemiology and Occupational Health (EEOH) will head the program. EEOH comprises four program units: Toxic Hazards Assessment, Childhood Lead Poisoning Prevention & Surveillance, Asthma, and Occupational Health.

In order for DEP to achieve the goals of this project, a planning consortium will be assembled representing all facets of the community. The planning consortium will provide critical input to program staff to direct the planning process. A comprehensive inventory and assessment of existing surveillance systems will provide the planning consortium with the information base needed to develop methodologies to identify and prioritize tracking needs.

DEP and DPH already have several surveillance systems and databases that will be explored for linkage opportunities as part of the program. The planning process for development of an EPHTN will involve a more complete inventory and summary of each database listed in the proposal, as well as other databases and information streams expected to be discovered once the planning effort begins. The planning consortium will assist in the consideration and prioritization of certain databases to be incorporated in the tracking system.

Connecticut also proposes to:

- Assess staffing needs to determine the training and experience of current staff and identify gaps in training and existing experience

- Identify all data elements for consistency with the National Electronic Disease Surveillance System, state standards and Geographic Information Systems (GIS) formatting and determine gaps in data systems and identify resources to obtain missing information
- Evaluate existing state regulatory statutes and identify any legislative needs
- Expand existing partnerships and build new ones to include representation from all facets of the community, i.e., Centers for Excellence in Public Health, the CDC, the U.S. Environmental Protection Agency, the U.S. Department of Housing and Urban Development, the Nuclear Regulatory Commission, and other agencies as deemed necessary to develop a comprehensive EPHTN.

Florida

Data Linkage Demonstration Project

Grantee: Florida Department of Health
Contact: David R. Johnson, MD
Telephone: 850-245-4115
E-mail: david.Johnson@doh.state.fl.us
Address: Florida Department of Health
Division of Environmental Health
Office of Environmental Medicine
4952 Bald Cypress Way, Bin# A08
Tallahassee, Florida 32399-1712
Web site: <http://www.doh.state.fl.us/environment/index.html>
Funded Since: September 15, 2003
Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

Florida Department of Health (FDOH) will partner with the Florida Department of Environmental Protection (FDEP), universities, other state and federal government agencies, Florida county health departments (CHDs), citizens, and health and environmental health professional on this public health initiative. This project will be coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Network.

The overall purpose of this project is to demonstrate and evaluate methods for linking data from ongoing, existing health effects surveillance systems in Florida with data from existing human exposure and environmental hazards surveillance/monitoring systems. Methods, tools, and best practices developed through the project will be used in advancing the development of an EPHT network at the state, local, and national levels.

The specific goals of this project are to:

- Identify, demonstrate, and evaluate methods for linking data from existing health effect surveillance data with data from existing environmental monitoring systems.
- Establish an advisory council and coordinating committee of technical experts; local, state, and federal health and environmental staff; community associations; and academic researchers
- Increase collaboration, communication, and coordination between environmental and health agencies
- Assist CDC in developing a standards-based, coordinated, and integrated environmental and health-effect tracking network at the state, regional, and national levels that can be used to guide public health policy and practices

- Build partnership and communication networks with government agencies, nongovernment organizations, and communities
- Improve surveillance and monitoring systems by enhancing both the public health workforce and technologic capacity
- Develop methodologies to evaluate the usefulness and effectiveness of this health tracking project.

The FDOH will focus on linking statewide surveillance systems for asthma, autism, mental retardation, behavioral disorders, select cancers, and select birth defects with the Environmental Protection Agency's (EPA) Toxic Release Inventory, the FDEP's statewide ambient air monitoring data, and data from the statewide well water surveillance program. Geographic information systems (GIS) technology and analyses will be used to link data.

The collaborative relationships required to complete these projects will promote new data mergers and ongoing coordination between the involved agencies and organizations at the local, state, and national levels.

Illinois

Infrastructure Enhancement and Data Linkage Demonstration Project

Grantee: Illinois Department of Health
Contact: Tiefu Shen, MD, PhD
Telephone: 217-785-1873
E-mail: tshen@idph.stse.il.us
Address: Illinois Department of Health
525 West Jefferson Street
Springfield, Illinois 62761-001
Web site: <http://www.idph.state.il.us/>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

Illinois proposes to establish an enhanced environmental public health tracking network (EPHTN) system to address the information gap in documenting possible links between environmental hazards and chronic diseases and to relate and report health effects data with environmental data.

The establishment of an enhanced EPHTN is a three-year project by the Illinois Department of Public Health (IDPH) in collaboration with other state agencies, organizations, and local communities. The goals are to assess needs, plan for staged development of a standards-based EPHTN, implement and evaluate a demonstration pilot project on data linkage and reporting, communicate and disseminate information, and collaborate with partners and stakeholders. To accomplish these goals, 24 specific and time-referenced objectives have been established. These include conducting inventory of existing surveillance and monitoring systems, describing the information infrastructure, reviewing and modifying statutes and regulations, identifying gaps in data collection and analyses, establishing partnership with stakeholders and key players, incorporating input from partners, collaborating with the Centers for Excellence, setting and incorporating standards, establishing communication and dissemination format and routines, and evaluating the performance of the tracking system and using the result to guide its further development.

IDPH is developing a National Electronic Disease Surveillance System (NEDSS)-based system for reporting infectious diseases using the Internet. The environmental hazards system would build on this model and lessons learned from this experience. In Illinois, five state agencies - IDPH, the Illinois Environmental Protection Agency (IEPA), the Illinois Department of Nuclear Safety (IDNS), the Illinois Department of Natural Resources (IDNR) and the Illinois Department of Agriculture (IDA) - collect data on environmental hazards. The Illinois Health and Hazardous Substances Registry, an outcomes registry, was created in 1984 with a robust capacity to include components of a cancer registry, a birth defects registry, and adult blood lead exposure registry. The current proposal would enable IDPH to add a hazardous toxic substance registry. Existing data systems are on various

platforms (mainframe, server and personal computer) and use a variety of languages that were popular when the systems were created. Until a comprehensive inventory is completed, IDPH cannot recommend hardware and software for the new system, except that they will be compliant with the NEDSS model.

Collaborations within and across state agencies and other organizations are in place, including the IEPA. IDPH will provide both epidemiologic and environmental expertise and leadership to ensure project integration and compatibility within divisions of IDPH and across state agencies and organizations.

Louisiana

Data Linkage Demonstration Project

Grantee: Louisiana Department of Health and Hospitals, Office of Public Health
Contact: Dianne Dugas, MPH, MSW
Telephone: 504-219-4586
E-mail: Ddugas@dhhs.la.gov
Address: Louisiana Department of Health and Hospitals
Office of Public Health
Section of Environmental Epidemiology & Toxicology
1450 L & A Road
Metairie, LA 70001
Web site: <http://www.dhh.louisiana.gov/offices/?ID=205>
Funded Since: September 15, 2003
Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

The Louisiana Department of Health and Hospitals (LDHH) will conduct a project designed to demonstrate and evaluate methods for linking data from existing health effects surveillance systems with data from existing human exposure and environmental hazards surveillance/monitoring systems in Louisiana. The methods, tools, and best practices developed through the project will be used to advance the development of an environmental public health tracking (EPHT) network at the state, local, and national levels. The health department's lead in-state partner will be the Louisiana Department of Environmental Quality (LDEQ).

The program's specific objectives are to:

- Implement a project in the geographic regions surrounding 32 creosote hazardous waste sites that will link Louisiana Tumor Registry (LTP) data with LDEQ's data on groundwater contaminants and drinking water data from the Safe Drinking Water Program, LDHH/Office of Public Health (OPH)
- Demonstrate the utility of linked health and environmental data in developing state guidelines and policy
- Develop and implement communication strategies to disseminate information about public health and the environment to the general public, industry, government agencies, and legislators
- Establish and formalize mechanisms for interagency collaboration and data sharing for EPHT
- Assemble an EPHT Advisory work group with technical experts, health and environmental agency personnel, academics, and community representatives
- Evaluate the program for its utility, feasibility, propriety, and accuracy.

Within the state, concerns have been raised about the potential health and environmental impacts of the high concentration of petrochemical refineries and chemical manufacturing plants, high pesticide use, and presence of abandoned wood treatment sites from logging operations. In 2003, the Louisiana State Legislature passed an Act that charged the LDHH, and the OPH (in conjunction with LDEQ) to develop an environmental health surveillance system. This cooperative agreement will allow the state to begin fulfilling that mandate and to coordinate with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing the National EPHT Network.

Finally, the project will provide Louisiana an opportunity to respond to public demand for accurate and accessible environmental health information, increase the availability of health and environmental data in the state, and improve the state's environmental response capabilities.

Maine

Planning and Capacity Building Activities

Grantee: Maine Department of Human Services, Bureau of Health
Contact: Andrew E. Smith, ScD
Telephone: 207-287-5189
E-mail: Andrew.E.Smith@Maine.gov
Address: Maine Bureau of Health
Environmental Health Unit
286 Water Street, #SHS11
Augusta Maine, 04333-001
Web site: <http://www.maine.gov/dhs/ehu/epht/>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Maine has the highest prevalence of asthma among U.S. adults. Seven of the state's most populous counties are considered non-attainment areas for the national ambient air standard for ozone. A survey of women of childbearing age in Maine indicates that 20% have hair mercury levels above those considered safe. Approximately half of the state's households obtain drinking water from domestic wells, and it is estimated that 10% of these have elevated levels of arsenic, 5% have elevated levels of uranium 238, and 17% have elevated levels of radon. One third of homes have indoor air radon levels above 4 picoCuries/liter. In a colder climate, residents spend a proportionately greater amount of time in indoor air environments. Epidemics of carbon monoxide poisoning during winter storm power outages have been documented. These environmental health issues and others call for effective environmental health tracking systems to better assess actual exposures and their associated health hazards, as well as to monitor progress in reducing exposures. Maine has an extensive and unique set of environmental databases available for assessment and possible inclusion in a larger system.

Because of Maine's progress toward identifying and protecting healthy environments, the state is now ready to include environmental health data in a planned Maine Public Health Information System (MPHIS). Implementation efforts are proposed to link and integrate various public health data sets, including environmental health data sets, into MPHIS.

The Maine Bureau of Health (MBOH) proposes a three-year project to develop an environmental public health tracking and surveillance system. The requested funding will leverage existing efforts and resources from other entities within the state.

The primary goals of this project are to:

- Develop plans and components of a standards-based, coordinated, and integrated Environmental Public Health Tracking (Surveillance) System that allows linkage and reporting of health effects data with human exposure data and environmental hazard data
- Increase environmental public health capacity at the local and state levels. Although the MPHIS may not be fully realized for several years, within the context of this agreement, Maine will be able to develop model systems that link environmental health data and can be used by other states and localities for planning environmental public health actions on the basis of reliable, accessible data.

Among its existing resources, MPHS has ongoing surveillance activities through its cancer registry, an occupational disease registry, a childhood lead poisoning program, and a youth asthma surveillance system still in development. Additionally, MPHIS has identified a list of potential environmental health indicators, relevant hazard, exposure, health effects, and behavioral surveillance databases, with years of data availability, and owners (state, federal agency) of the databases described. Within the Maine Bureau of Health, the Department of Environmental Protection, and in the private sector, a significant effort already exists to integrate data and to enhance electronic reporting. The proposed structure includes Web-based reporting, integration of numerous databases within a public health data warehouse, and data dissemination through a Web-accessible information system. Environmental health tracking has not previously been included in the MPHIS due to lack of resources. MBOH plans a significant coordination of surveillance and integration within the state government, with federal agencies, and with the American Lung Association of Maine whose work on the Respiratory Health Indicators of Maine will be a major component of the environmental public health tracking system.

Maryland

Planning and Capacity Building Activities

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| <i>Grantee:</i> | Maryland Department of Health and Mental Hygiene |
| <i>Contact:</i> | Diane L. Matuszak, MD, MPH |
| <i>Telephone:</i> | 410-767-6742 |
| <i>E-mail:</i> | dmatuszak@dhmh.state.md.us |
| <i>Address:</i> | Community Health Administration 201 West Preston Street Baltimore, MD 21201 |
| <i>Web site:</i> | http://www.dhmh.state.md.us/ |
| <i>Funded Since:</i> | September 30, 2002 |
| <i>Funded Program:</i> | National Environmental Public Health Tracking Program, Part A |

Program Description:

The Maryland Department of Health and Mental Hygiene (DHMH) is working through an Interagency Coordinating Group (ICG) to launch, coordinate, and oversee progress for the Maryland environmental health tracking initiative. The group comprises six staff members from the DHMH and the Maryland Department of the Environment and will plan action steps, set interim goals and deadlines, address problems and ensure the completion of tasks. In addition, the ICG ensure collaboration and stakeholder involvement. The DHMH proposes to use funds to:

- Enhance the state's capacity for biomonitoring by purchasing essential laboratory equipment and hiring an additional laboratory scientist
- Inventory existing Maryland databases for environmental hazards, human exposures, and health effects
- Assess each database for its utility and potential for integration and linkage within an environmental public health tracking system
- Engage and develop partnerships with stakeholders in the community, academia, and federal, state, and local government agencies in the planning and development of Maryland's environmental public health tracking system
- Develop a planning consortium
- Set initial priorities for the environmental health tracking system
- Participate in national meetings and conference calls for the development of standards and best practices in environmental public health tracking
- Assess statutory and regulatory authorities for, and barriers to, an environmental public health tracking system
- Upgrade databases that do not comply with national standards, such as the National Electronic Disease Surveillance System
- Train environmental, healthcare, and public health professionals

- Develop a staged plan for an environmental public health tracking system in Maryland to include direct electronic data reporting and linkages within, between, and among hazard, exposure, and health effect databases
- Examine environmental public health indicators in relation to the priorities set for Maryland
- Continually evaluate and improve the developing environmental public health tracking system.

Massachusetts

Infrastructure Enhancement and Data Linkage Demonstration Project

Grantee: The Commonwealth of Massachusetts
Department of Public Health
Bureau of Environmental Health Assessment

Contact: Suzanne K. Condon, MSM

Telephone: 617-624-5757

E-mail: suzanne.condon@state.ma.us

Address: MA Department of Public Health
250 Washington Street
Boston, MA 02108-4619

Web site: <http://www.mass.gov/dph/beha/beha.htm>

Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

The Massachusetts Department of Public Health, Bureau of Environmental Health Assessment (MDPH/BEHA), has been funded to conduct three pilot demonstration projects under this cooperative agreement:

- Pediatric asthma surveillance to be linked with a database on indoor air quality (IAQ) data in schools
- Developmental disability surveillance to be linked with polychlorinated biphenyl compound (PCB) environmental exposures and with biomarkers from a newborn screening database
- Systemic lupus erythematosus (SLE) surveillance to be linked with electronic environmental databases for specific pollutants of interest (e.g., petroleum distillates).

MDPH/BEHA has identified these three environmental public health tracking (surveillance) efforts as priorities in Massachusetts based on the following criteria: (1) they are already conducting some surveillance for each health outcome; (2) each health outcome involves different types of environmental exposure pathways; (3) tracking these health outcomes will address data gaps, as well as high levels of community concerns in the Commonwealth; (4) each pilot represents an opportunity to enhance existing infrastructure through uniquely different reporting/ascertainment methods; (5) each pilot is compatible with the program announcement requirements for electronic reporting; and (6) each health outcome is plausibly associated with environmental exposure opportunities to be linked.

The selected health effects, exposure, and hazard data selected for the pilot demonstration projects are consistent with those identified as priority areas in recent national forums (e.g., Pew Environmental Health Commission; CDC's environmental public health indicators). MDPH/BEHA proposes to build a database for these tracking (surveillance) efforts that will electronically

communicate with the MDPH National Electronic Disease Surveillance System, enhancing electronic reporting to CDC and other partners under this program announcement.

For the pediatric asthma surveillance, MDPH/BEHA will expand an initial database containing school health records for six Merrimack Valley communities to include 186 of the state's communities. This equates to 1,390 public schools and 321 private and charter schools covering a total of 803,109 students. IAQ information is available for 130 schools. During Year 1, MDPH/BEHA will assess IAQ at an additional 40 schools that include grades K-8, with the goal of achieving statewide tracking of pediatric asthma and school IAQ by the end of year 3.

Data from the Massachusetts Department of Education will be used to ascertain developmental disabilities in children aged 3-10 years in the Housatonic River area of western Massachusetts. These data will be linked to thyroid hormone levels from newborn screening data and data on PCB contamination in the Housatonic River area. Annual prevalence rates of selected developmental disabilities and basic characteristics of the population will be obtained. The pilot project will include a component to evaluate and verify case ascertainment. Extensive environmental data exist for the Housatonic River area and document PCB contamination in soil, ambient air, groundwater, river sediment, and fish. The best and most feasible ways of linking these data with developmental disability data will be explored. Examples of linkage may be based on residence according to gradients of ambient air concentrations of PCBs or on residential proximity to the Housatonic River.

Electronic hospital discharge and billing databases have proven to be complete sources of initial case ascertainment for SLE in South Boston. An initial database of cases from the five teaching hospitals will be expanded to include other Boston hospitals. SLE cases will be confirmed through medical record reviews to confirm the presence of American College of Rheumatology criteria for SLE. Linkage of the identified case information will be to electronic environmental database(s) with the goal of linkage to suspected environmental etiologies including petroleum distillates, silica dust, and organic solvents. During years 2 and 3, tracking efforts can be expanded beyond Boston based on the pilot demonstration results.

In addition to the pilot projects, MDPH/BEHA will:

- Enhance electronic reporting capabilities for sharing data across tracking systems, within confidentiality and security restrictions
- Standardize reporting of target health outcomes and develop standard data systems for sharing information
- Increase the number of partnerships with medical community and academic institutions for health outcomes targeted for the pilot projects
- Verify validity and completeness of data sources for developmental disability outcomes of interest
- Conduct file searches to evaluate quality of readily available information from electronic Massachusetts Department of Environmental Protection-regulated facility and site databases for linking with SLE cases.

Data Linkage Demonstration Project

Grantee: The Commonwealth of Massachusetts
Massachusetts Department of Public Health
Bureau of Environmental Health Assessment

Contact: Suzanne K. Condon, MSM

Telephone: 617-624-5757

E-mail: suzanne.condon@state.ma.us

Address: Massachusetts Department of Public Health
250 Washington Street
Boston, MA 02188-4619

Funded Since: September 15, 2003

Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

The Massachusetts Department of Public Health, Bureau of Environmental Health Assessment (MDPH/BEHA) will conduct three demonstration linkage projects in coordination with CDC as part of the development of the National Environmental Public Health Tracking (EPHT) Network.

The overall purpose of this project is to demonstrate and evaluate methods for linking data from ongoing, existing health effects surveillance systems in Massachusetts with hazard and exposure data from existing surveillance/monitoring systems. Specifically, the Massachusetts program will implement the following three components:

- Blood lead level data from the Childhood Blood Lead Prevention Program's surveillance system will be linked with environmental data on ambient air contaminants, lead smelters, and drinking water distribution systems
- Childhood cancer incidence data from the Massachusetts Cancer Registry (MCR) will be linked with drinking water quality and pesticide use databases
- Birth defects data from the State Birth Defects Registry and low birth weight data from the Registry of Vital Records and Statistics will be linked with drinking water quality data.

Methods, tools, and best practices developed through the project will be used to advance the development of an environmental public health tracking (surveillance) network at the state, local, and national level.

For the blood lead level surveillance, MDPH/BEHA will use geographic information system tools to geocode addresses of children with blood lead data for 1995 forward. The geocoded blood lead level data will be linked with environmental databases, such as monitoring data for ambient air pollutants, industry profiles, and drinking water systems. The initial effort will focus on linkage between blood lead data and environmental data in high-risk communities, determined through a mathematical algorithm. Approximately 86,000 children aged 0-4 years reside in 21 high-risk communities in Massachusetts. Activities for surveillance of childhood cancer incidence include geocoding statewide cancer incidence data for the most recent years initially, then historical data for 1982-1986. This

geocoding work will facilitate linkage of childhood cancer incidence data for all years of MCR data with environmental databases. The current version of the Standardized Incidence Ratio (SIR) calculator will be updated continuously as new data become available. (The SIR calculator computes census-tract-level SIRs on the basis of on user-defined settings.) In addition, a protocol for statewide evaluation of linkage between childhood cancer and environmental databases will be developed.

Information from the Massachusetts birth defects registry will be geocoded to enable linkage with environmental databases. Geocoding addresses information from all births in the state starting in 1999 will allow development of a calculator similar to the SIR calculator. Geocoding will include birth weight information for subsequent linkage of low birth weight data with environmental databases. MDPH/BEHA will develop a protocol for evaluating linkage between birth defects and low birth weight data with environmental databases. Drinking water quality databases will be evaluated for the feasibility of linkage.

Missouri

Infrastructure Enhancement and Data Linkage Demonstration Project

Grantee: Missouri Department of Health and Senior Services
Contact: Roger Gibson, MPH
Telephone: 573-751-9071
Fax: 573-751-6417
E-mail: gibsor@dhss.mo.gov
Address: Section for Environmental Public Health
MO Department of Health and Senior Services
P.O. BOX 570
Jefferson City, MO 65102-0570
Web site: <http://www.dhss.state.mo.us/EPHT/>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

Missouri proposes to initiate electronic reporting of laboratory results for blood lead levels, document environmental assessments and abatement activities, and create linkages with Department of Natural Resources lead smelter and mining site databases and with other surveillance databases.

The Missouri Department of Health and Senior Services (DHSS) Office of Information Systems (OIS) is developing the Missouri Health Strategic Architectures and Information Cooperative (MOHSAIC), which is DHSS' effort to create one integrated public health information system to document and address information of interest to public health in Missouri. The surveillance component of MOHSAIC is the Missouri Health Surveillance Information System (MOHSIS). MOHSIS is a transactional application that provides a centralized and integrated database for the entry, update, and retrieval of surveillance information about reportable conditions required under 19 CSR 20-20.020 or of interest to public health. This centralization and integration provides a flexible system capable of modification for changes to case definitions, reportable diseases, local public health agency needs, and other significant issues of public health concern.

The Systematic Tracking of Elevated Lead Levels and Remediation (STELLAR) application is now used by DHSS and a few local public health agencies to document lead-screening activities. These stand-alone systems require redundant data entry of client information and do not reflect statewide lead surveillance activities or status. Although a few laboratories report electronic blood lead level results to DHSS, these results must be manually keyed into STELLAR. DHSS is working to migrate all data from STELLAR into MOHSAIC, including screening data, case management activities, and electronic laboratory reporting.

DHSS will use funds from this project to initiate electronic reporting and posting of laboratory results for blood lead levels, develop and implement electronic notification of system users of posted results for their clients, document environmental assessments, document lead abatement activities, and create electronic linkages to Department of Natural Resource's (DNR) lead smelters and lead mining sites databases. Part of the project involves capturing detailed data on the assessment of the environment and abatement activities. Once completed, this infrastructure will allow the linkage of other stand-alone surveillance databases with MOHSAIC. These include information about other heavy metals, private drinking-water well results, and other required environmental conditions, cancer and birth defects registries and asthma.

DHSS will use information obtained from stakeholders and consortium meetings, community environmental public health assessments, and needs assessments associated with a CDC biomonitoring grant to determine an additional data integration project to conduct during the project period. This will be conducted after the lead integration project is completed and evaluated.

DHSS also proposes to collaborate on standardization needs with other Environmental Public Health Tracking Network partners, and to collaborate with the Centers for Excellence for Environmental in Public Health Tracking on epidemiology studies.

Montana

Planning and Capacity Building Activities

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|------------------------|---|
| <i>Grantee:</i> | Montana Department of Public Health and Human Services |
| <i>Contact:</i> | Marjean Heisler Magraw, MPH |
| <i>Telephone:</i> | 406-444-4871 |
| <i>E-mail:</i> | mmagraw@mt.gov |
| <i>Address:</i> | Department of Public Health & Human Services 1400 Broadway, Cogswell Building, Rm. C-314 Helena, MT. 59620-2951 |
| <i>Web site:</i> | http://www.dphhs.mt.gov/epht/ |
| <i>Funded Since:</i> | September 30, 2002 |
| <i>Funded Program:</i> | National Environmental Public Health Tracking Program, Part A |

Program Description:

The initial goal of the Montana Environmental Public Health Surveillance System (EPHSS) Program is to establish epidemiologic and program capacity for an EPHSS within Montana. This will allow the Montana EPHSS Program to collaborate with CDC, other state and federal partners, and the Centers of Excellence toward a statewide and national environmental public health tracking network. These activities are intended to facilitate a transformation from reactive health effect-, exposure-, and hazard-specific surveillance systems, to an integrated and standardized tracking (surveillance) network.

To accomplish these goals, Montana is:

- Completing a preliminary inventory of its databases that address hazards, exposures, and chronic diseases
- Establishing criteria to identify priority conditions for inclusion in an environmental public health surveillance system program
- Soliciting input from citizens at public forums in the state
- Completing a report that includes recommendations in three scientific and policy areas, including (1) standardizing databases addressing health effects, exposures, and hazards; (2) improving environmental epidemiology and program capacity within the Department of Public Health and Human Services (DPHHS); and (3) enhancing surveillance capacity to address priority health conditions in Montana.

Montana is funded as a Part A state to conduct planning and capacity building for Environmental Public Health Tracking (EPHT). Priority environmental health concerns were assessed in Montana through statewide surveys, and community assessments. Montana conducted a pilot project in collaboration with the University of Montana to link hospital data on respiratory and cardiovascular disease with air quality monitoring data. This initial data linkage project was conducted to assess the

feasibility of linking health and environmental data. An association was found between asthma and increases in PM 2.5 levels.

The Montana Department of Public Health and Human Services has built a relationship with many important partners. The Department of Environmental Quality is working to enhance the collection of environmental data, and the Natural Resource Information System At Montana State Library has contributed GIS expertise to the EPHT program. Other partners include Montana State University who conducted a statewide survey on environmental health issues and is summarizing statewide indoor radon data. The Montana Bureau of Mines at Montana Tech and the USGS office in Montana have collaborated on the mapping of environmental health hazard information.

A Statewide EPHT Advisory Group held a strategic planning session in February 2005. The 2-day session resulted in the development of a logic model that defines key EPHT goals for the next five years in Montana. Montana EPHT is also working with county and tribal health departments to provide technical assistance and training to conduct community environmental health assessments. Fifteen local sites have participated to date and several follow-up projects have resulted that are allowing local health departments to proactively address priority concerns.

Montana brings many strengths to the development of an EPHSS Program, including (1) a well established partnership between the Montana DPHHS and the Department of Environmental Quality; (2) ongoing collaborations among MDPHHS and Montana universities; (3) strong experience in addressing site-specific environmental health problems; (4) effective collaborations between MDPHHS and federal entities such as the Agency for Toxic Substances and Disease Registry and the Environmental Protection Agency; and (5) an engaged and concerned population.

Nevada

Planning and Capacity Building Activities

Grantee: State of Nevada Department of Human Resources
Contact: Alexander Haartz, MPH
Telephone: 775-684-4200
E-mail: ahaartz@nvhd.state.nv.us
Address: Department of Human Resources
Health Division
505 E. King Street, Room 201
Carson City, Nevada 89701-4797
Web site: <http://www.healthtrack.nv.gov/>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Using lessons learned from the joint investigation between Nevada, CDC, and the Agency for Toxic Substances and Disease Registry (ATSDR) of the Churchill County, Nevada, childhood leukemia cluster, Nevada's project will build upon the strengths of a Coordinating Technical Leadership Team comprising dedicated staff from the divisions of Health and Environmental Protection, Department of Agriculture, Department of Information Technology, and the Nevada Indian Commission. The technical team will serve as partners and consultants to a Nevada EPHTS Planning Consortium comprised of representatives from tribes, hospitals, public health agencies, environmental agencies, rural agriculture support agencies, community members, and regulatory bodies such as the State Board of Health and the State Environmental Commission.

Nevada's Environmental Public Health Tracking System (EPHTS) project has four major goals:

- Identify and increase the public health and environmental exposure prevention, surveillance, and reporting infrastructure capacities at the state, local, and tribal levels
- Improve understanding of policy makers, community leaders, tribal leaders, and citizens about the relations between exposure to environmental hazards and health effects such as asthma, cancer, and lead and arsenic poisoning
- Facilitate the integration of an environmental public health surveillance system with Nevada's National Electronic Disease Surveillance System (NEDSS), the federal Environmental Protection Agency's National Environmental Information Exchange Network, and a surveillance system being established under the Health Resources and Services Administration's hospital bioterrorism preparedness initiative
- Create a state of "readiness" and partnership among stakeholders and their constituents so that these planning activities will lead to a funded implementation stage that we envisage as the logical next step to the EPHTS program.

Routine, continuous public health surveillance efforts in Nevada focus on communicable diseases, cancer, birth defects (including inborn errors of metabolism), and newborn hearing screening. Beginning in Year 1, a comprehensive inventory of environmental hazards, chemical (including agricultural chemicals) inventories, and non-infectious disease surveillance systems maintained by state and local governmental agencies will be developed. Systems maintained by local chapters of non-profit organizations such as the American Lung Association and the March of Dimes will also be included in this inventory process. The needs and concerns of all stakeholders and data users including governmental agencies, nongovernmental organizations, health care providers, academic institutions, businesses that use hazardous materials, and concerned citizens will be identified and prioritized. Also, a statewide public awareness campaign to educate the public, policy makers, and opinion leaders about the relationship between human exposure to environmental hazards and chronic diseases will be developed and implemented in Year 1. A community-based, stakeholder planning process will be used to create a plan for staged development of a standards-based EPHTS that allows direct electronic data reporting and linkage within and across health effect, exposure, and hazard data and that is accessible to local, state, and national public health and environmental protection agencies.

Additionally, Nevada proposes to establish a partnership with a local community to implement the Protocol for Assessing Community Excellence in Environmental Health as a strategy to promote community readiness. This also will provide a real-time evaluative 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.

New Hampshire

Planning and Capacity Building Activities

Grantee: New Hampshire Department of Health and Human Services
Contact: Matthew Cahillane
Telephone: 603-271-4988
E-mail: mcahilla@dhhs.state.nh.us
Address: New Hampshire Department of Health & Human Services
29 Hazen Drive
Concord, New Hampshire, 03301-6527
Web site: <http://www.des.nh.gov/EHTP/>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The State of New Hampshire (NH) proposes a collaborative effort between the NH Department of Health and Human Services' Office of Community and Public Health (OCPH) and the NH Department of Environmental Services (DES) to map, build, and use a new system of environmental public health tracking (EPHT). New Hampshire's commitment to cooperative efforts is evidenced in numerous projects including a mercury-in-fish advisory, hazardous waste cleanup, indoor air quality, sludge, water fluoridation, and air quality alert days.

The primary components of the EPHT system include an office staffed with data linkage professionals, a planning consortium of experts and stakeholders, and training tools to assist state and local surveillance staff. The EPHT system will be a standards-based process built upon staged improvement of data linkages that allow direct electronic data reporting across the following three areas: 1) human health effects (disease), 2) exposure, and 3) environmental hazard data. The EPHT network will be based on a public health tracking logic model of progress and feedback that links health effects to disease prevention and health promotion activities. The project plans to develop strategies for communicating information generated by the system to a diverse audience in collaboration with the nearest Centers for Disease Control and Prevention Center of Excellence in EPHT.

New Jersey

Data Linkage Demonstration Project

Grantee: New Jersey Department of Health and Senior Services
Contact: Jerald A. Fagliano, MPH, PhD
Telephone: 609-588-3120
E-mail: Jerald.Fagliano@doh.state.nj.us
Address: New Jersey Department of Health and Senior Services
Division of Epidemiology, Environmental and Occupational Health
P.O. BOX 369
Trenton, New Jersey 08625-0369
Web site: http://www.state.nj.us/health/eoh/cehsweb/env_disease.htm
Funded Since: September 15, 2003
Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

The New Jersey Department of Health and Senior Services (NJDHSS) will demonstrate and evaluate methods for linking data from existing health effects surveillance systems and environmental hazard monitoring systems. The New Jersey tracking project will be developed and implemented in cooperation with the University of Medicine and Dentistry of New Jersey (UMDNJ) and coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Network.

Methods, tools, and best practices developed through the New Jersey project will be used to advance the development of an EPHT network at the state, local and national levels.

The specific goals of this project are to:

- Establish mechanisms for ongoing collaboration, communication and coordination of activities. NJDHSS and the New Jersey Department of Environmental Protection (NJDEP) will establish an interagency coordinating committee and a tracking advisory group of stakeholders. The interagency coordinating committee will provide a forum for participating agencies to describe the status of demonstration projects and discuss technical aspects of their protocol development and implementation, communication of findings, and the evaluation of the projects. The tracking advisory group will provide a forum for NJDHSS and NJDEP to communicate with non-government and community stakeholders; describe the status of the demonstration projects; request input into technical aspects of protocol development and implementation; and discuss methods for communicating findings of the demonstration projects to the general public, health-care providers, and other targeted groups.
- Conduct three demonstration projects to link data from existing health effects, human exposure, and environmental hazard monitoring systems. Specifically, the three projects will link (1) data from the State Cancer Registry on pediatric and other cancers with short latency

periods with drinking water contamination and air toxics modeling data; (2) childhood blood lead data and adult heavy-metal-exposure data with New Jersey's Facility and Chemical Tracking System and modeled ambient-air exposure estimates for lead; and (3) adverse reproductive and developmental outcomes data from the State Birth Defects Registry, Vital Statistics, and other sources with drinking water contamination and air toxics data. The aims of each demonstration project are to increase the State's capacity to use existing data and to enable officials to take actions that are data-driven and can ultimately improve public health in New Jersey populations. The projects will combine health surveillance and environmental hazard monitoring systems representing diverse programmatic areas of NJDHSS and NJDEP. By including several data systems in the demonstration projects, NJDHSS and NJDEP will identify and address a range of challenges encountered in establishing an EPHT program.

- Evaluate the effectiveness of the data linkage demonstration projects in providing important and relevant information to public health and environmental decision makers. Findings of the demonstration projects, and the results of the evaluation, will be widely disseminated to stakeholders.

New Mexico

Planning and Capacity Building Activities

Grantee: New Mexico Department of Health
Contact: Len H. Flowers, MS
Telephone: 505-841-5893
E-mail: len.flowers@state.nm.us
Address: New Mexico Department of Health
Environmental Health Epidemiology
1190 St. Francis Drive
Santa Fe, NM 87502-6110
Web site: <http://www.health.state.nm.us/>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The State of New Mexico proposes to increase its environmental public health capacity by developing the components of a statewide environmental public health tracking system (EPHTS) that is (1) capable of linking health effects data with human exposure and environmental hazards data and (2) standards-based and capable of integration with data from other states and other national data sets. The components of the EPHTS are to be developed by enhancing, standardizing, and ultimately linking data sources from local, state, federal, and tribal government agencies and academic institutions. New Mexico's goals, objectives, and activities, include:

- Conducting an inventory of current and potential datasets, and evaluating existing data sets based on CDC guidelines for surveillance evaluation
- Developing and maintaining partnerships with appropriate agencies and community groups
- Building an infrastructure to support a statewide EPHTS by providing the resources to build capacity and address the needs identified above, as well as developing and implementing a plan to enhance, standardize, link and integrate existing surveillance systems
- Developing a plan for using the enhanced linked environmental data to allow informed decision making on the national, state, and local levels by creating strategies for data dissemination, and addressing potential obstacles to such dissemination.

New Mexico will collaborate with several agencies that have committed their support. They include the New Mexico Environmental Department, Indian Health Service, City of Albuquerque Environmental Health Department, and Bernalillo County Environmental Health Department.

Data Linkage Demonstration Project

Grantee: New Mexico Department of Health

Contact: Ronald E. Voorhees, MD, MPH

Telephone: 505-476-3573

E-mail: ronv@doh.state.nm.us

Address: Office of Epidemiology
Public Health Division
New Mexico Department of Health
1190 St. Francis Drive, Room N1350
P.O. BOX 26110
Santa Fe, NM 87502-6110

Funded Since: September 15, 2003

Funded Program: Environmental and Health Effect Tracking; Program Announcement # 03074

Program Description:

The New Mexico Environmental and Health Effects Tracking Project will demonstrate and evaluate methods for linking data from existing health effects surveillance systems with environmental data. The purpose of this project is to increase understanding of the relation between health and environmental exposures through enhanced surveillance and standardized data system integration. The New Mexico tracking project will be coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Network.

The specific project goals are to:

- Implement projects that link existing health effect surveillance data with environmental exposure data
- Establish an advisory group to provide substantive recommendations on planning, implementing, and communicating information from this project
- Analyze data and disseminate information about the project to promote the use of linked environmental health data to allow informed decision making.

The New Mexico Department of Health (NMDOH) will conduct two projects that will link existing health effects surveillance data with exposure data. The primary project will link data on arsenic in drinking water with cancer data from the New Mexico Tumor Registry. The objective is to demonstrate and evaluate methods for establishing a statewide environmental health surveillance system to monitor cancer incidence rates with respect to arsenic drinking water levels. The goal of the arsenic exposure assessment is to characterize populated geographic areas of New Mexico by arsenic drinking water concentrations. New Mexico is an ideal place to link these two databases because the arsenic concentrations in groundwater have been both elevated and steady over time and the population at risk has been relatively stable. Linked data subsequently will be analyzed to examine cancer incidence rates according to arsenic levels in drinking water across the state.

The second project will link air quality data with the Statewide Asthma Surveillance System and other respiratory diseases tracked by the Hospital Inpatient Discharge Database (HIDD). Air pollution results from multiple sources in New Mexico including forest fires, coal-fired power plants, mining, refinery emissions, unregulated burning along the Mexico border, and vehicle exhaust. The goal of the project is to demonstrate a general process for linking environmental monitoring data (particulate monitoring results – PM10 and PM2.5) and health surveillance data; evaluate the utility of linked data for timely assessment of changing environmental exposures and health outcomes; and recommend adjustments to existing systems of data collection and analysis that would improve their performance.

New York

Infrastructure Enhancement and Data Linkage Demonstration Project

Grantee: New York State Department of Health
Contact: Nancy K. Kim, PhD
Telephone: 518-402-7511
E-mail: nkk01@health.state.ny.us
Address: Division of Environmental Health Assessment
New York State Department of Health
547 River Street, Room 500
Troy, NY 12180
Web site: <http://www.health.state.ny.us/>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

New York State proposes to develop plans to evaluate the feasibility and usefulness of linking and reporting of health effects data with human exposure data and environmental hazard data. Required program activities include: developing partnerships with individuals and organizations who are important to the development and implementation of an environmental public health tracking network (EPHTN); establishing a planning consortium; examining current legislation and regulations regarding collection, integration, and sharing of data; and developing and providing training to state and local staff in a variety of areas related to environmental public health tracking.

The first programmatic goal is to enhance the state's capability to track children's environmental health, specifically to assess the relation between air pollution and pregnancy outcomes, asthma development, and childhood mortality. As part of this project, the grantee will link New York State Department of Health's Integrated Child Health Information System (ICHIS) with New York State Department of Environmental Conservation's air monitoring system. The project will be evaluated, and its results will be used to guide decisions about what other hazard or exposure databases should be linked to ICHIS or how this database can be used to assess other health endpoints potentially related to environmental contamination. These lessons will be extended to guide or modify a plan for establishing an EPHTN.

The second and third programmatic goals are to enhance the state's capability for tracking exposures to contaminants in drinking water and to enhance our capability to track neurologic conditions, autoimmune diseases, developmental disabilities, diabetes, and chronic diseases other than reproductive outcomes, cancer, and asthma. These two areas need additional development before the grantee can readily track and link these data.

New York State will prioritize state and local needs for tracking health effects, exposures, and hazards with the goal of incorporating them into an EPHTN. This will be done in conjunction with partners and a planning consortium. State and local legislation and regulations will be reviewed to determine whether additional authority is needed to integrate, share, or collect new data.

New York proposes to develop strategies for communicating information generated by the EPHTN network with the public, local, and federal governments, tribal governments, healthcare providers, non-governmental organizations, and other for-profit and nonprofit groups in a timely manner for use in public health practice or environmental protection programs. The state also will work with the Centers for Excellence in New York for EPHT to (1) develop training tools and deliver training in surveillance practices, environmental assessment, biomonitoring, evaluation, and risk communication to state and local staff, and (2) evaluate environmental public health indicators.

Data Linkage Demonstration Project

Grantee: New York State Department of Health

Contact: Nancy K. Kim, PhD

Telephone: 518-402-7511

E-mail: nkk01@health.state.ny.us

Address: Division of Environmental Health Assessment
New York State Department of Health
547 River Street, Room 500
Troy, NY 12180

Funded Since: September 15, 2003

Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

The New York State Department of Health (NYSDOH) will link public water supply monitoring data to birth outcome data, geographically by water district, in public water supply service areas. This tracking project will be coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Network.

The overall purpose of the effort is to demonstrate and evaluate methods for linking data from existing health effects surveillance systems with data from existing human exposure and environmental hazards surveillance/monitoring systems in New York. Methods, tools, and best practices developed through the project will be used in advancing the development of an EPHT network at the state, local and national levels.

The project's specific goal is to link hazard data from routine public water supply monitoring with birth outcome data in order to track potentially related patterns and trends in contamination with disinfection byproducts, such as trihalomethanes and haloacetic acids, and birth outcomes. Geographic boundaries have been digitized for all districts serving more than 1,000 people and for

some smaller districts. Approximately 87% of New York State's population is included in a geographically defined water district. The monitoring locations have been geocoded, and the birth outcome data will be geocoded to each infant's address at birth, using a newly implemented enterprise geocoding system. Birth outcome data will be supplied by the NYSDOH Congenital Malformations Registry (CMR) and the Vital Records Section of the Bureau of Biometrics. The birth outcomes of particular interest will include low birth weight, prematurity, and selected birth defects.

In addition to the data linkage and geocoding activities, the project includes the following objectives:

- Development of an automated surveillance system to detect and report statistically unusual patterns and trends. The system also will be capable of visually representing the data in the form of graphs, maps, and tables. Data will be rapidly analyzed as they are received. The output from this surveillance system will aid in the definition and prioritization of potential intervention strategies, including public communication and/or focused epidemiologic studies. The data linkage and surveillance system will be evaluated in terms of utility, quality, cost-effectiveness, and propriety.
- Communication and dissemination of information about the project and its findings, through website postings, public meetings, publication of research articles, and similar means.
- Enhancement of existing electronic reporting and data linkage initiatives for both CMR and public water supply data. In particular, this project will help the CMR develop automated methods to link its data to hospital discharge data to improve data completeness and accuracy, as well as to further develop methods to identify areas of possible underreporting. Similarly, public water supply data systems will be enhanced by further implementing electronic data interfaces.

Oklahoma

Data Linkage Demonstration Project

Grantee: Oklahoma State Department of Health

Primary Contact: Elizabeth P. Kruger, MPH

Telephone: 405-271-6617

Fax: 405-271-4971

E-mail: Elizabek@health.state.ok.us

Address: Oklahoma Public Health Environmental Tracking System (OK-PHETS)
Screening and Special Services
1000 NE 10th Street
Oklahoma City, OK 73117-1299

Secondary Contact: Kay Pearson

Telephone: 405-271-6617

E-mail: Kayp@health.state.ok.us

Address: Oklahoma State Department of Health
1000 NE 10th Street
Oklahoma City, OK 73117-1299

Web site: <http://www.health.state.ok.us/>

Funded Since: September 15, 2003

Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

The Oklahoma State Department of Health (OSDH), in partnership with the Oklahoma Department of Environmental Quality (DEQ), will develop the Oklahoma Public Health Environmental Tracking System (OK-PHETS) using health effects data from the Oklahoma Central Cancer Registry (OCCR), the Oklahoma Birth Defects Registry (OBDR), the Oklahoma Asthma Surveillance System (OASS), and the Oklahoma Lead Poisoning Prevention Program (OLPPP). The DEQ currently collects data regarding public water supplies, air quality, landfills, chemical use by facilities across the state, total air emissions, lead-based paint abated structures, and hazardous waste generators. The DEQ collects information about 14 Superfund sites and 117 voluntary cleanup and Brownfield sites. These hazards data will be used for this linkage project. The Oklahoma tracking project will be coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Network.

The overall goal of this project is to bridge the gap between health problems and environmental hazards by linking health data and exposure data with environmental hazard data. Methods, tools, and best practices developed through the Oklahoma project will be used to advance the development of an environmental public health tracking network at the state, local, and national level.

The specific objectives of this project are to:

- Link data on childhood lead poisoning, asthma, birth defects, and cancer with environmental hazard data from the DEQ
- Standardize the surveillance systems within the OSDH and DEQ to allow for ongoing surveillance, linking of data, assessment of health problems, development of public health interventions, assessment of intervention effectiveness, and dissemination of findings about priority health exposures and health effects.

OK-PHETS will be implemented in stages. In the first year, OLPPP surveillance systems and the OBDR data will be linked with DEQ environmental hazards data. The OASS and OCCR data will be added during the second year. The third year will consist of implementing and evaluating the data dissemination and communication plan, improving data sharing and evaluation processes, and finalizing documentation.

Oregon

Planning and Capacity Building Activities

Grantee: Oregon Department of Public Health and Human Services
Contact: Michael A. Heumann, MPH, MA
Telephone: 503-731-4573
E-mail: michael.a.heumann@state.or.us
Address: Oregon Department of Public Health & Human Services, EOE
800 NE Oregon Street, Suite 772
Portland, OR 97232
Web site: <http://www.dhs.state.or.us/publichealth/epht/index.cfm>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

Oregon aims to increase environmental public health capacity at the state and local levels and increase awareness of environmental health issues; build a diverse and effective planning consortium to prioritize environmental health needs and concerns and collaboratively develop standard indicators to measure hazards, exposures, and health outcomes; identify data, monitoring, and tracking systems, and develop or enhance tracking systems for priority indicators; and create an implementation plan and test the system for electronically linking data. The environmental public health tracking (EPHT) cooperative agreement will provide Oregon with the funds to leverage its existing environmental health infrastructure to link hazard, exposure, and health outcome data. The state is integrating activities for several of its current surveillance systems (blood lead levels, asthma surveillance, and pesticide illness surveillance). Also, the National Electronic Disease Surveillance System (NEDSS) Team has integrated some of Oregon's health-related data systems into a data warehouse called Outcome Assessment through Systems of Integrated Surveillance (OASIS). OASIS includes data from vital statistics, AIDS, hospital discharge, sexually transmitted diseases (STDs), tuberculosis (TB), Youth Risk Behavior Surveys (YRBS), Behavioral Risk Factor Surveillance System (BRFSS) and the Pregnancy Risk Assessment Monitoring System (PRAMS).

EPHT program staff will assess the existing environmental public health capacity and needs of local health departments. Oregon also will review the training capacity for environmental public health at academic institutions (including the nearest Center of Excellence in Environmental Public Health Training), and professional organizations. It will create and distribute a comprehensive list of training resources, and develop a statewide environmental public health training improvement plan.

Proposed collaboration and data sharing with Washington State's health department on electronic lab reporting and biomonitoring projects are being considered. This collaboration and data sharing will improve surveillance in both states, especially because citizens cross borders for health care.

Building on a wide range of existing partnerships, Oregon will recruit leaders and key stakeholders from environmental and public health entities; diverse ethnic, cultural, and geographic groups; tribal governments; advocacy organizations; and academic institutions to create a formal EPHT Planning Consortium. The consortium will use elements from the Protocol for Assessing Community Excellence in Environmental Health to identify and prioritize the environmental health concerns and needs in the state. EPHT staff will work with the consortium to develop strategies to ensure that data and information about the process and outcomes of the program are accessible and culturally appropriate. The expected benefits and lessons learned from the EPHT inventory will be widely disseminated to increase awareness of environmental health issues and state priorities.

EPHT staff will collaborate with other participating states and the CDC on setting data standards for a national tracking network. EPHT will work with the nearest Center of Excellence to assess and incorporate relevant environmental public health indicators into the Oregon EPHT implementation plan.

The Environmental and Occupational Epidemiology Section will strengthen and formalize its collaboration with the Department of Environmental Quality. Representatives of these agencies and other partner organizations will form a technical team to develop appropriate architecture standards and data structures for EPHT to integrate data from various sources, while maintaining data security and confidentiality.

With the consortium, EPHT will develop, implement, and test data linkages in the EPHT system. Oregon will support partners for pilot data integration projects addressing priority indicators, and use the results to refine the implementation plan. Finally, Oregon will develop and carry out a comprehensive evaluation of the EPHT process and outcomes and widely disseminate the findings to inform partners and other state programs. Experiences of other states also will be incorporated into the final implementation plan for EPHT in Oregon.

Pennsylvania

Planning and Capacity Building Activities

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|------------------------|---|
| <i>Grantee:</i> | Pennsylvania Department of Health |
| <i>Contact:</i> | Dr. James Logue |
| <i>Telephone:</i> | 717-787-1708 |
| <i>E-mail:</i> | jlogue@state.pa.us |
| <i>Address:</i> | Pennsylvania Department of Health P.O. BOX 90, Room 925, Health and Welfare Building Harrisburg, PA 17108 |
| <i>Web site:</i> | http://www.dsf.health.state.pa.us/health/cwp/view.asp?a=171&q=199923 |
| <i>Funded Since:</i> | September 30, 2002 |
| <i>Funded Program:</i> | National Environmental Public Health Tracking Program, Part A |

Program Description:

Pennsylvania Department of Health (PADOH) will partner with the Pennsylvania Department of Environmental Protection (PADEP) to implement this program. This grant allows PADEP and PADOH to collaborate on environmental problems that emerge throughout the state and develop a coordinated and integrated environmental public health tracking (surveillance) network (EPHTN) that will include both environmental databases developed and maintained by PADEP as well as environmental health outcome databases developed and maintained by PADOH.

PADOH recognizes that multiple, coordinated elements are necessary for an effective EPHTN. These include the following initiatives to:

- Collaborate and forge partnerships between traditional health-focused entities (for-profit and non-profit) and environmental monitoring agencies at the federal, state, and local levels
- Expand capacity in the area of personnel expertise and latest technology infrastructure
- Develop standardized electronic data elements
- Build mechanisms for disseminating information to stakeholders.

This program will build on the existing resources, such as the Bureau of Epidemiology (BOE), which has primary responsibility for the EPHTN in PADOH. Two BOE divisions, the Division of Environmental Health Epidemiology (DEHE) and the Division of Community Epidemiology (DCE), will coordinate and lead this project. Their combined responsibilities include public health assessments, environmental health investigations, toxic management, health advisories, environmental health surveillance, responses to concerns about hazards and health effects, and investigation and study of chronic diseases, injury, and family health issues. Examples of such efforts include Three-Mile Island, Palmerton Zinc studies, and Chester County Mushroom Farm.

PADOH intends to enter into a collaborative relationship with the U.S. Environmental Protection Agency to link into the Toxic Release Inventory (TRI) database to obtain state-specific TRI data on a real-time basis.

Additional commitments outlined by PADOH are:

- Establish a planning consortium of technical experts, community leaders, and other key stakeholders
- Further examine state legislation and regulations to determine whether additional authority or resources are required to collect new data, integrate data, and share data
- Develop and evaluate strategies for communicating information generated by an EPHTN and related program activities to diverse audiences
- In collaboration with the Centers for Excellence in Environmental Health Tracking, examine the feasibility of environmental public health indicators and develop training tools and provide training to state and local staff on topics related to environmental health tracking
- In collaboration with Environmental Public Health Tracking program partners and stakeholders, develop standardized data definitions; examine the availability and applicability of data standards and data exchange messages; and discuss project accomplishments, barriers, and lessons learned through a variety of communication media.

Utah

Planning and Capacity Building Activities

Grantee: Utah Department of Health

Contact: Wayne Ball, PhD

Telephone: 801-538-6191

E-mail: wball@utah.gov

Address: Utah Department of Health
Environmental Epidemiology Program
288 North, 1460 West
P.O. BOX 142104
Salt Lake City, Utah 84114-2104

Web site: <http://health.utah.gov/els/epidemiology/envepi/activities/ephtn.htm>

Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The Utah Department of Health (UDOH) proposes to develop, in collaboration with the Utah Department of Environmental Quality (UDEQ) and CDC, plans for, and components of a statewide standards-based, coordinated, and integrated environmental public health tracking network (EPHTN) that allows linkage and reporting of health effects data with human exposure data and environmental hazard data. This EPHTN will be designed to inform consumers, communities, public health practitioners, researchers, and policy makers about chronic diseases and related environmental hazards and population exposures. This will provide UDOH and UDEQ with the capacity to better understand, respond to, and prevent chronic disease in Utah. Information generated by this program will enable UDOH and UDEQ to identify populations at high risk in Utah, examine health concerns at the local level, recognize related environmental factors, and establish prevention strategies statewide.

Utah has a series of assets that will more efficiently be used through an EPHTN. These include:

- Statewide hospital and emergency department discharge databases
- Experience with establishing syndromic surveillance using electronic transmission of health care encounter records during the 2002 Olympic Winter Games
- A well established statewide Surveillance, Epidemiology and End Results (SEER) cancer registry
- The Utah Birth Defect Network
- The Resource for Genetic and Epidemiologic Research and Utah Population Database, which have brought birth- and death-certificate and cancer registry data together with Utah's unique genealogic data to support epidemiologic research
- The University of Utah's Department of Medical Informatics

- An innovative Web-based system for disseminating public health information within a context that improves understanding of the information.

The EPHTN will aid Utah in developing its capacity to conduct surveillance for health effects by leveraging the benefits of electronically linking the systems mentioned above. Utah also is currently participating in important categorical environmental activities that would benefit from the establishment of an EPHTN. These include:

- The Hazardous Substances Emergency Events Surveillance system, which is funded by the Agency for Toxic Substances and Disease Registry and collects and analyzes information about releases of hazardous substances
- UDEQ, one of 13 state organizations funded under the National Environmental Information Exchange Grant Program to develop the National Environmental Information Exchange Network. Utah will build on and integrate these efforts to produce an advanced tracking system that can support the goals of the EPHTN.

Washington

Infrastructure Enhancement and Data Linkage Demonstration Project

Grantee: Washington State Department of Health
Contact: Steven C. Macdonald, PhD, MPH
Telephone: 360-236-4253
E-mail: steven.macdonald@doh.wa.gov
Address: Washington State Department of Health
Office of Epidemiology
P.O. BOX 47812
Olympia, WA. 98504-7812
Web site: http://www.doh.wa.gov/ehp/ephtn/w-ephtn_homepage.htm
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

Washington State proposes to develop a blueprint for environmental public health tracking, enhance existing exposure and health effects surveillance systems, and conduct projects aimed at demonstrating data linkage to show the value of electronic reporting and the utility of linked data for policy. Washington's primary project involves the enhancement of the Washington Electronic Disease Surveillance System's (WEDSS) electronic hospital reporting of birth defects, the development of population-based exposure data (including a states-focused Health and Nutrition Examinations Surveys biomonitoring program), the enhancement of environmental monitoring and data analyses of persistent toxins such as mercury and PCBs. The data linkage demonstration project plans to create ecologic links based on proximity and explores individual-level methods of linkage. These three functions - electronic disease surveillance, enhanced exposure tracking, and linkage to environmental monitoring - are the major elements of the Washington Environmental Public Health Tracking Network (WEPHTN).

In addition, Washington plans to expand electronic hospital reporting to include pesticide illnesses (hospitalization and emergency department (ED) case data), and establish electronic reporting of pesticide-exposure cases by the poison control center to the Department of Health. Probabilistic record linkage methods will be used to connect individual exposure data to individual health outcome data. Finally, WEPHTN will bring together partners from the state education system and the local school districts to develop a prototype data system for school-based environmental monitoring and illness surveillance.

The project will expand the development of WEDSS infrastructure to better meet the needs of the WEPHTN. These efforts will focus on task automation, development of the integrated data repository, improvements to the alert system, and enhancement and expansion of electronic reporting. The specific improvements to electronic reporting will include:

- Improvement of electronic laboratory reporting of lead exposure blood-test results
- Enhancement of electronic hospital reporting, including cases of work-related asthma
- Enhancement of electronic hospital reporting and electronic laboratory reporting, including cancer
- Establishment of electronic reporting of pesticide illness cases by Labor and Industries Workers' Compensation databases to DOH Pesticide Incident Monitoring System
- Development of electronic laboratory reporting of private laboratory pesticide exposure test results.

These efforts will be complemented by coordination with the Washington State Department of Ecology and the development of metadata for linkage with the Washington Environmental Information Exchange node.

Washington's proposal also includes plans for continued partnerships with stakeholders, the development of collaborative relationships with a range of new partners, and the establishment of a planning consortium.

Finally, Washington will:

- Develop training tools and train staff and partners
- Evaluate the program
- Develop communication and data dissemination strategies
- Examine the feasibility of selected environmental public health indicators
- Collaborate on epidemiologic studies
- Participate in CDC-sponsored discussions and workgroups.

Wisconsin

Infrastructure Enhancement and Data Linkage Demonstration Project

Grantee: Wisconsin Department of Health and Family Services
Division of Public Health
Bureau of Environmental Health

Contact: Mark Werner, PhD

Telephone: 608-266-7480

E-mail: wernema@dhfs.state.wi.us

Address: 1 West Wilson Street Room 150
Madison, WI 53701-2659

Web site: <http://dhfs.wisconsin.gov/eh/>

Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part B

Program Description:

The Wisconsin Environmental Public Health Tracking Collaborative (WEPHTC) will streamline and centralize access to existing environmental, agricultural, and health data systems specific to Wisconsin creating a user-friendly Wisconsin Environmental Public Health Tracking System. Its foundation is the already close working relationships between the Wisconsin Department of Health and Family Services (DHFS), the Wisconsin Department of Natural Resources (DNR), and the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP). These agencies have established relationships with local health departments, the University of Wisconsin, and the State Laboratory of Hygiene.

The WEPHTC has the following goals:

- Establish a comprehensive, Web-based environmental public health tracking system that integrates environmental and health information
- Build a tracking system based on national data standards and case definitions
- Facilitate use of the tracking system to address community and individual concerns as well as priority research questions identified by the Centers for Excellence.

The WEPHTC will initiate two pilot projects in Year 1. The first project will be the childhood cancer follow-back, and a pilot for three environmental indicators (carbon monoxide poisoning, methyl mercury exposure, and pesticide poisonings). For the childhood cancer follow-back project, information from the state tumor registry will be linked with environmental data, including, at a minimum, drinking water quality, ambient air quality, residential and regional pesticide use, traffic density near the home, and radiation exposures such as radon, x-ray, and electromagnetic fields.

Carbon monoxide (CO) and pesticide poisonings are two of three environmental indicators that will be linked with depressed cholinesterase activity, pesticide residue in blood and urine, pesticide

measurements in water, and reported incidents of overspray and drift. Onsite investigations for carbon monoxide will be conducted by public health officials. Regional representatives of the Department of Agriculture, Trade and Consumer Protection are responsible for investigating pesticide exposure cases. The WEPHTC will search hospital discharge data and mortality records for an association with CO or pesticide exposure. An automated reporting system will be developed to facilitate reporting by coroners, healthcare providers, local public health agencies, poison centers, and clinical laboratories to aid in the development of a carbon monoxide and pesticide poisoning surveillance effort.

In addition to establishing a carbon monoxide/pesticide surveillance system, WEPHTC will also link fish consumption data from a BRFS model. This module will begin January 2004. Hair samples from 1,000 men over the age of 35 participating in the Behavioral Risk Factor Survey (BRFS) will be analyzed for methyl mercury content. Men will be selected randomly to provide an assessment of methyl mercury exposure among the general population of adult males. Men who consume sport-caught or commercially sold fish more than four (4) times a month will be over-sampled to improve Wisconsin's assessment among this potentially high exposure cohort. All data collected as part of the BRFS will follow the same protocol of confidentiality. The hair sampling portion of the study will be conducted as a pilot. These pilot projects will demonstrate the feasibility of linked environmental health data systems deployed on Wisconsin's Health Alert Network.

At the completion of Year 2 of the project, the WEPHTC will prepare an annual tracking report based on statistical analyses of the surveillance data, including categorizing cases by age, sex, rural or urban location, environmental exposure data, and other variables. County or regional incident rates will be calculated. Standardized reports will be developed and implemented in SAS Internet, which will allow automated report generation and statistical display from the live surveillance database.

Data Linkage Demonstration Project

Grantee: Wisconsin Department of Health and Family Services
Division of Public Health
Bureau of Environmental Health

Contact: Marni Bekkedal, PhD

Telephone: 608-267-3811

E-mail: bekkemy@dhfs.state.wi.us

Address: 1 West Wilson Street Room 150
Madison, WI 53701-2659

Funded Since: September 15, 2003

Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

The Wisconsin Department of Health and Family Services and the Wisconsin Department of Natural Resources (WDNR) will establish a program to develop and implement an electronic tracking system

for sentinel diseases believed to have environmental risk factors. The overall purpose of this project is to demonstrate and evaluate methods for linking data from existing health effects surveillance systems in Wisconsin with data from existing environmental monitoring systems.

The Wisconsin tracking program will be coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Program. Methods, tools, and best practices developed through the project will be used to advance the development of the EPHT Network at the state, local, and national levels.

The Wisconsin program addresses asthma and other respiratory diseases, multiple sclerosis (MS), and amyotrophic lateral sclerosis (ALS). The asthma tracking system will be used to evaluate interventions and regulatory actions. Asthma and other respiratory conditions will be tracked with respect to pollutants, demographic, and other data using geographic information systems. Because fixed monitor sites in Wisconsin are limited, air dispersion modeling systems will be used while more advanced methodologies are evaluated. Atmospheric and vegetation data also will be included.

The MS/ALS system will be used to suggest shared risk factors. Linking geocoded cases of these diseases (mortality and hospital discharges) with environmental exposure databases will allow detection of unrecognized clusters and may identify environmental parameters. Education and training programs will be developed to ensure use of the developed system. Five regional seminars are planned.

Data from WDNR databases will be used to track human exposure to substances in ambient air. Staff expertise in air modeling will be used to supplement regional and neighborhood exposure estimates. The Wisconsin Department of Health and Family Services currently has eight existing data systems that have been inventoried for tracking purposes. The WDNR has four major data-collection programs for air, private water, surface water, and fish tissue.

The University of Wisconsin, Division of Information Technology (UW-DoIT), will provide the information technology resources to design, install, operate, maintain, and modify the Wisconsin Health Alert Network/National Electronic Disease Surveillance System (NEDSS) integrated environmental health tracking program area modules (PAMs) for asthma and neurologic disease. UW-DoIT also will develop additional NEDSS elements for these PAMs on data visualization, reporting, security, messaging with clinical data systems, and user training.

Cities:

Houston, Texas

Planning and Capacity Building Activities

Grantee: Houston Department of Health and Human Services

Contact: Isaac Joyner, MPH

Telephone: 713-794-9286

Fax: 713-798-0862

E-mail: isaac.joyner@cityofhouston.net

Address: Administrative Manager/Health Planning and Evaluation
Houston Department of Health and Human Services
8000 N. Stadium Drive, 8th Floor
Houston, TX 77054-1823

Web site: <http://www.ci.houston.tx.us/hlt>

Funded Since: September 30, 2002

Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The Houston Department of Health and Human Services (HDHHS) proposes to develop a local environmental public health tracking system that builds on existing local data systems and integrates with the Texas Department of Health's chronic disease, injury, and birth defects surveillance systems; the Texas Natural Resource Conservation Commission's monitoring data; and the U.S. Environmental Protection Agency's tier-two data to provide a local response, surveillance, and research resource to mitigate the effects of environmental exposures on the health of Houstonians.

HDHHS has prioritized the upgrading of the department's computer infrastructure to allow continued progress toward an integrated surveillance network with an Internet-based reporting graphic user interface for local providers and reporters. HDHHS has the resources to develop a secure, encrypted, Web site for all Houston Medical System Response participants. This will be the vehicle used for integrating access to information, as well as for reporting by local providers of medical care and first responders during environmental exposure incidents. Existing surveillance and monitoring systems that may be integrated include (1) blood lead surveillance, (2) heat-related mortality, (3) cancer registry, (4) birth defects registry, (5) injury data project, (6) drowning, (7) vital statistics, (8) child fatality reviews, (9) air monitoring, (10) food establishment inspections, (11) hazardous materials incidents, (12) chemical facility and storage data, and (13) city business and housing geographic information.

New York City, NY

Planning and Capacity Building Activities

Grantee: New York City Department of Health and Mental Hygiene
Contact: Jessica Leighton, PhD, MPH
Telephone: 212-676-6323
E-mail: jleight@health.nyc.gov
Address: Bureau of Environmental Disease Prevention
New York City Department of Health and Mental Hygiene
253 Broadway, 12th Floor, Box CN58
New York, New York 10007
Web site: <http://www.nyc.gov/html/doh/home.html>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The New York City Department of Health and Mental Hygiene (NYC DOHMH) plans to assess, evaluate and enhance current health effect, exposure, and hazard surveillance systems in New York City. Its program, *Environmental Connections*, will build on the existing environmental public health tracking systems of the DOHMH and its sister agencies: The NYC departments of Environmental Protection (NYC DEP) and Housing Preservation and Development (NYC HPD) and the New York State departments of Health (NYS DOH) and Environmental Conservation (NYS DEC). New York City will also work with partners from local academic institutions, community-based organizations, private sector employers, unions, and federal agencies.

The NYC DOHMH has long recognized the need for environmental health tracking, and has developed individual surveillance programs for many environmental health issues, including childhood lead poisoning and asthma. However, two recent events highlighted a need to continue to fill gaps in its existing environmental public health infrastructure: the attack on the World Trade Center and the emergence of West Nile virus in New York City.

The objectives of *Environmental Connections* are to:

- Formalize existing working relationships between DOHMH and DEP
- Evaluate current data systems for air, food, water, pesticide use, and the indoor environment as they relate to existing health-related data systems in NYC
- Establish an inventory of tracking systems
- Convene a planning consortium of local data-using stakeholders
- Assess needs for environmental public health in NYC
- Offer technical training in surveillance and tracking to DOHMH and sister agency staff
- Prioritize areas of focus for environmental public health in NYC

- Assess the need for changes to current regulations and legislation to facilitate environmental health tracking
- Develop the plans for and components of a local standards-based integrated environmental public health tracking system
- Participate in the development of a national plan.

Data Linkage Demonstration Project

Grantee: New York City Department of Health and Mental Hygiene

Contact: Jessica Leighton, PhD, MPH

Telephone: 212-676-6323

E-mail: jleight@health.nyc.gov

Address: New York City Department of Health and Mental Hygiene
125 Worth Street, Room 623, Box 45B
New York, NY 10013

Funded Since: September 15, 2003

Funded Program: Environmental and Health Effect Tracking; Program Announcement #3074

Program Description:

The New York City Department of Health and Mental Hygiene (DOHMH) is developing a comprehensive Environmental and Health Effects Tracking Program (EHETP) that will link hazard, exposure, and health outcome data in two areas of critical concern for the health of New York City residents: heavy metals and pesticides. The EHETP will be coordinated with the Centers for Disease Control and Prevention (CDC) to ensure compatibility with the developing National Environmental Public Health Tracking (EPHT) Network.

The overall purpose of the effort is to demonstrate and evaluate methods for linking data from existing health effects surveillance systems with data from existing human exposure and environmental hazards surveillance/monitoring systems in New York City. Methods, tools, and best practices developed through this project will be used to advance the development of an environmental public health tracking (surveillance) network at the state, local and national level.

Childhood lead poisoning affects almost 5,000 children annually in New York City, and awareness of the insidious effect of low-level exposure to mercury is raising concern about the degree to which this and other heavy metals may affect children, pregnant women, and other adults. Pesticides are heavily used in urban areas, and evidence suggests that significant chronic exposure occurs to New York City residents.

For this project, the New York City DOHMH will collaborate with other municipal agencies, the New York State Department of Health, a variety of academic and advocacy experts in heavy metals and/or pesticides, and community-based organizations concerned with these subjects. DOHMH will:

- Develop the personnel and organizational infrastructure to conduct the project

- Develop the technologic architecture for carrying out data linkage, analysis and reporting
- Collaborate with stakeholders to identify, analyze, and evaluate relevant databases
- Set standards and protocols for data sharing
- Link child and occupational blood lead data, blood mercury data, and pesticide poisoning reports with environmental data for heavy metals and pesticides
- Plan for completion of the analysis and interpretation of data
- Report the findings to various interest groups
- Conceive and plan appropriate public health interventions in response to the findings.

New York City will build on already substantial resources and infrastructure to link the many data sources that describe these hazards, human exposures, and known health effects. By carrying out ongoing surveillance on these environmental and health concerns, New York City will be better able to publicly report these data, intervene to reduce health risks and improve environmental quality, and evaluate progress toward reduction of these environmental and health concerns. The lessons learned and the infrastructure developed will enable New York City to expand its EHETP into other health concerns.

This project will increase the value of current data systems by facilitating:

- Creation of tools and calculation of rates of overexposure to pesticides and heavy metals and potentially associated diseases or other medical conditions
- Enhancement of the mapping capabilities, specifically the capacity to map linked data to assess potential spatial relationships, and creation of an interactive query tools for data users
- Improvements in the effectiveness of public health interventions by identifying environmental hotspot, high-risk neighborhoods, and potential point source of exposure
- More accurate estimates of the burden of environmental exposure and disease by data cross-reference.

DOHMH has completed a preliminary inventory of data related to heavy metals and pesticides, convened a stakeholder advisory panel, and begun assessing needs for a technical infrastructure for storing and reporting data.

Washington, D.C.

Planning and Capacity Building Activities

Grantee: District of Columbia Department of Health
Contact: John Oliver Davies-Cole, PHD, MPH, CPM
Telephone: 202-442-9138
E-mail: john.davies-cole@dc.gov
Address: Bureau of Epidemiology and Health Risk Assessment
District of Columbia Department of Health
825 N. Capitol Street, N.E., Room 3142
Washington, DC 20002
Web site: <http://dchealth.dc.gov/index.asp>
Funded Since: September 30, 2002
Funded Program: National Environmental Public Health Tracking Program, Part A

Program Description:

The District of Columbia Department of Health (DOH) will develop information systems within DOH, specifically systems containing environmental data on human exposures and hazards; those capturing data on health effects will be used to build an environmental public health tracking system. Project goals include (1) further documenting the relation between environmental exposure and health effects; (2) gaining greater ability to undertake health assessment, policy development and assurance; and 3) generating information that guides policy development and decision making on prevention and treatment activities, as well as resource allocation. Minimal integration exists between DOH environmental and public health databases.

Activities to be completed include (1) developing data standards; (2) adopting and incorporating technology platforms that facilitate data integration and sharing; (3) creating synergy of effort in data collection and analysis; and (4) enhancing prevention, intervention and service programs. Internal linkages and partnerships include DOH Environmental Health Administration, the State Center for Health Statistics Administration, DOH Preventive Health Services Administration, the Maternal and Family Health Administration, the Public Health Laboratory, and the Medical Assistance Administration.

These stakeholders maintain surveillance and database systems covering asthma, birth defects, cancer, diabetes, and heart disease. The DOH Environmental Health Administration is responsible for meeting all U.S. Environmental Protection Agency requirements for measurement of environmental hazards in the air, water, and soil, while the State Center for Health Statistics Administration oversees vital records and information technology infrastructure development in the DOH.

Academic Partners for Excellence:

Tulane University

Grantee: Tulane University
Contact: LuAnn E. White, PhD
Telephone: 504-584-1776
E-mail: lawhite@tulane.edu
Address: Tulane School of Public Health & Tropical Medicine
Center for Applied Environmental Public Health
1430 Tulane Avenue, TW43
New Orleans, LA 70112
Web site: <http://caeph.tulane.edu/>
Funded Since: October 1, 2005
Funded Program: Academic Partner for Excellence in Environmental Public Health Tracking

Program Description:

Using their experience as a Center of Excellence for Environmental Public Health Tracking (EPHT), Tulane University will advance the science and develop methods to build the EPHT network by (1) Developing, applying, and validating methods to collect, integrate, analyze and interpret data that will support state and local agency EPHT programs; (2) Investigating potential links between environmental hazards, exposure, and health effects; and (3) Disseminating findings to public health practitioners, policy makers, the general public and academics.

University of California, Berkeley

Grantee: University of California, Berkeley

Contact: John Balmes, MD

Telephone: 510-643-4702 or 415-206-8953

E-mail: jbalmes@itsa.ucsf.edu

Address: University of California, Berkeley
School of Public Health
140 Warren Hall, #7360
Berkeley, CA 94720-5940

Web site: <http://ehtracking.berkeley.edu/>

Funded Since: October 1, 2005

Funded Program: Academic Partner for Excellence in Environmental Public Health Tracking

Program Description:

For the past three years, the Berkeley Center for Environmental Public Health Tracking has been engaged in multiple activities designed to assist CDC and partner health departments in building this network. They will continue our work with overall goal of supporting increased capacity for EPHT by developing methods and analyses that can contribute to better ability of both technical and non-technical audiences to understand relationships among environmental factors (hazards), exposures, and health outcomes and to act on this knowledge to protect health at the national, regional, and community levels.

University of Medicine and Dentistry of New Jersey

Grantee: University of Medicine and Dentistry of New Jersey

Contact: Daniel Wartenberg, PhD

Telephone: 732-445-0197

E-mail: dan.wartenberg@umdnj.edu

Address: University of Medicine and Dentistry of New Jersey
335 George Street, Suite 3700
New Brunswick, NJ 08903

Web site: <http://eohsi.rutgers.edu/decm/divisions/om.shtml>

Funded Since: October 1, 2005

Funded Program: Academic Partner for Excellence in Environmental Public Health Tracking

Program Description:

University of Medicine and Dentistry of New Jersey is embarking a regional, multi-institutional EPHT project to develop collaborations among EPHT partners for surveillance and epidemiologic research, to demonstrate new applications and developments in methods for data linkage, pattern detection and assessment of exposure-disease associations, and to train students and other researchers in the use and interpretation of these approaches for the study of the possible environmental causes of disease.

University of Pittsburgh

Grantee: University of Pittsburgh Graduate School of Public Health

Contact: Evelyn O. Talbott, DrPH, MPH

Telephone: 412-624-3074

E-mail: eot1@pitt.edu

Address: University of Pittsburgh
Graduate School of Public Health
130 DeSoto Street
Pittsburgh, PA 15261

Web site: <http://www.publichealth.pitt.edu/content.php?page=800&context=ContextCenters>

Funded Since: October 1, 2005

Funded Program: Academic Partner for Excellence in Environmental Public Health Tracking

Program Description:

The goal of the University of Pittsburgh is to develop and critically evaluate within the context of the current funding, a broad-based hazard-exposure-health effect data infrastructure that is comprehensive enough to facilitate complex environmental health data linkage yet straightforward enough to be utilized by public health professionals.