

Department of Health Policy and Management

Overview of Environmental Public
Health Tracking

July 2004

Thomas A. Burke, PhD, MPH
Professor and Associate Chair



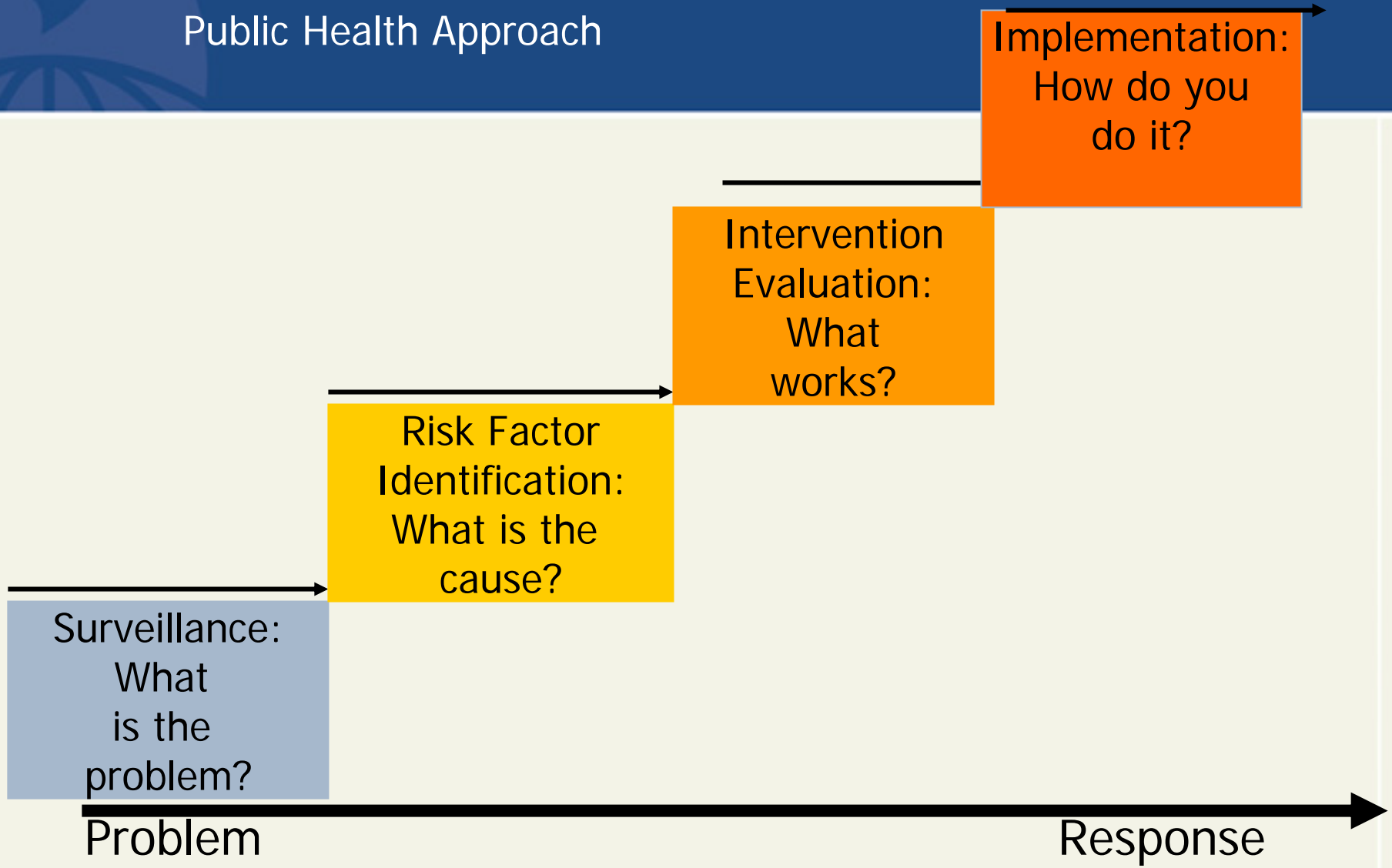
The First Core Function

Assessment

Monitor health status to identify community health problems

Diagnose and investigate health problems and hazards in the community

Public Health Approach





Public Health Surveillance

“Public health surveillance is the ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in planning, implementation, and evaluation of public health practice”

(Thacker and Berkelman, 1988)



Tracking?

Tracking = Surveillance



Tracking (Surveillance)

Brings us back to the first core function of public health - assessment

Provides a foundation for redefining the role of environmental public health

Has applications throughout all of public health practice and research

Is a foundation for community prevention efforts and providing the essential services of public health

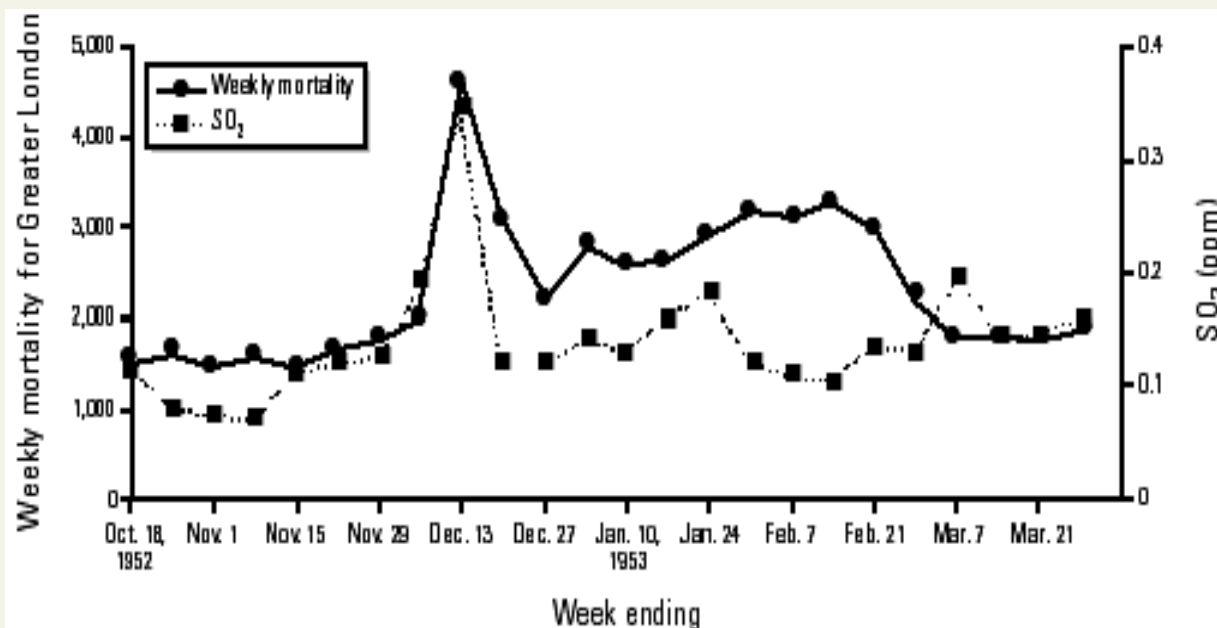


Uses of Public Health Surveillance

- Estimate magnitude of the problem**
- Determine geographic distribution of illness**
- Portray the natural history of a disease**
- Detect epidemics/define a problem**
- Generate hypotheses, stimulate research**
- Evaluate control measures**
- Monitor changes in etiologic agents and risks**
- Detect changes in health practices**
- Facilitate planning and establish priorities**

The Evolution of Methods Used for Research on Air Pollution- London

The London Fog event of 1952 provides a clear example of an early time-series analysis. The figure below shows the estimates of weekly mortality and average sulfur dioxide concentrations for London during the winter of 1952-'53. Deaths in December were approximately 2.5 times increased over comparable periods in 1947 to 1951.



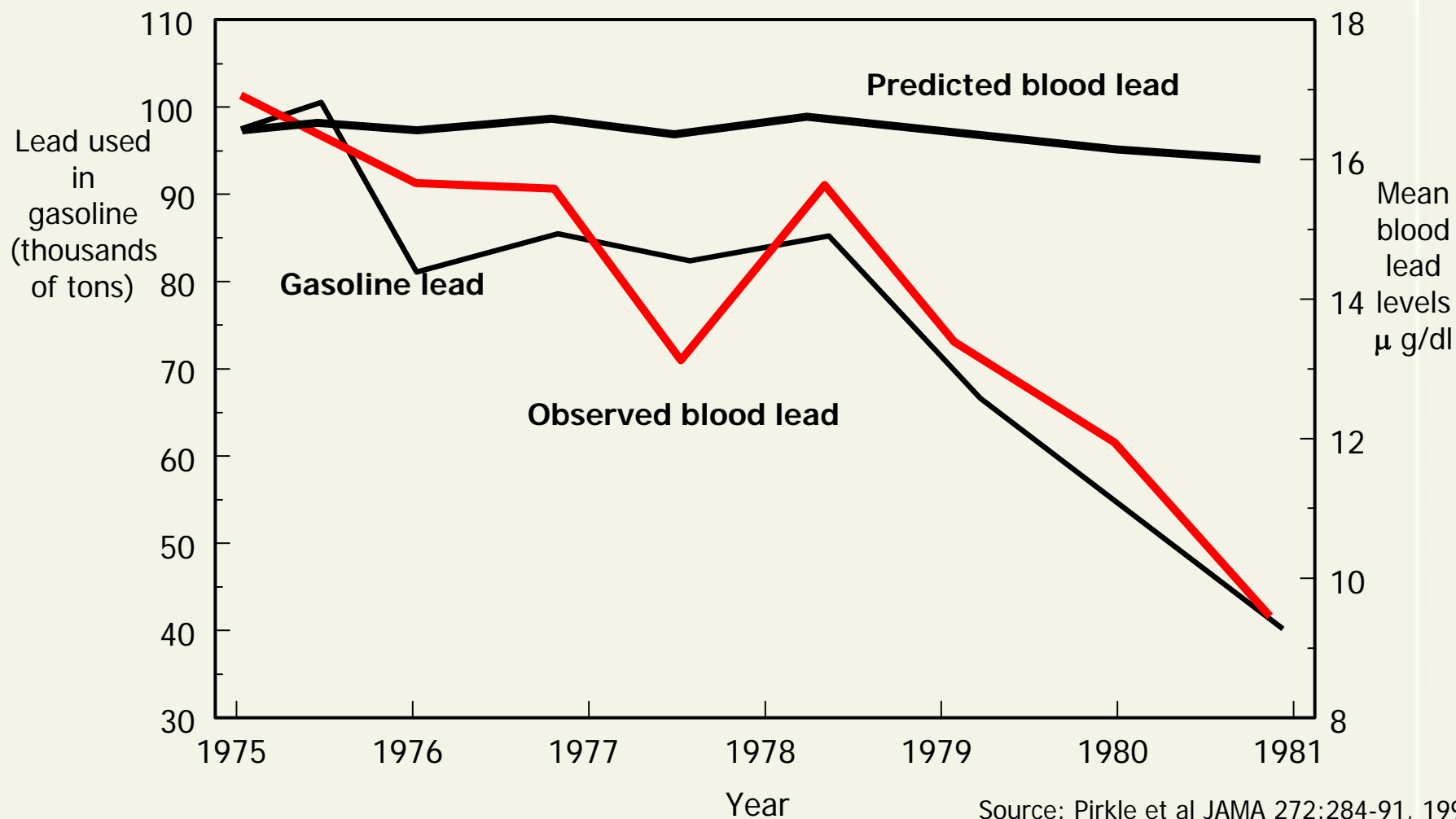
Source: Environmental Health Perspectives 2001; 109 (suppl 3) : 389-394. Per the Report on Public Health and Medical Subjects No. 95. London: London Ministry of Health, 1954.

dz1

Add comments

dzerbe, 1/20/2005

Blood Lead Measurements 1975-1981



Source: Pirkle et al JAMA 272:284-91, 1994

dz2

Add comments on the removal of lead from gasoline

dzerbe, 1/20/2005

Lead Poisoning: An Example of Environmental Surveillance

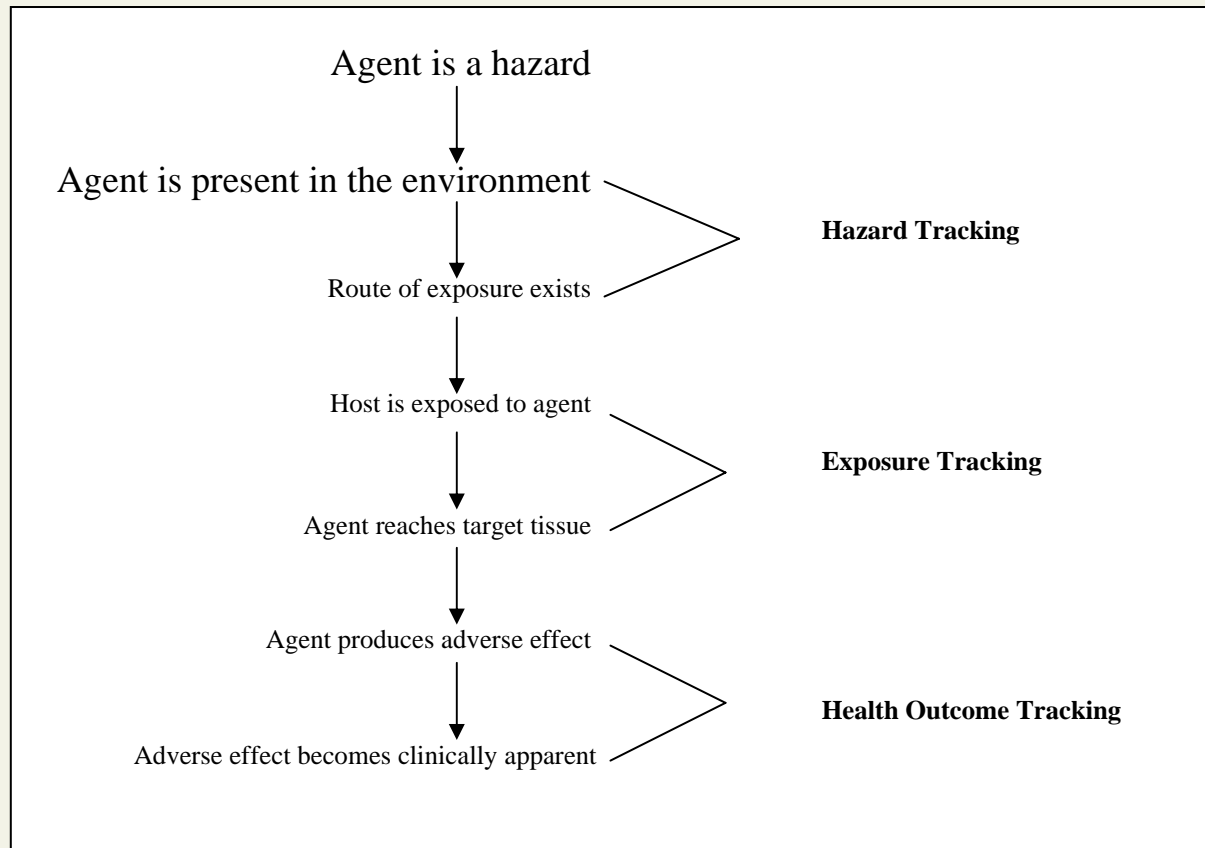
Lead poisoning prevention activities continue to serve as a model for surveying and responding to environmental disease

Legislative activity at the Federal and State level has been key to protecting the public's health from lead poisoning; and

Federal funding has been and continues to be instrumental in supporting state and local intervention and prevention activities.

71 percent of childhood lead monitoring systems and 50 percent of adult lead monitoring systems are entirely or largely supported by federal funding (MMWR, July 3 1998)

Environmental Health Tracking



America's Environmental Health Gap: Why the Country Needs a Nationwide Health Tracking Network

Technical Report

September 12, 2000

Sponsored by:

The Pew Environmental Health Commission
At the Johns Hopkins School of Hygiene and Public Health

Report by:

Environmental Health Tracking Project Team
Johns Hopkins School of Hygiene and Public Health
Department of Health Policy and Management

Examples of Questions Facing Communities and Public Health Officials in Environmental Health

- Are environmental exposures related to clusters of childhood cancer and autism?
 - What are the impacts of pesticide exposure on children's health?
 - What proportion of birth defects is related to environmental exposures?
 - Are changes in the environment related to the dramatic increase in asthma?
 - Are adult onset diseases such as Parkinson's and Alzheimer's related to cumulative environmental exposures?
 - Are there increases in Systemic Lupus Erythmetosis (SLE) and Multiple Sclerosis (MS) in communities with hazardous waste sites?
 - Are learning disabilities related to environmental exposures?
 - Is Attention Deficit Disorder (ADD) related to in utero exposures to contaminants in the environment?
 - Are there endocrine disrupting pollutants in the environment related to the increasing incidence of breast and prostate cancers?
 - How does particulate air pollution increase the risk of death in the elderly?
-

Pew Environmental Health Tracking Project

State / Local Environmental Infrastructure

Interviews of State and Local Leadership

- Capacity
- Needs
- Priorities
- Implementation

National Surveillance Activities

Outreach with Federal Leadership and Review of Federal System

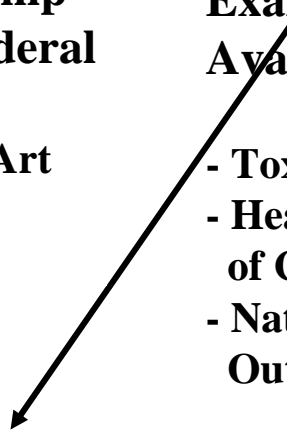
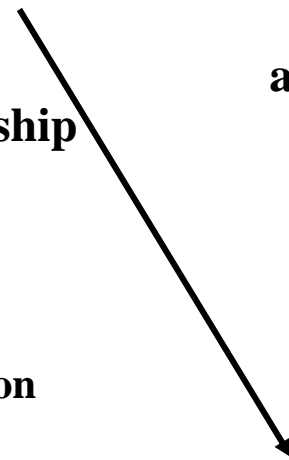
- State of the Art
- Capacity
- Action

Selecting Health Endpoints for Tracking

Examination of Available Information

- Toxics Release Inventory
- Health Endpoints of Concern
- National Health Outcome Databases

National Tracking Recommendations



Conclusions from the states and localities

- Guidance and support for state and local capacity building;
- Improved information networks within and across states and localities;
- Increased training in environmental epidemiology;
- Designation of an environmental epidemiologist in every state;
- Increased guidance and technical support on identifying priority health conditions; and,
- Improved capacity to assess population exposures.

Recommendations from the Environmental Health Summit

- Coordination of multiple agency efforts at the federal, state, and local level;
- Development of the national environmental health information infrastructure;
- Establishment of minimum performance standards to guide agency-specific tracking efforts;
- Identification of populations at high risk of environmental exposures and adverse health effects;
- Regular reporting of findings and improved public access to information; and
- Strong linkages to prevention.

Recommendations from the Environmental Health Summit (2)

- **A tiered approach to implementation including:**
 - national tracking for high priority outcomes and exposures;
 - a sentinel network to identify acute and emerging hazards;
 - a coordinated network of pilot regional, state, and local tracking programs; and
 - an aggressive research program to guide and evaluate tracking.

Commission Conclusions

- There is currently no cohesive national strategy to identify environmental hazards, measure population exposures, and track health conditions that may be related to the environment.
- Basic information on the incidence and trends in health conditions that may be related or influence by the environment is largely unavailable.
- Advances in technology provide unprecedented opportunities to understand disease, measure exposures, and provide access to information.
- The Commission calls upon our national leaders to seize these opportunities to revitalize the public health infrastructure and close America's environmental health gap.

dz3

update

dzerbe, 1/20/2005

Commission Recommendations

The Commission recommends the creation of a Nationwide Environmental Health Tracking Network that informs communities, public health practitioners, researchers, and policymakers on environmental hazards, population exposures, and related diseases and their causes –

- Nationwide baseline tracking of priority diseases and priority exposures.
- Monitoring of immediate health crises such as heavy metal and pesticide poisonings to serve as early warning systems.
- Establishing 20 state pilot programs to allow for the addressing of regional concerns.
- Developing a federal, state and local rapid response capability to investigate clusters, outbreaks and emerging threats.
- Tracking links to communities and research.

dz4

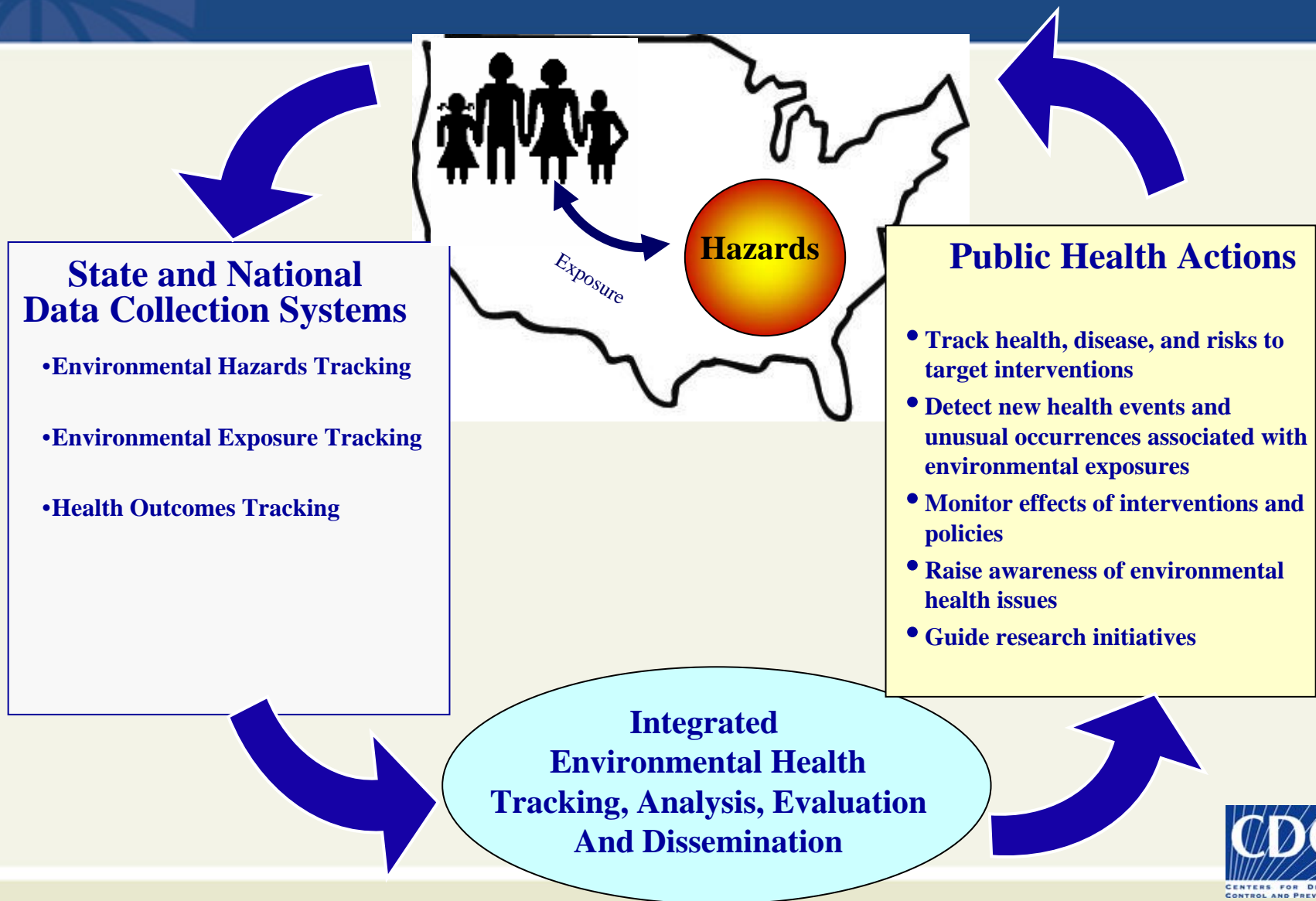
update

dzerbe, 1/20/2005

Commission's Bottom Line

- Investing in prevention through these five components is estimated to cost the federal government \$275 million annually –
 - *less than 0.1% of the current annual economic cost of treating and living with chronic disease.*
- An ounce of prevention is still worth a pound of cure

Tracking Network



CDC's Environmental Public Health Tracking Program Grantees FY 2004

Summary:

Planning & Capacity Building Activities

Connecticut
Florida
Louisiana
Maine
Maryland

Montana
Nevada
New Hampshire
New Jersey
New Mexico

Oklahoma
Oregon
Pennsylvania
Utah

CITIES:
Houston, TX
New York City, NY
Washington, D.C.

Infrastructure Enhancement & Data Linkage Demonstration Projects

California
Illinois

Massachusetts
Missouri

New York
Washington

Wisconsin

Centers of Excellence

Johns Hopkins University

Tulane University

University of California, Berkeley

Data Linkage Demonstration Projects

California
Florida
Louisiana

Massachusetts
New Jersey
New Mexico

New York
Oklahoma
Wisconsin

CITIES:
New York City, NY

dz5

update

dzerbe, 1/20/2005



Indicators

Tools for quantifying, through direct or indirect measures, a significant aspect of an environmental health issue. They can be used to assess and communicate the status of and trends in overall environmental health.

National Association of County and City Health Officials, “Protocol for Assessing Community Excellence in Environmental Health,” May 2000.

Criteria for Selecting Environmental Health Indicators

Simple

Measures one item

Is clear

Measurable

Comparable

Quantifiable

Understandable

Makes sense to general public
and policy makers

Defensible

**Supports a relationship
between environmental
factors and health status**

dz6

examples of indicators
dzerbe, 1/20/2005



Scientific challenges

Selecting Indicators

Interpretation of Findings

Refining Tracking Methods

Application to Epidemiological Methods

Cumulative risks

Translation to Prevention and Policy

Challenges Ahead

Efforts are just beginning and there is a long way to go

Fragmentation... still

Leadership

Involving Communities

Sustainability

Communication of Findings

Getting the Data Out

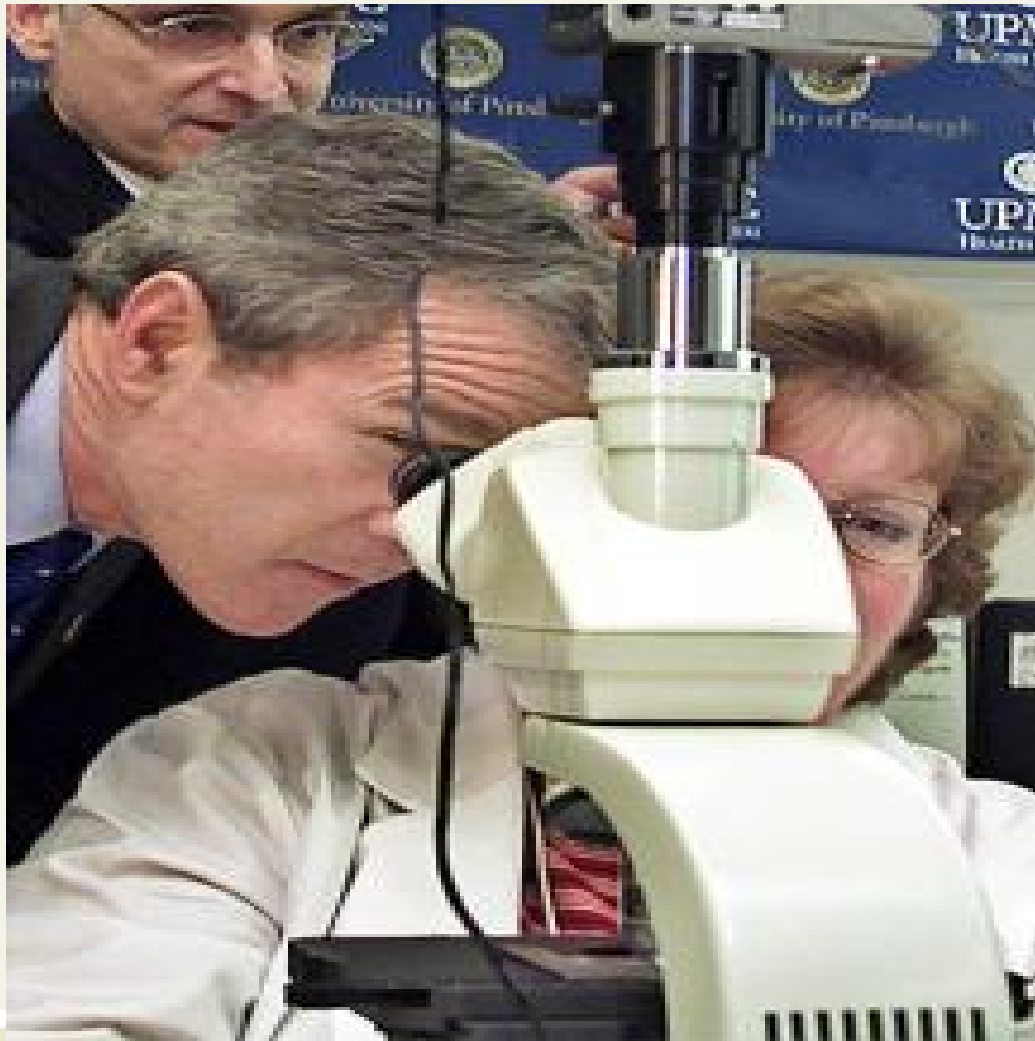
Applications to Prevention, Regulation?

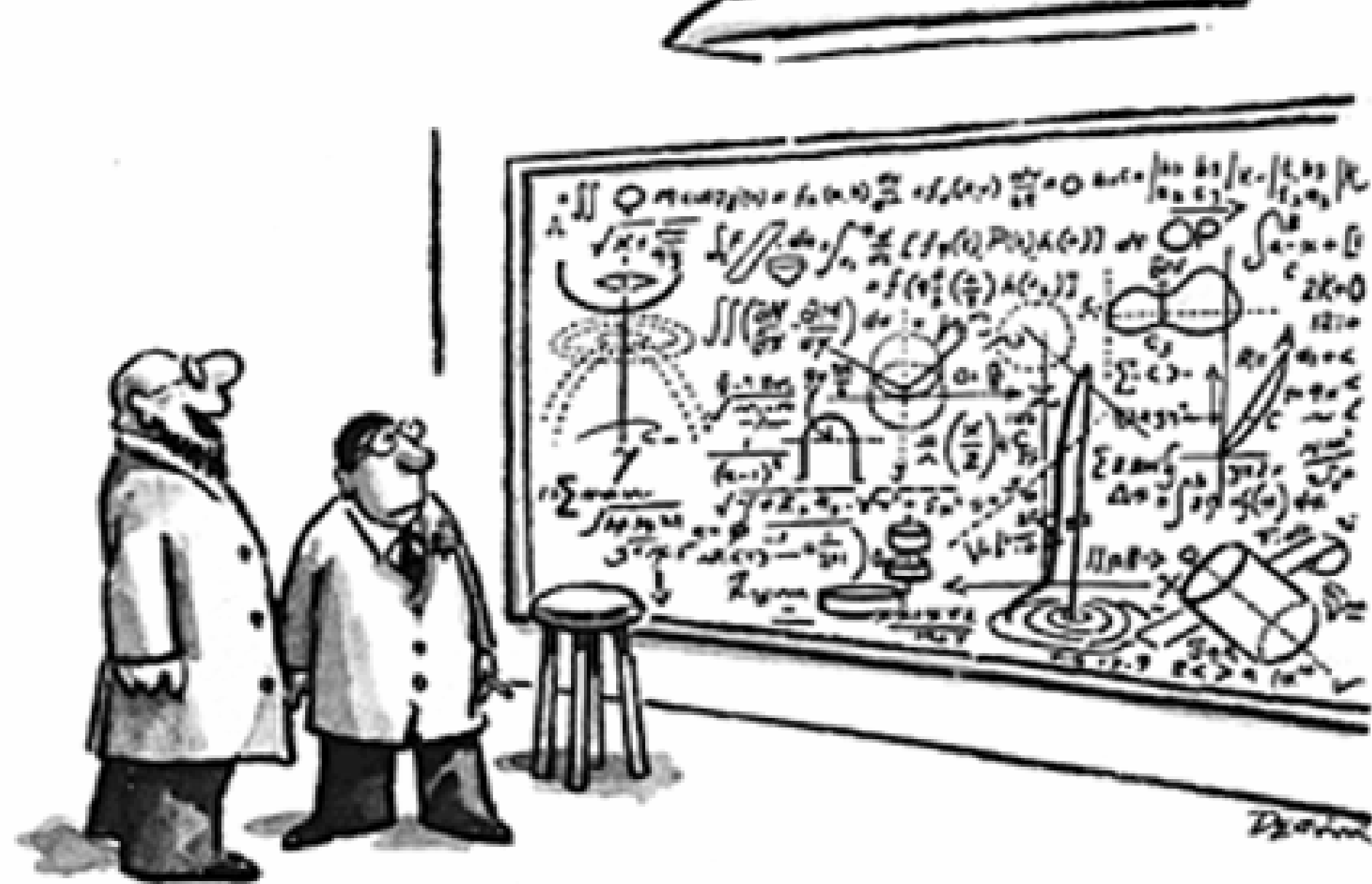
dz7

update

dzerbe, 1/20/2005

The Challenge: Informing Policy Makers





"Hey, no problem!"

So, how are we doing

There has been amazing progress in a very short time

Tracking is leading to fundamental changes in the national approach to environmental health

Many Pew recommendations are now reality

If you don't believe me Google EPHT!

There is still a long way to go

Our challenge is to build the support through results, partnerships, resources, and support.

Bridging the Chasm

