



•  
•  
• *NIEHS*

# WETP Technical Workshop

**Learning from Disasters: Weapons of  
Mass Destruction  
Preparedness  
Through Worker Training  
Opryland Hotel, Nashville, TN April 25,  
2002**

**W O R K E R E D U C A T I O N & T R A I N I N G P R O G R A M**



∴ *NIEHS*

# Disaster Response Initiative

Overall Theme: Improve the protection of worker health and safety at future federal disaster sites by developing appropriate training for disaster workers and to help develop plans for assuring worker health and safety protection at federally declared disaster sites.



**W O R K E R E D U C A T I O N & T R A I N I N G P R O G R A M**





• *NIEHS*

## Disaster Response Initiative cont.

- The WETP Disaster Response Initiative include the following components:
  - A Nation-wide Cadre of Well-trained Environmental Response Workers
  - A Coordinated Federal Disaster Response Training Program
  - Cadre of Weapons of Mass Destruction (WMD) remediation workers
  - National Registry of Workers
  - Cross Training of Workers



**W O R K E R E D U C A T I O N & T R A I N I N G P R O G R A M**



• *NIEHS*

## Disaster Response Initiative cont.

- Revamping Existing Hazardous Waste Courses & Modules
- Translation of H&S Training for Use with Non-English Speaking Populations
- Petrochemical Industry Awareness/Operations Training
- Transportation Industry Awareness & Training on Security and Transport of Hazmat & Nuclear Shipments
- Development of a Critical Incident Stress Management Initiative

**W O R K E R E D U C A T I O N & T R A I N I N G P R O G R A M**



*Workers  
Memorial Day  
Mourn for the  
Dead, Fight  
For the Living*



**NIEHS**

**Dr. Anne Sassaman, Director**



**NIEHS WTC/WMD  
Research & Training Initiatives**

**D**IVISION OF **E**XTRAMURAL **R**ESEARCH AND **T**RAINING



•  
• **NIEHS**

## NIEHS Responds to 9/11 Attacks

- Congress appropriated \$10.5 Million to NIEHS as part of the Omnibus federal terrorism response package
- NIEHS held a limited competition for administrative supplements to active NIEHS research and training grantees that can demonstrate previous or current training response activities at the World Trade Center that resulted from the terrorist attack of September 11.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
• **NIEHS**

## WTC Research Supplements

- NIEHS received \$4,500,000 to support World Trade Center (WTC) response activities specifically related to research focused on exposure assessment, epidemiology studies, and community outreach and education.

**D**IVISION OF **E**XTRAMURAL **R**ESEARCH AND **T**RAINING



•  
• **NIEHS**

## WTC Research Awards

- Six supplemental awards were issued in April 2002 to current NIEHS Superfund Basic Research Program (SBRP) and NIEHS Environmental Health Sciences Core Center grantees.
- Purpose of these administrative supplements is to support the development of an integrated research approach that will provide a framework to address current and future health and environment concerns arising from the WTC attacks of 9/11.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
•  
**NIEHS**

# Columbia University

- Development of a relational database for WTC-related air monitoring data compiled from NIEHS-supported research.
- An epidemiological study to evaluate acute/cumulative air pollutant exposures on pregnancy outcomes in 300 women (150 exposed, 150 unexposed) and their children.
- Analysis of air and dust samples collected between October and January and an analysis of soils and sediments in NY harbor and urban park lakes to reconstruct chemical and elemental depositional fluxes following 9/11.
- Community Outreach with the West Harlem Environmental Action to make the air monitoring database accessible to the public.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
• **NIEHS**

# Johns Hopkins University

- A registry of WTC site clean up workers. It is estimated that 3000 to 4000 workers will be identified and included in this registry.
- A respiratory symptoms and psychological health assessment of WTC workers. This study will include questionnaires and for a subset of workers (approximately 125 to 175) pulmonary function testing.
- A personal exposure assessment of WTC workers to airborne contaminants and its comparison to air monitoring data.
- Outreach to worker populations will include focus groups to identify concerns, newsletters and risk communication panels.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
•  
**NIEHS**

# New York University

- A WTC-NYC firefighters clinical study of 300 subjects to assess cardio-pulmonary effects. This study is in collaboration with CDC/NIOSH/Bureau of Health Services of FDNY and NYU.
- WTC resident respiratory impact study to examine prevalence for respiratory symptoms, especially new onset of asthma-like symptoms.
- Analysis of collected indoor and outdoor settled dust samples and air samples for elemental and chemical composition will be performed on a subset of the 1250 samples collected to date.
- Toxicity analysis of dust samples in whole animals and in vitro models.
- Community outreach to include public forums, newsletters, video development and web pages.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
•  
**NIEHS**

# Mount Sinai NYC

- A clinical and epidemiology study of 200 WTC ironworkers and a comparison group of 125 ironworkers who never worked at or near ground zero to investigate respiratory abnormalities and Post-Traumatic Stress and compare findings.
- An epidemiological study of 300 pregnant women and children to assess relationships to fetal/child development. This study is complementary to the Columbia study with a different population of women.
- Exposure assessment employing NASA's Airborne Visible Infrared Imaging Spectrometer (AVRIS) for remote sensing imagery for WTC plumes.
- Community outreach that is being coordinated with the existing Pediatric Environmental Health Specialty Unit at Mount Sinai.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
• **NIEHS**

# University of North Carolina

- An exposure assessment to measure PAH levels in filter samples gathered by EPA at ground zero during the weeks following the WTC collapse.
- A pilot study to initiate validation of a newly developed personal passive air particulate monitoring device.
- The development of a spatio-temporal mapping model for levels of particulate matter at the WTC and surrounding sites.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
• **NIEHS**

## University of Medicine & Dentistry of NJ

- An exposure assessment of indoor air quality. Nineteen indoor samples will be analyzed for organic constituents and fibers and subset of NYU's ambient air samples will be analyzed for organics.
- The development and testing of computational models and databases for assessing the impact of contaminant release from the WTC fire and collapse on air quality of affected local microenvironments.
- A reproductive outcome study that will utilize existing databases of all births recorded in New Jersey and the five boroughs of NYC and six closest counties to NYC to assess gender ratio, premature birth and birth defects following September 11.
- A longitudinal cohort resident study of approximately 490 residents to assess post-traumatic stress, depression and panic following WTC and integrate this information with exposure data.
- Community outreach focused on increasing awareness of the potential environmental health effects resulting from the WTC tragedy.

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING



•  
•  
•  
**NIEHS**

## WETP WTC/WMD Supplements

- International Association of Fire Fighters
- University of Medicine & Dentistry of NJ
- International Union of Operating Engineers
- Laborers-AGC Education & Training Fund
- Center to Protect Workers' Rights
- National Puerto Rican Forum

**D**IVISION OF **E**XTRAMURAL **R**ESearch AND **T**RAINING

# Response to Weapons of Mass Destruction: Occupational, Environmental, and Public Health Issues



Paul A. Schulte, Ph.D.



GAO

Testimony

Before the Subcommittee on International Security, Proliferation, and Federal Services, Committee on Governmental Activities, U.S. Senate

For Release: October 7, 2002

WEAPONS OF MASS DESTRUCTION

Assessing Policy Tools for Combating Proliferation

Statement of J. Michael Smith, Director, International Security and Arms Control, U.S. Senate



Global Global Global  
Global Global Global  
Ambient Ambient Ambient  
Ambient Community Community  
Community Home Home Home

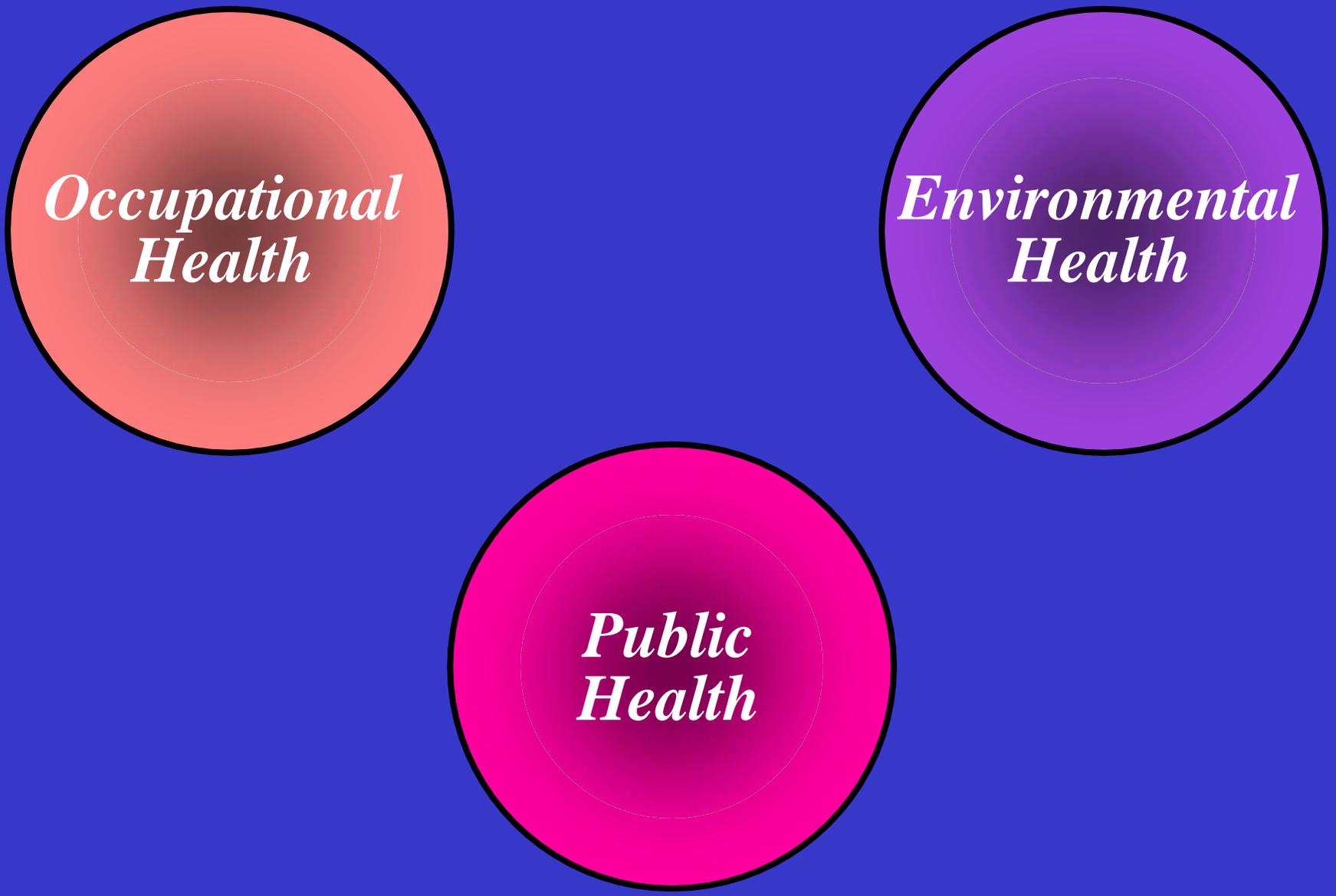


A Venn diagram illustrating the relationship between Occupational Health, Environmental Health, and Public Health. The diagram consists of three overlapping circles. The largest circle, at the top, is pink and labeled 'Public Health'. Inside this circle are two smaller circles: a red one on the left labeled 'Occupational Health' and a purple one on the right labeled 'Environmental Health'. The red and purple circles overlap each other, and both are contained within the pink circle. The background is a solid blue color.

*Public  
Health*

*Occupational  
Health*

*Environmental  
Health*



*Occupational  
Health*

*Environmental  
Health*

*Public  
Health*



**Terrorism**

The word "Terrorism" is written in a large, bold, white, sans-serif font with a blue drop shadow, positioned centrally between the three health circles.

# Terrorism Lessons for Public Health: The Need for a Dual System



**Public Health:  
More than a  
One-Shot Deal**

A one-time infusion of money or a single focus on stopping drugs and vaccines is not enough to protect America from biological and chemical threats. All areas of the health system and nation:

Congress and the Administration must also make a long-term commitment to strengthen the following areas of our public health system:

- Promote and institutionalize public health partnerships
- Upgrade the already existing system and communications network
- Enhance our epidemiological capabilities
- Improve tracking of diseases and monitoring of environmental exposures

Long neglected, America's public health system is vital to our defense against biological and chemical threats, as well as ongoing public health concerns such as asthma and obesity and the unknown dangers of bioterrorism. We cannot afford to do less.

**HEALTH-TRACK**  
YOUR HEALTH. YOUR COMMUNITY.  
YOUR RIGHT TO KNOW.  
A member of The Clorox Company. For more information, visit [www.healthtrack.com](http://www.healthtrack.com)

**The Trust for America's Health**  
[www.healthreform.org](http://www.healthreform.org)

- Effective Leadership & Communication
- Modern Tools – Disease Tracking & Labs
- Trained Troops for Rapid Response

(Hearne, 2002)

# World Trade Center NIOSH Response







# Emergency Worker Safety Initiative

- Evaluation and intervention
- Surveillance
- Communication and training
- Technology
- Prevention



# Other WTC Follow-Up Activities

- Guidance on respiratory health problems
- Health Hazard Evaluations
- Baseline medical screening



# Anthrax



# Anthrax: NIOSH Response

- Developing sampling protocols and methods
- Allergy sock
- Reviewing and interpreting data
- Protecting workers
- Collaborating with other agencies



# Follow-Up Activities

- Capitol buildings
- Review Working Group
- Building vulnerability assessments
- HHEs
- Research



# National Personal Protective Technology Laboratory



# NPPTL Activities

- Respirator standards
- Research
- Service



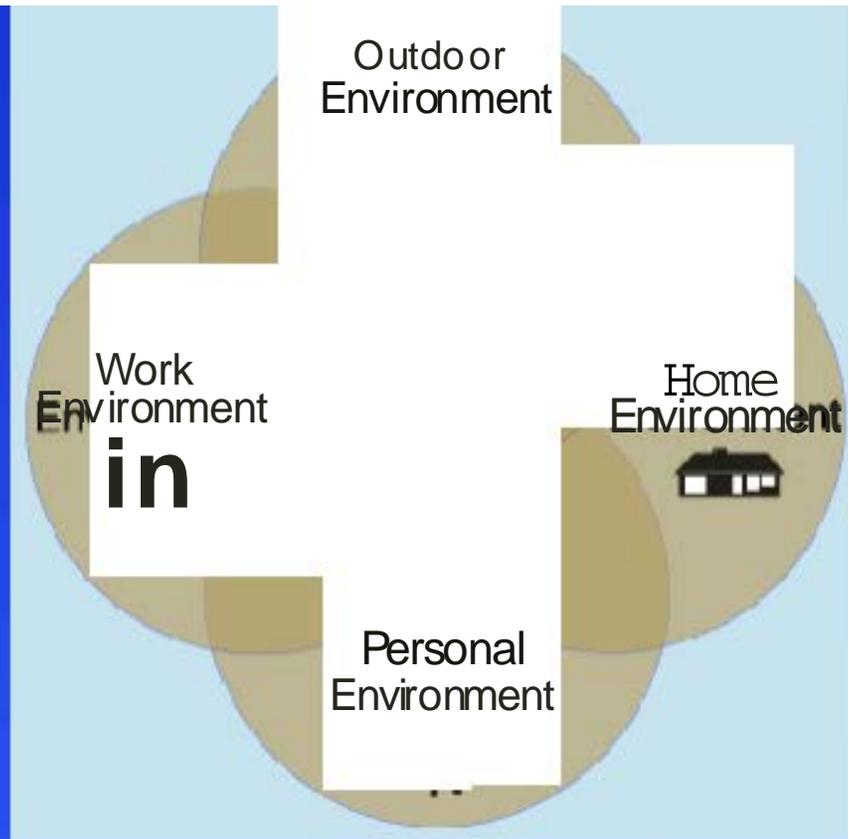
# *Terrorism and Other Disasters*



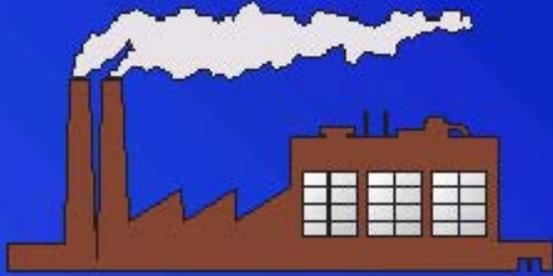
VVe\_-r-kr>Itt'.  
:OaC n nrt Mn:ilfh



# *Convergence of Occupational and Environmental Health*



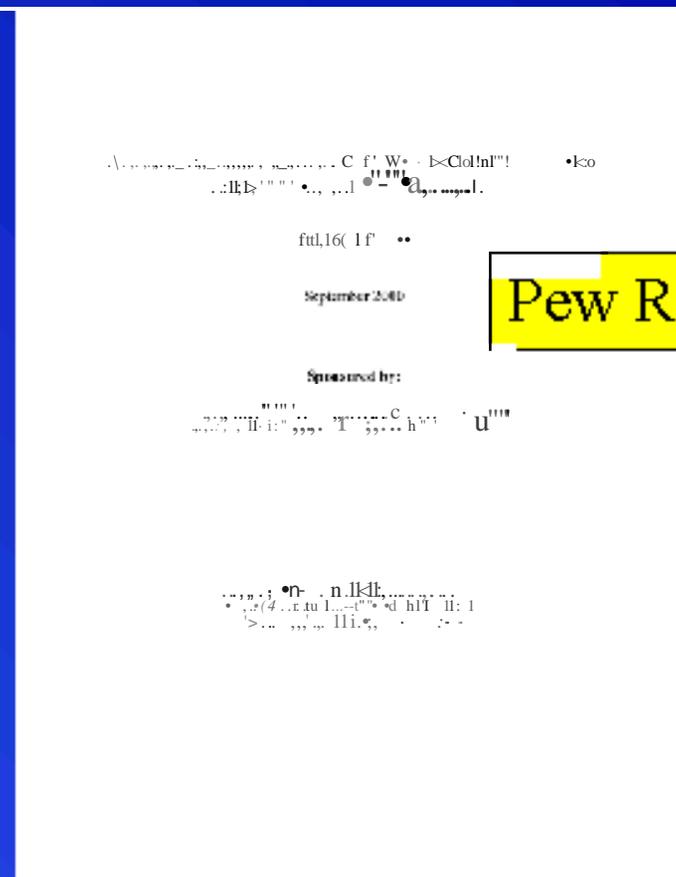
# TAKE-HOME or "PARA-OCCUPATIONAL" EXPOSURES



Lead  
Asbestos  
Others

# *Environmental Health Tracking*

Highlights the environmental health gap and the need for an environmental health tracking network



Environmental Health Tracking  
A National Strategy for Closing the Gap  
September 2010



# *Pew Environmental Health Commission Environmental Health Review*

**Environmental health system was inadequate and fragmented**

**Responsibilities scattered among agencies**

**Unable to link environmental and health databases**

*(McGeekin, 2002)*

# **Pew Environmental Health Commission Call for Action**

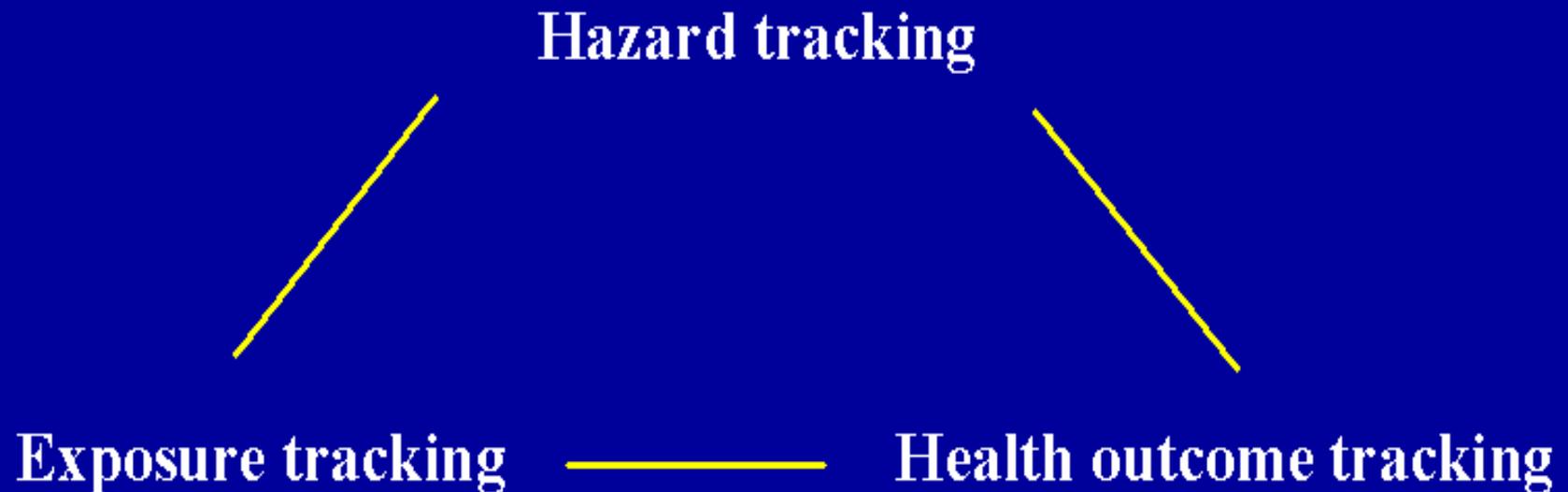
- ! Strengthen the nation's environmental health defense system**
- ! Identify and control environmental precursors of disease**
- ! Improve public health's readiness to respond**

*(McGeehin, 2002)*



# Environmental Health Tracking

## Essential Components



*(McGeehin, 2002)*



# Environmental Public Health Tracking

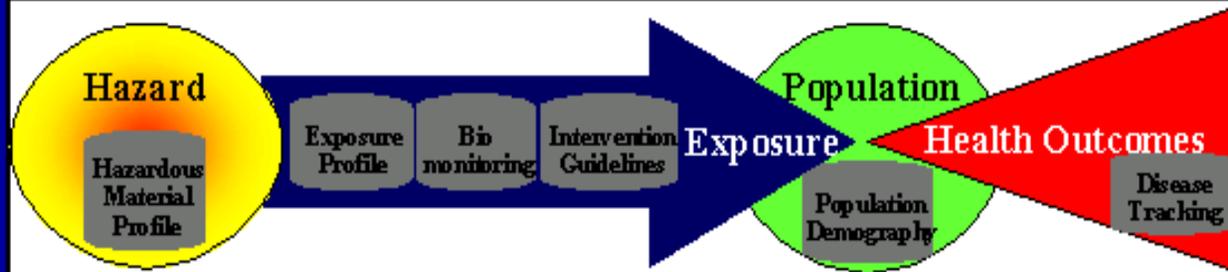
Public Health  
Actions

- Track health, disease, and risks to target interventions
- Detect new health events and unusual occurrences associated with environmental exposures
  - Monitor effects of interventions and policies
  - Raise awareness of environmental health issues
  - Guide research initiatives

Information  
Analysis &  
Dissemination

GIS    Data Presentation    Data Mining & Knowledge Discovery    Statistical Models    Privacy

Integrated  
Environmental  
Health Tracking  
Data Warehouse



Information  
Extraction &  
Transformation

Metadata    Data Standardization    Data Linking/Integration    Data Quality Assurance

State & National  
Environmental  
Health Tracking  
Systems

<u>Hazards Tracking</u>	<u>Exposure Tracking</u>	<u>Population Demographics</u>	<u>Health Outcomes Tracking</u>
<ul style="list-style-type: none"> <li>Emergency Response Notification System</li> <li>Hazardous Substances Emergency Event Surveillance System</li> <li>Toxic Release Inventory</li> </ul>	<ul style="list-style-type: none"> <li>Blood Lead Poisoning (child &amp; adult)</li> <li>National Report on Human Exposure to Environmental Chemicals</li> <li>Toxic Exposure Surveillance System</li> </ul>	<ul style="list-style-type: none"> <li>Census Data</li> </ul>	<ul style="list-style-type: none"> <li>Administrative Data Systems</li> <li>Birth Defects Registries</li> <li>BRFSS</li> <li>Cancer Registries</li> <li>Health Surveys</li> <li>Vital Statistics</li> </ul>

( ) Selected Data Sources

(McGeehin, 2002)

