Updates from the CDC Environmental Public Health Tracking Program

Health and Air Quality Applications Program
Review, October 2021

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Emergency Management, Radiation, and Chemical Branch
Division of Environmental Health Science and Practice
Increase the number of data-driven environmental public health actions and decisions by providing information from a nationwide network of standardized, integrated health and environmental data.
The Tracking Program

26 Grantees
25 states / 1 city

41 CDC-ASTHO Fellowships
Since 2009

25+ Partnerships
With CDC Programs, Other Federal Agencies, National Organizations
CONNECTIONS ENVIRONMENT & HEALTH INFORMATION

Environmental Exposures
- Air Quality
- Drought
- Community Water
- Flood Vulnerability
- Community Design
- Temperature Distribution
- Pesticide Exposures
- Toxic Substance Releases
- Other Environmental Chemicals

Health Effects
- Asthma
- Cancer
- Heart Disease
- Heat Stress Illness
- Childhood Lead Poisoning
- Developmental Disabilities
- Carbon Monoxide Poisoning
- Reproductive and Birth Outcomes

Population Characteristics
- Lifestyle Risk Factors
- Socioeconomics
- Demographics
- Vulnerabilities
HELPS IMPROVE HEALTH WITH DATA, TOOLS, AND EXPERTISE

Target prevention activities
Monitor community health
Identify communities at risk
Support epidemiologic studies

Educate residents
Inform city or state planning
Inform health policies

Visit the Tracking Network today
www.cdc.gov/ephtracking

Check out examples of Tracking in Action success stories and products!
Looking Forward –
Division of Environmental Health Science and Practice Priority Areas

- Climate and Natural Disasters
  - Wildfires and prescribed burnings
  - Extreme Heat
  - Drought
  - Flooding
  - Hurricanes

- Harmful algal blooms (HABs)
  - Pollen
  - Nuclear/Radiation disasters
  - Radon
  - Childhood lead poisoning
  - Asthma
  - Drinking water
Climate-related Content Areas and Indicators in the Tracking Network

Heat & Heat-Related Illness
- Heat Vulnerability & Preparedness
- Historical Temperature/Heat Index
- Temperature/Heat Projections
- Heat-Related Illness

Sunlight & UV
- Sunlight/UV Vulnerability and Preparedness
- Historical Sunlight/UV Exposure

Drought
- Drought vulnerability and preparedness
- Historical Drought
- Drought Projections

Precipitation & Flooding
- Precipitation/Flood Vulnerability & Preparedness
- Historical Precipitation
- Precipitation and Flooding Projections

3 core indicators within content areas
Vulnerability and preparedness (green boxes)
Historical records (orange boxes)
Future projections (purple boxes)
Air Quality
Related Content
Areas and
Indicators in the
Tracking
Network

Air Quality

- Air Toxics
- Wildland Fires
- Ozone-Days above regulatory standard
- PM2.5-Days above regulatory standard
- Annual PM2.5 Levels
Examples of Existing Gaps

Climate
- Inland flooding
- Coastal flooding
- Soil conditions
- Climate shifts from historic baseline

Other Environmental Hazards
- PAHs in air
- PM2.5 speciation
- Cyanotoxins/Harmful Algal Blooms (HABs)
- Aeroallergens/Pollen

Exposures
- Agricultural pesticide exposure
- Long-term air pollution exposure

Health Outcomes
- Vector-borne disease
- HAB toxin related health effects
National/Global Environmental Health Challenges

Internal/External Research Teams

Data & expertise

Identify useful public health actions and data

Interagency/Inter-organization partnerships addressing EH challenges

Internal CDC Partner Programs

Tracking Partnerships

Identify research gaps, provide processed data

Public health, data science, and informatics expertise

Academic papers
Press releases
Blogs

Data-Derived Products

Tracking Portal Content
Dashboards
Email Alerts
Reports
Blogs

Data-Driven Decisions
The goal of CDC’s Public Health Data Modernization Initiative is to transform CDC from a culture of primarily historical data analysis to predictive data science.

Tracking is well-positioned to take the lead in this area and has traditionally been at the cutting edge of applied data science within CDC.
CDC Public Health Data Modernization Initiative

**The Reality**
- **Reacting**: Always behind when epidemics occur
- **Counting**: Collecting data without the ability to rapidly analyze it
- **Storing Separately**: Siloed systems that restrict data sharing
- **Moving Slowly**: Outdated, paper-based systems with multiple points of data transfer
- **Using Resources Inefficiently**: New resources always required to do new data collection

**The Opportunity**
- **Predicting**: Getting ahead of epidemics to stop them quickly
- **Understanding**: Rapid data analysis to gain real-time insights
- **Sharing Effectively**: Interoperable, accessible data for action
- **Moving Fast**: A true digital highway to automate transfer of critical data in real time
- **Connecting Resources**: Leveraging existing resources and making common investments for the future
Planned Improvements to Climate-related Content

- **Rapid data updates** (e.g., eliminate delays of a year or more)
- **Finer temporal and spatial scales** (e.g., daily, census tract)
- **Operationalize data more effectively** (e.g., dashboards, apps, email reports)
- **Leverage new data products** (e.g., NASA ECOSTRESS, MERRA2, AirNow, PurpleAir)
Looking Forward – Opportunities for Collaboration

- Characterize exposure, vulnerabilities, and health impacts to take public health action
  - Wildfires and prescribed burnings: forest, agricultural
  - Air pollution: Traffic-related pollutants
  - Climate-related events and natural/manmade disasters: Heat, HABs

- Joint collaborations to assess the effectiveness of policy and other interventions on reducing health impacts
  - Quantify changes in AQ concentrations/sources, in places with no monitors

- Using the Tracking Network as a Decision Support System and as a platform to host earth science data products
  - Need expertise and resources to transform raw data for public health
  - Need repeatable, sustainable data products to support ongoing surveillance
Questions or Comments?

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