

US EPA ARCHIVE DOCUMENT



CDC's National Environmental Public Health Tracking Network

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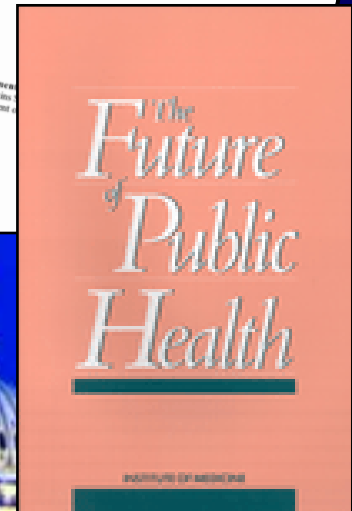


Session: Public Health Applications of Human Biomonitoring
September 24-25, 2007
Research Triangle Park, North Carolina

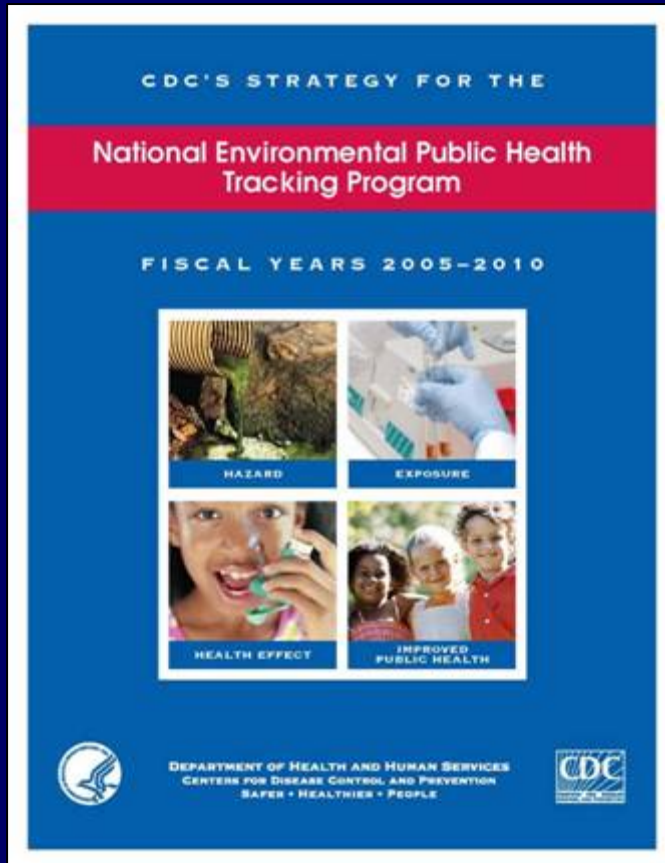


Call to Action

- IOM, 1988
- Pew Environmental Health Commission, 2000
- Congressional appropriations, 2002
- CDC's National Environmental Public Health Tracking Program, 2002

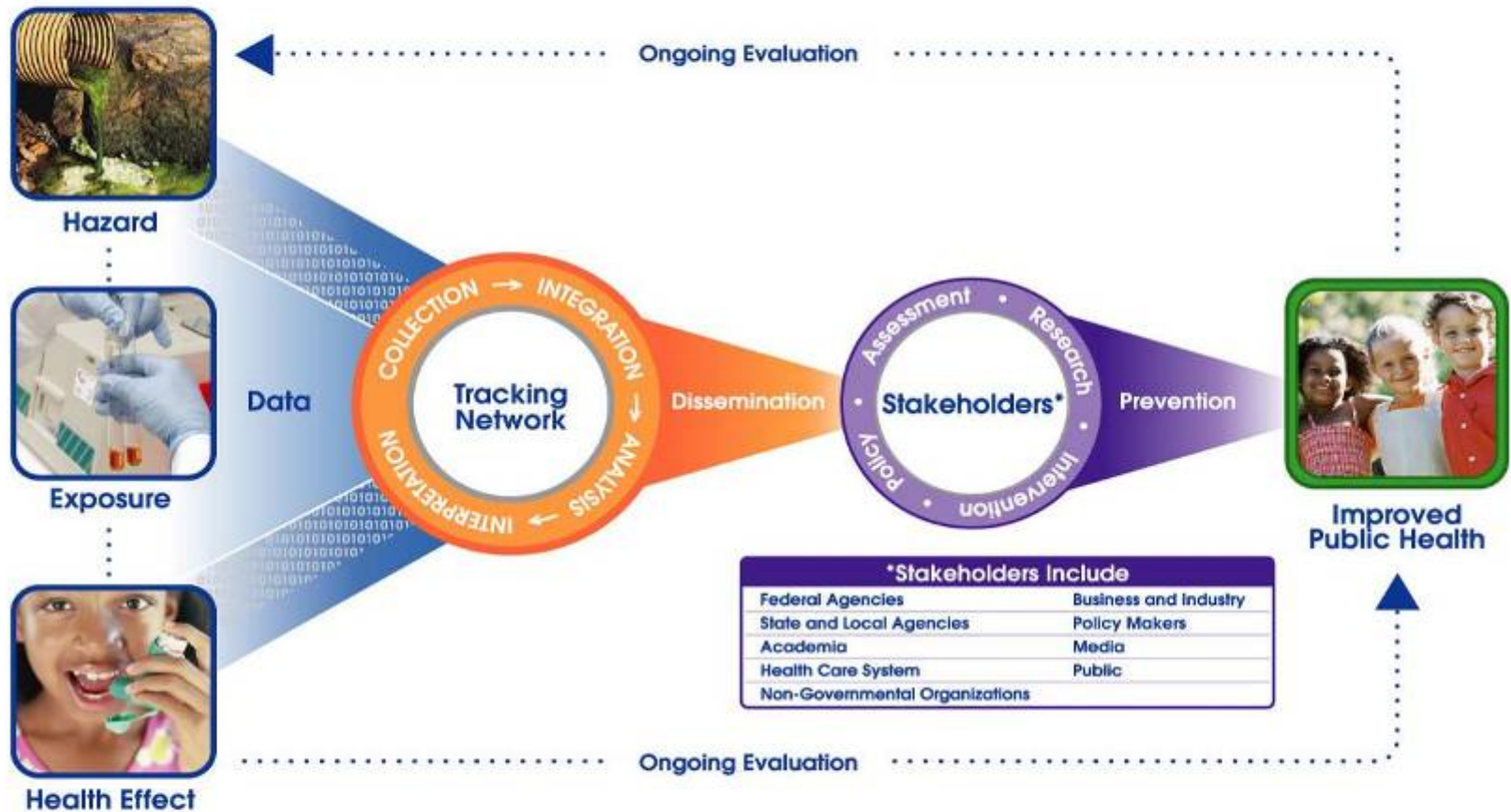


CDC's Tracking Program Mission



To provide information from a nationwide network of integrated health and environmental data that drives actions to improve the health of communities

ENVIRONMENTAL PUBLIC HEALTH TRACKING



***Stakeholders Include**

Federal Agencies	Business and Industry
State and Local Agencies	Policy Makers
Academia	Media
Health Care System	Public
Non-Governmental Organizations	

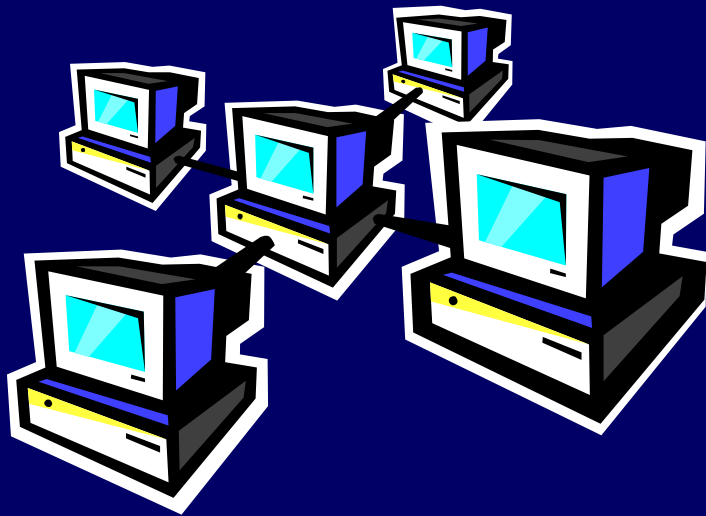


DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
SAFER • HEALTHIER • PEOPLE



Tracking Network

At-a-Glance



- **Web-based information system that exists at the local, state, and national level**
- **Provides access to nationally consistent data and indicators of environmental health status**
- **Serves the public, environmental public health agencies, health care providers and researchers**
- **Protects privacy of individuals**

STRATEGIC PARTNERSHIPS FOR DEVELOPING & IMPLEMENTING ENVIRONMENTAL PUBLIC HEALTH TRACKING



CDC's National Biomonitoring Program

CDC's National Biomonitoring Program

CDC's Environmental Health Laboratory conducts the
National Biomonitoring Program

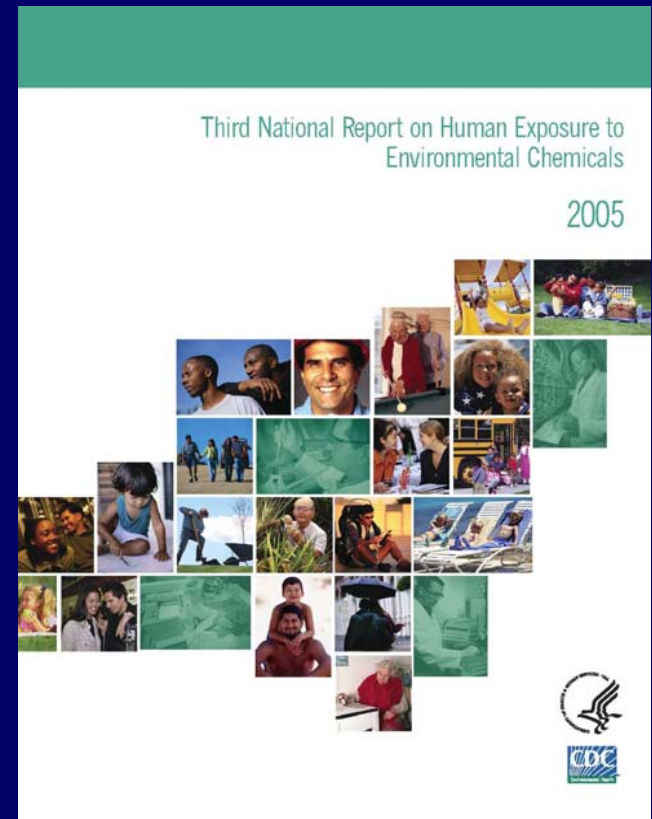
Major Activities

- Produce CDC's *National Report on Human Exposure to Environmental Chemicals*
- Respond to public health and terrorism-related emergencies
- **Provide support for States**
- Collaborate on studies of exposure and health effects
- Develop new and better biomonitoring measurements

CDC's National Biomonitoring Program

Third National Report on Human Exposure to Environmental Chemicals

- Selected participants in NHANES
- Produced for 2-year survey periods
 - *First Report (2001)* – NHANES 99-00, 27 chemicals
 - *Second Report (2003)* - NHANES 99-00, 116 chemicals
 - *Third Report (2005)* - NHANES 01-02, 148 chemicals
 - *Fourth Report (2008*)* – NHANES 03-04, 275 chemicals
- Blood and urine levels of chemicals and metabolites
 - Metals, tobacco smoke, phthalates phytoestrogens, polycyclic aromatic hydrocarbons (PAHs), pesticides, herbicides, insecticides, dioxins, furans, and polychlorinated biphenyls (PCBs)
 - **New for *Fourth Report***: perfluorinated compounds (PFCs), polybrominated diphenyl ethers (PBDEs), environmental phenols (including bisphenol A), and speciated forms of arsenic



www.cdc.gov/exposurereport

* Tentative date

CDC's National Biomonitoring Program

Transferring Biomonitoring to States

State Grant Activities

- **2001: Phase I – Planning Grants**

CDC's Environmental Health Laboratory launched a planning grant program to support biomonitoring capacity building for public health laboratories.

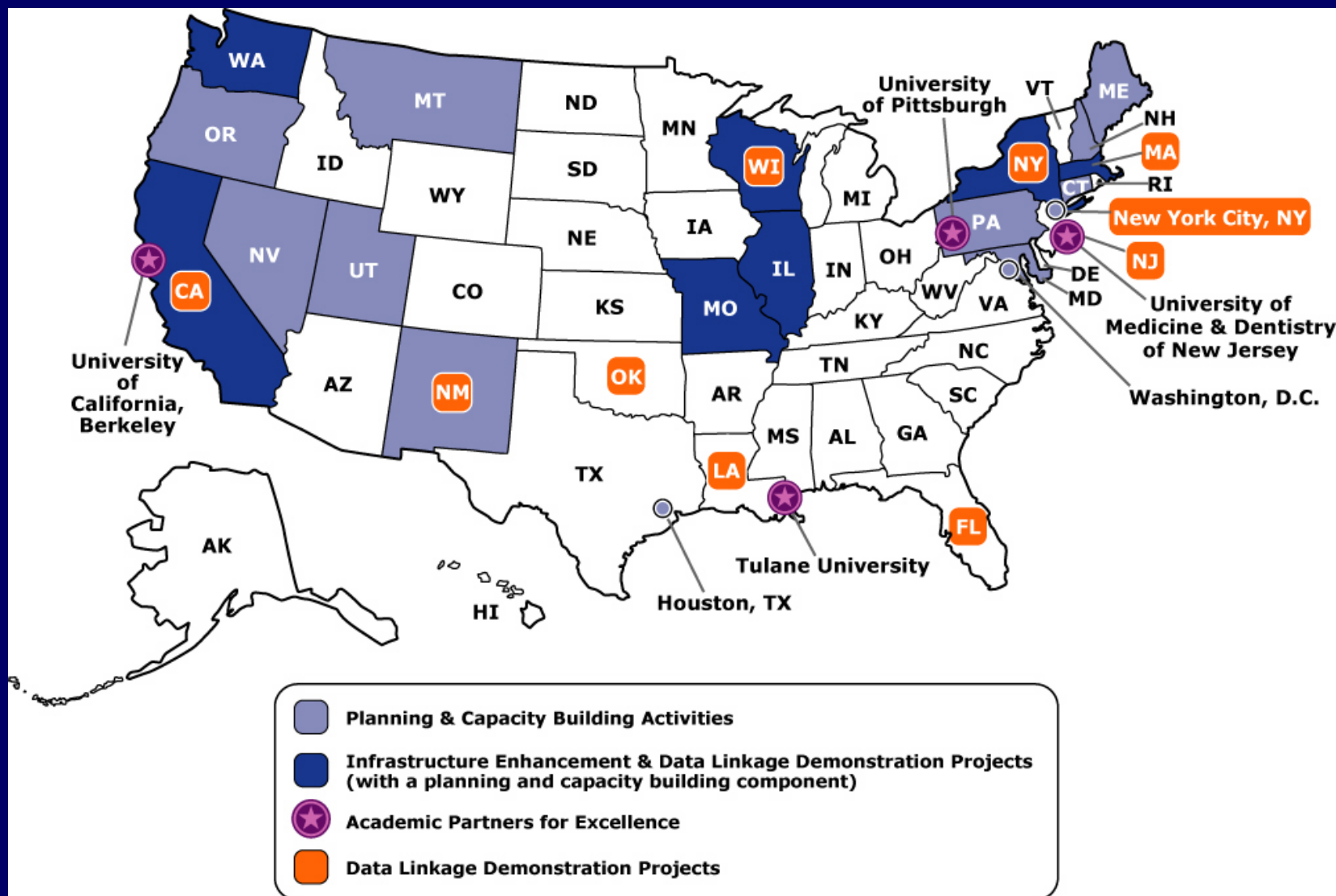
- 25 state and regional grants (supporting 33 States)

- **2003: Phase II – Implementation Grants**

CDC funded three applicants to implement biomonitoring programs.

- 2 States – New Hampshire and New York
- 1 Consortium – Rocky Mountain Biomonitoring Consortium (NM, AZ, CO, MT, UT, and WY)

Developing the Tracking Program: Grantees – 2002 to 2006

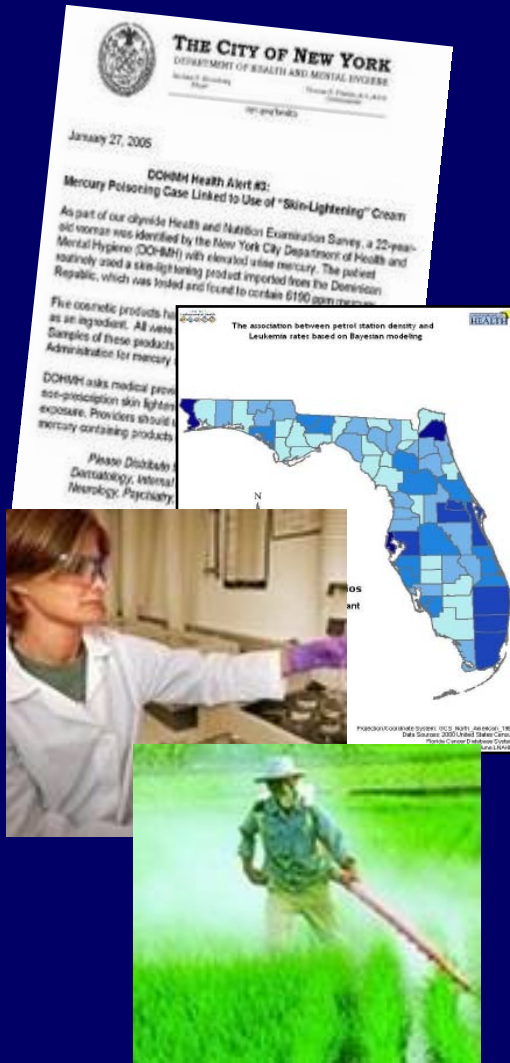


Pilot Projects Lead the Way.....

Projects

Measured	# Grantees	# Projects
Air	13	19
Asthma	11	14
Water	11	23
Cancer	8	9
Lead	6	7
Birth defects	5	7
Pesticides	4	4
Reproductive health	4	4
CO	3	3
Fish/shellfish	2	2

Results from Funded Projects



- *Increased capacity*
- *Increased availability and enhancement of existing data*
- *Built new data systems*
- *Created analytic tools*
- *Linked data*
- *Took action*

Complexity...

“Initially we thought we could quickly link environmental and health data to investigate community concerns; however, we found tracking is like peeling an onion—each layer reveals more issues that require extensive work to find the answers we seek.”

LuAnn E. White, Ph.D.
Professor and Director
Tulane School of Public Health and Tropical Medicine
Center for Applied Environmental Public Health

Challenges Encountered in Pilot Projects

Data

- Access
- Quality
- Not in electronic format
- Geocoding issues
- Little standardization
- No metadata
- Spatial/temporal misalignment
- Little exposure data

Methods

- No common toolbox of methods
- Issues with exposure estimation and misclassification
- Level of resolution
- Small numbers
- Latency/induction
- Confidentiality

Interpretation & Communication

- Sensitivity /Specificity
- Confidentiality
- Audience
- “Plain speaking”
- Actionable?

Looking Back – Moving Forward

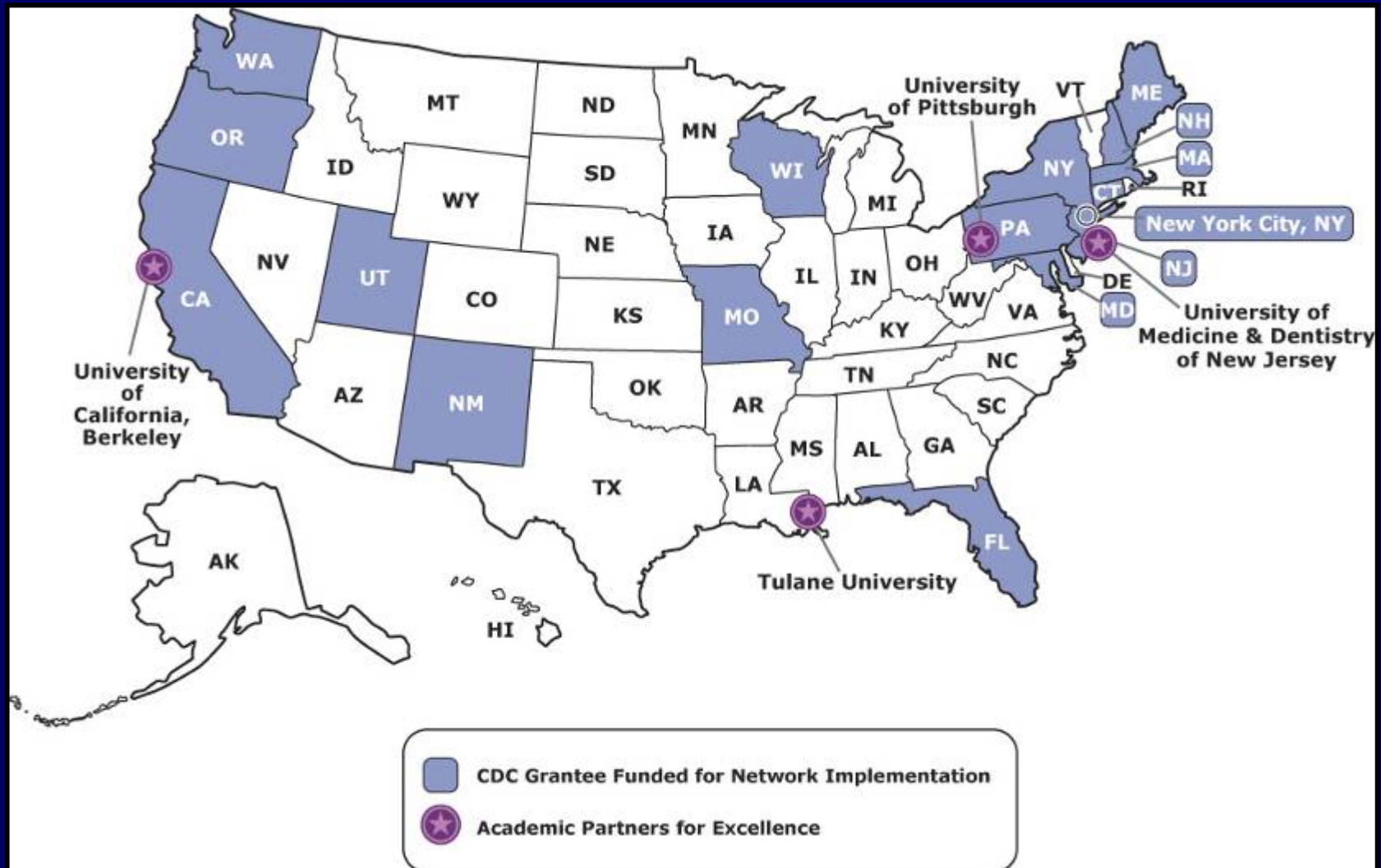
Key Lessons

- Stakeholder engagement - link people, programs, resources
- Successful data sharing
 - formal agreements, resource-sharing, value-added services
- Policy/regulatory changes may be required
- Significant “up front” work in data enhancement & harmonization
- Level of complexity - surveillance vs. research
- Varying levels of state “readiness”
 - technical infrastructure, data sharing, data discovery
- Communications – getting everyone “on the same page”



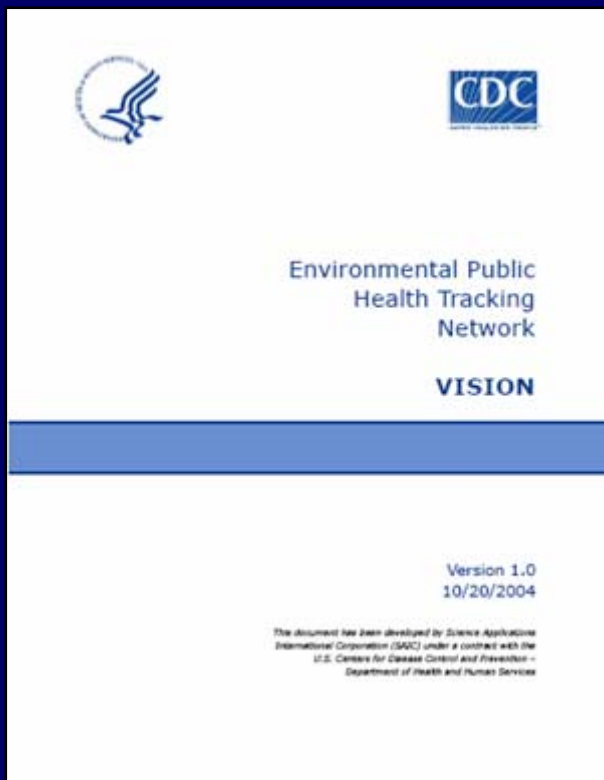
CDC's Tracking Program Grantees

FY 2006



Tracking 2006

Planning to Implementation



Setting Priorities for Network Content: Tracking Hazard, Exposure, and Health Effects



Priorities Reported by State/local Grantees

Category	Measure	# Grantees (%)
Hazard	Air	16 (70%)
	Water	15 (65%)
	Heavy metals	4 (17%)
Exposure	Heavy metals	4 (17%)
	CO	1 (4%)
Health effect	Asthma	17 (74%)
	Cancer	15 (65%)
	Lead	12 (52%)
	Pesticide Poisoning	11 (48 %)
	Birth defects	10 (44%)

EPHT and Biomonitoring

Public Health Application of Biomonitoring

New York City Tracking Program

- **Landmark community HANES**
- **Incorporated NYC HANES environmental biomonitoring (Pb, Cd, Hg), pesticides (organophosphates, pyrethroids)**
- **Developed manual for community HANES**

NYC HANES (cont'd)

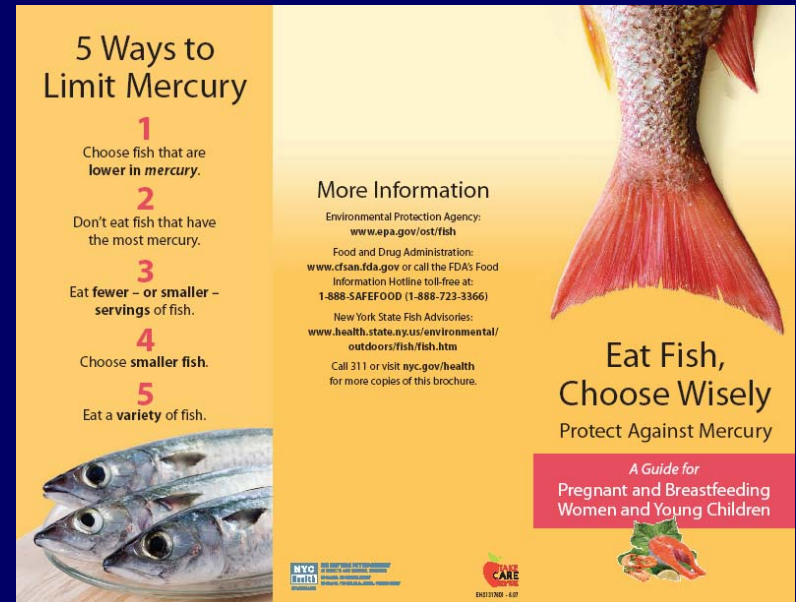
Activities

- **Determine levels of Hg, Cd, Pb in NYC adults**
 - identified illegal Hg containing skin-lightening products
- **Metal Hazard Indicators**
 - Hg levels associated with fish consumption
 - MeHg exposure in NYC adults higher than national average
 - Half of Asian New York City residents exceed Hg NY standard reporting level 5ug/L

NYC HANES (cont'd)

Public Health Action

- Brochure for women of childbearing age
 - how to choose fish/seafood to maximize health benefits, minimize potential risks
- Culturally relevant guidelines on healthy fish consumption for Asian community
- Alerted health care providers
 - talk with their patients about reducing mercury intake from fish
 - especially women who are pregnant, planning a pregnancy or breastfeeding



Public Health Application of Biomonitoring

New Mexico Tracking Program

Arsenic in Springer, NM

- **Tracking & biomonitoring staff conducted urine & drinking water sampling/analysis of 100 residents**
 - **following physician notification of elevated patient As levels**
- **Compared community As levels to state and national levels**
 - **measured different As forms**

Public Health Application of Biomonitoring

New Mexico Tracking Program

Arsenic Study in Springer, NM

- **Physician tested patient for urinary arsenic to rule out as possible cause of neurological symptoms**
- **Patient's results high, according to clinical lab**
- **Physician tested several other patients, also had high results**
- **No previous history of elevated As levels in drinking water sampling or other obvious source of environmental contamination**

Arsenic Study (cont'd)

New Mexico Tracking Program

Response

- Because of existing biomonitoring capacity, health department able to respond to determine if arsenic elevated in community and if so, what was source
- Tracking & biomonitoring staff conducted urine & drinking water sampling/analysis of over 100 residents
- Compared to rest of state based on previous biomonitoring samples

Results

- Community had LOWER As levels than
 - rest of state
 - the clinical significance level according to CDC guidelines

Conclusion

- Elevated As due to seafood, not environmental community exposure
 - via arsenic speciation

Public Health Application of Biomonitoring

Western Tracking & Biomonitoring Collaboration (WTBC)

2001

- **CDC's Environmental Health Laboratory launch planning grant to support biomonitoring capacity for public health laboratories. \$10M distributed to 25 state health departments, regional programs, supporting a total of 33 states**

2003

- **CDC Biomonitoring Program funds formation of Rocky Mountain Biomonitoring Consortium (RMBC)**
 - AZ, CO, MT, NM, UT, WY
- **CDC Tracking Program funds 7 western states**
 - CA, MT, NV, NM, OR, UT, WA

2005

- **CDC Tracking funds formation of Western Tracking and Biomonitoring Collaborative (WTBC)**

WTBC (cont'd)

Membership

- **Rocky Mountain Biomonitoring Consortium**
- **Western Tracking States**
- **AK, HI, ID** (Tracking funds to join WTBC)

WTBC (cont'd)

Goal

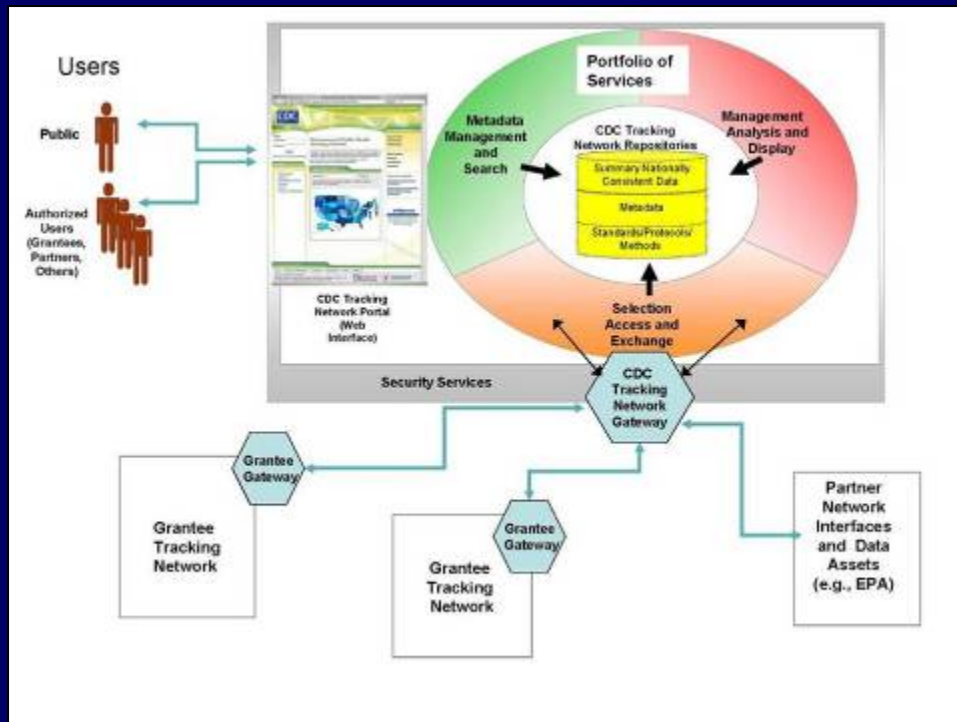
- Use collaboration between western tracking states and Rocky Mountain Biomonitoring Consortium states to build capacity for tracking and biomonitoring

Objectives

- Assess current capacity to perform tracking/biomonitoring functions
- Assess/collate common exposure/environmental interest among WTBC members
- Explore existing laboratory capacity to perform regional biomonitoring (leveraging methods, equipment, other funding sources)

Tracking Network Implementation

Live in 2008



Functions:

- Provide Nationally Consistent Data and Measures
- Describe and Discover Data
- Exchange Data
- Provide Data Management and Analysis Tools
- Inform and Interact with the Public



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ENVIRONMENTAL HAZARDS & HEALTH EFFECTS

National Environmental Public Health Tracking Program

IN THE SPOTLIGHT



UPDATED! Register Now: TRACKS 2006

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NEW! Winter 2006 Edition [PDF, 156 Kb]

National EPHT Program Newsletter with news, events, and updates on EPHT activities, partners, workgroups, and committees ...[more](#)



2006 Spatial Epidemiology Conference

CDC and SAHSU at Imperial College London sponsor this conference featuring geographical variations in environmental health ...[more](#)

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For more information: www.cdc.gov/nceh/tracking

Contact us: EPHT@cdc.gov



Questions

