

**Environmental Public Health  
Tracking: Working Together  
to Improve Our  
Understanding of Air  
Pollution and Health**

**NACAA Fall Membership Meeting  
October 2010**

# What to expect

- A quick background on EPHT
- Learn about details on EPHT's approach for air quality – CDC and State perspective
  - Air quality indicators
  - Use of Local/State/EPA air quality data
  - Pilot projects of interest to states
- Chance to offer feedback and suggestions

In the early days ...

DONORA



# What Is Environmental Public Health ?

Focuses on the interrelationships between health of human populations and the physical, biological and chemical environment.

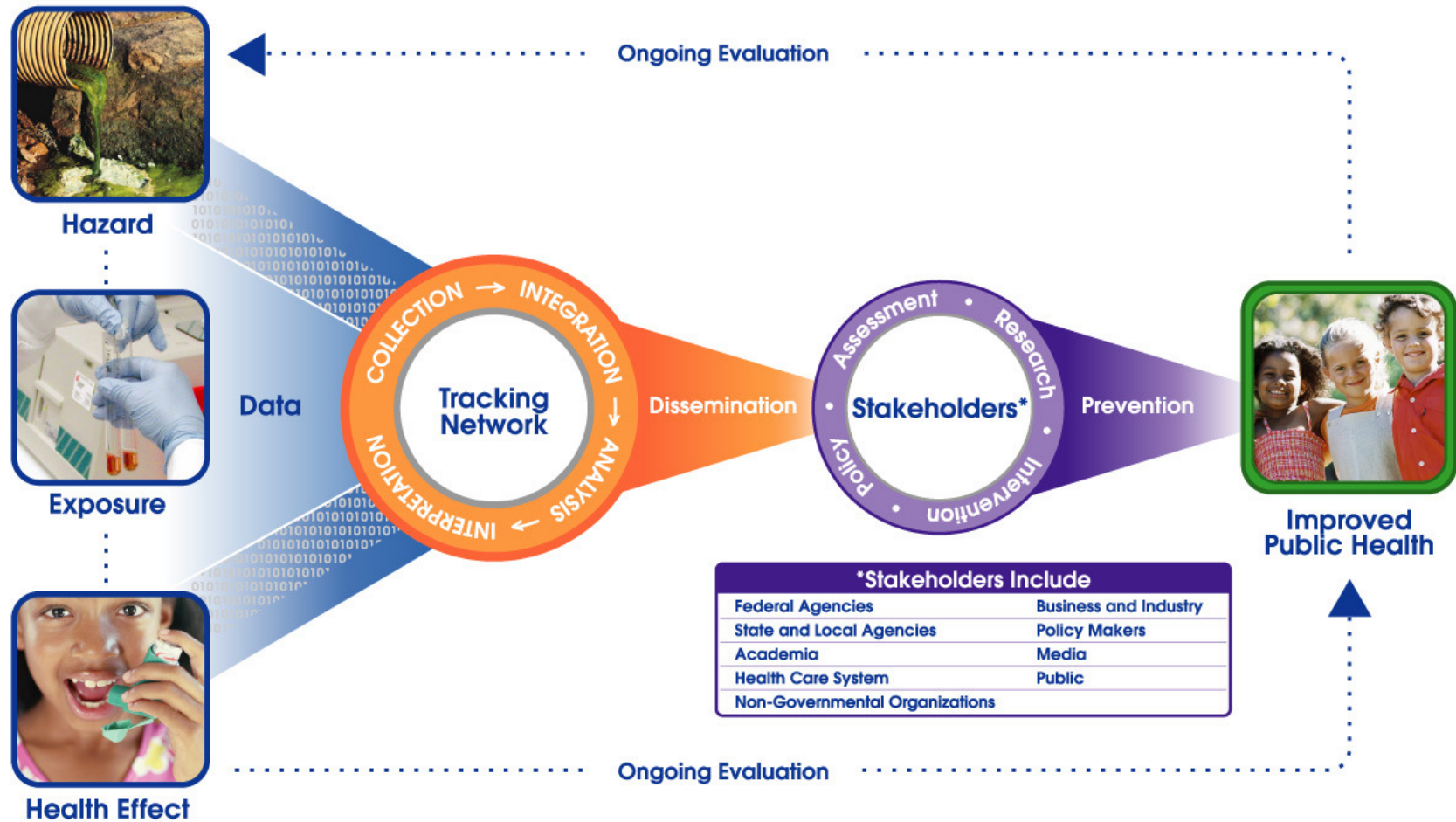


# Pew Environmental Health Commission Report<sup>1</sup>

- Much has progress in addressing infectious diseases.
- Americans deserve to know how healthy their environment is.
- Five components of Information and Action
  - National Baseline Tracking
  - Information Makes Early warning Possible
  - State Programs
  - Training
  - Community Involvement

<sup>1</sup> America's Environmental Health Gaps:  
Why this County Needs a Nationwide Health Tracking Network.

# 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



# EPHT and Air Quality

- CDC/EPHT program: Air Quality NCDMs and the National portal - **Judy Qualters, CDC**
- Experiences with State EPHT programs - **Steve Anderson, New Jersey Department of Environmental Protection**
- Pilot Project: Health Impact Assessments – **Tom Matte, City University of New York**
- Q & A

# **National Environmental Public Health Tracking Program: Air Quality Indicators and Measures and the National Portal**

**Judith R. Qualters, PhD**  
**Chief, Environmental Health Tracking Branch**

Division of Environmental Hazards and Health Effects  
National Center for Environmental Health





# Public Health Surveillance: Foundation for Public Health

*In public health, we can't do  
anything without surveillance.  
That's where public health  
begins.*

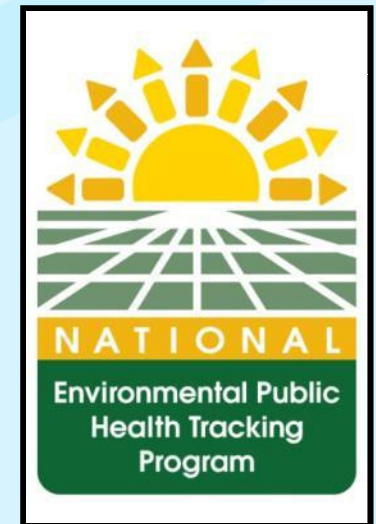
Dr. David Satcher

Tracking = Public Health Surveillance



# Purposes of Environmental Public Health Tracking

- ❑ **Assess environmental public health status and trends**
- ❑ **Identify populations at risk**
- ❑ **Plan and evaluate programs**
- ❑ **Stimulate research**



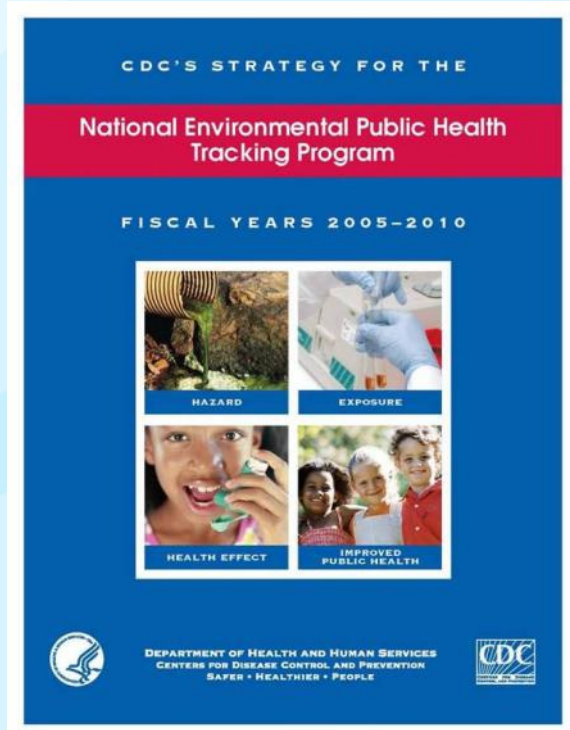
# National Environmental Public Health Tracking Program

## *Our Vision*

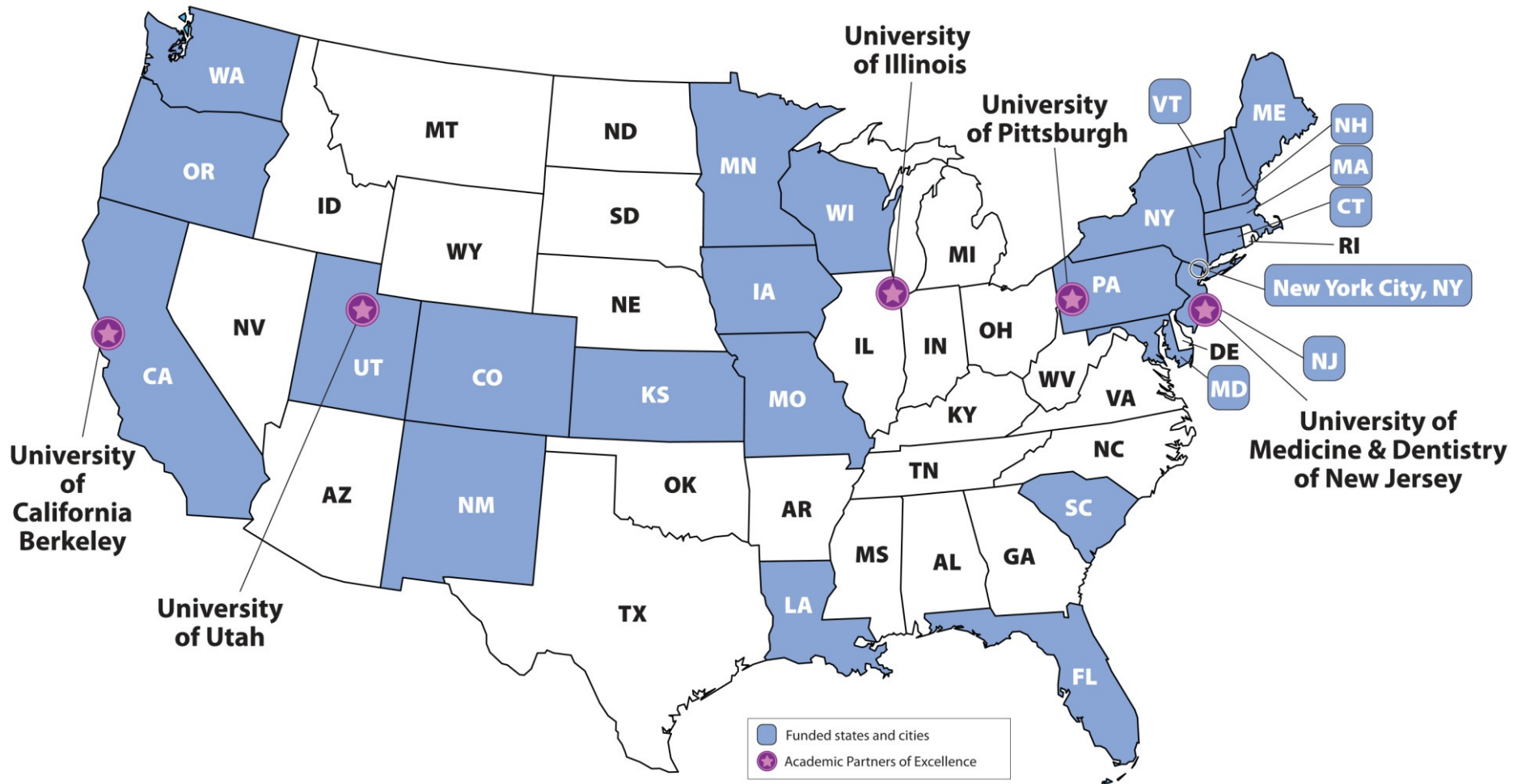
*Healthy Informed Communities*

## *Our Mission*

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



# State and Academic Partners





# Tracking Network: At-A-Glance

The screenshot shows the homepage of the CDC National Environmental Public Health Tracking Network. At the top, the CDC logo and name are displayed, along with the tagline "Your Online Source for Credible Health Information" and a search bar. The main navigation bar includes links for Home, About Tracking Program, State & Local Tracking Portals, Indicators & Data, and Secure Portal. Below this, there's a "Tracking A-Z Index" with a grid of letters and a "TRACKING A-Z" button. The central content area features a large image of a child, a map of the United States, and a bar chart. Text explains that the Tracking Network is a system of integrated health, exposure, and hazard information. A list of topics includes chemicals, chronic diseases, and local areas. To the right, there are "Page Options" for text size, printer-friendly version, email updates, and bookmarking. Below that, "Tracking Hot Topics" lists items like Bed Bugs, Gulf Oil Spill, and Heat Waves. A "Resources" section includes links to communication features, a library, and reports. At the bottom, "Contact Us" provides phone numbers and an email address.

A web-based information system that exists at the local, state, and national level that serves the public, environmental public health agencies, health care providers and researchers

[www.cdc.gov/ephtracking](http://www.cdc.gov/ephtracking)



# National Tracking Network

## Public Portal

- ❑ One-stop access to health and environmental information
- ❑ Risk and prevention messages + query system
- ❑ Design based on extensive user testing

## Secure Portal

- ❑ Supporting secure collaboration among multiple partners
- ❑ Integrating health, exposure, hazard, and other data
- ❑ Sharing of methods, tools, and ideas
- ❑ Drawing board for turning data into information



# Data on the Network



# Evolution of Air Data for Tracking

Qx from State: What is the best way to model air data to estimate population exposure?

Public Health Air Evaluation Surveillance Project (PHASE)

CDC-EPA Interagency Agreement  
Processed monitoring data; modeled data; metadata

Content Workgroup  
Air Team  
recommends  
indicators for  
Tracking Network  
based on monitoring  
data

CDC & EPA evaluate  
and develop  
indicators using  
monitor + model  
data

Modeled data used for  
linkage with health  
(PH practice and  
research)  
E.g. Health impact





# Why Model Air Data for Public Health?

- ❑ **Spatial and temporal gaps in monitoring data**
  - ❑ 19% percent of counties in the contiguous US have year-round monitoring for particulate matter
  - ❑ 32% of the people living in the contiguous US reside in counties with no AQS monitors.
- ❑ **Ozone and fine particulate matter impact health**
- ❑ **Improve understanding of potential population exposure to**
  - ❑ Target interventions
  - ❑ Better understand risk
  - ❑ Improve community health



# Tracking Air Quality

CDC Home  
Centers for Disease Control and Prevention  
Your Online Source for Credible Health Information

SEARCH

**National Environmental Public Health Tracking Network**

Home About Tracking Program State & Local Tracking Portals Indicators & Data Secure Portal

Tracking A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

Home > Environments

GLOSSARY CDC A-Z TRACKING A-Z

Environments Health Effects Info by Location

**Environments**

The most common environmental health hazards are air and water pollution.

**Homes**

- Homes and Health
- Tracking Housing Conditions
- Search Homes Data

**Outdoor Air**

- Outdoor Air and Health
- Tracking Outdoor Air
- Search Outdoor Air Data

**Water**

- Community Water
- Search Community Water Data
- Well Water
- Search Well Water Data

Page Options

Text size: S M L XL

- Printer-friendly version
- Get Email Updates
- Bookmark and Share

Tracking Hot Topics

- Find out more about national efforts to control Bed Bugs CDC Information
- Learn what you can do to prevent Bed Bugs EPA Information
- Find out more about the

**National Environmental Public Health Tracking Network**

Home About Tracking Program State & Local Tracking Portals Indicators & Data Secure Portal

Tracking A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

Home > Environments > Outdoor Air

GLOSSARY CDC A-Z TRACKING A-Z

Environments Health Effects Info by Location

**Outdoor Air**

Air pollution has been linked to many health problems such as asthma, heart disease, and adverse reproductive outcomes such as low birth weight.

Air and Health  
Air Monitoring in the US  
Air Contaminants

**Air Quality**

National air quality has improved since the 1990's, but many challenges remain protecting public health and the environment from air quality problems.

Air pollution in the United States poses a public health threat affecting potential of people throughout the country. It is associated with health problems that include increased emergency department visits and hospital stays for breathing and heart problems, asthma, and increases in illnesses such as pneumonia and bronchitis.

Tracking air pollution can help people understand how often they are exposed to unhealthy levels of pollution. Having these data can also help professionals or policymakers understand what may be most in need of prevention and control.

The Tracking Network includes data about ozone and particulate matter (PM<sub>2.5</sub>).

**Indicators Available on the Tracking Network**

CDC and the Environmental Protection Agency have worked together to develop modeled estimates available for areas of the country that do not have monitors and to fill in the time gaps when monitors may not be recording data. Tracking Network, both Air Quality System (AQS) monitor data and modeled data available to track possible exposures to ozone and PM<sub>2.5</sub>.

**Monitor + Model Air Data**

CDC Home  
Centers for Disease Control and Prevention  
Your Online Source for Credible Health Information

SEARCH

**National Environmental Public Health Tracking Network**

Home About Tracking Program State & Local Tracking Portals Indicators & Data Secure Portal

Tracking A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

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GLOSSARY CDC A-Z TRACKING A-Z

Environments Health Effects Info by Location

**Outdoor Air**

Air pollution has been linked to many health problems such as asthma, heart disease, and adverse reproductive outcomes such as low birth weight.

Air and Health  
Air Monitoring in the US  
Air Contaminants

**Monitor + Model Air Data**

Air monitoring in the United States is conducted by many federal, state, local, and tribal agencies. The Environmental Protection Agency (EPA) provides air pollution data about ozone and particulate matter (PM<sub>2.5</sub>) to CDC for the Tracking Network. The EPA maintains a database called the Air Quality System (AQS) which contains data from approximately 4,000 monitoring stations around the country, mainly in urban areas. Data from the AQS is considered the "gold standard" for determining outdoor air pollution. However, AQS data are limited because the monitoring stations are usually in urban areas or cities and because they only take air samples for some air pollutants every three days or during times of the year when air pollution is very high.

CDC and EPA have worked together to develop a statistical model (hierarchical Bayesian) to make modeled predictions available for environmental public health tracking purposes in areas of the country that do not have monitors and to fill in the time gaps when monitors may not be recording data.

There are two primary benefits to creating modeled air pollution data:

- approximately 20% of counties in the United States have actual air monitors. With modeled data, the Tracking Network is able to create indicators for counties that do not have monitors (excluding Alaska and Hawaii);
- most PM<sub>2.5</sub> air monitors take samples every three days and many ozone monitors sample only during the ozone season. Modeled data helps to fill in these time gaps.

After careful study, EPA and CDC found that air pollution modeled predictions are very similar to actual monitor data in areas where the two can be compared. In some areas, the modeled data underestimates or overestimates the air pollutant concentration levels when compared to AQS monitoring data. Therefore, the best way to use modeled air data is in conjunction with actual monitoring data. On the Tracking Network, both AQS and modeled datasets are available to track possible exposures to ozone and PM<sub>2.5</sub>, evaluate

Page Options

Text size: S M L XL

- Printer-friendly version
- Get Email Updates
- Bookmark and Share

Tracking Hot Topics

- Find out more about national efforts to control Bed Bugs CDC Information
- Learn what you can do to prevent Bed Bugs EPA Information
- Find out more about the response to the Gulf Oil Spill CDC Information EPA Information
- Listen to our Tracking podcasts
- Find out How to Stay Cool During Heat Waves

Resources

- Communication Features
- Join our List-serve
- Document Library
- Quick Reports
- Technical Notes

Contact Us

CDC Phone:  
 + 888-CDC-INFO  
 + 888-232-6348  
 + 888-232-6348 (TTY)

Tracking Program:  
 tracking@cdc.gov  
 + 1-877-923-TRACK

**National Environmental Public Health Tracking Network**

Home About Tracking Program State & Local Tracking Portals Indicators & Data Secure Portal

Tracking A-Z Index **A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #**

Home > Environments > Air Quality

**Indicator: PM<sub>2.5</sub> - Days Above Regulatory Standard (Monitor + Modeled)**

Content Area: Air Quality [View Maps, Tables and Charts](#)

Indicator: PM<sub>2.5</sub> - Days above regulatory standard (Monitor + Modeled) **GO**

Type of EPHH Indicator: Hazard

**Measures**

- Percent of days with PM<sub>2.5</sub> levels over the National Ambient Air Quality Standard (NAAQS)
- Number of person-days with PM<sub>2.5</sub> over the National Ambient Air Quality Standard (NAAQS)

**Derivation of Measures** Refer to the How-to Guide (contact CDC for the latest version of this document)

**Unit**

- Exceedance Days
- Population weighted exceedance days

**Geographic Scope** Contiguous United States

**Geographic Scale** County

**Time Period** 2001-2008

**Time Scale** Calendar year

**Rationale** The Clean Air Act requires states to develop and implement State Implementation Plans (SIPs) to reduce air pollution. More than half of the states with the highest particulate matter season average level of pollution are in the South, including the states of Georgia, Alabama, and Mississippi.

# Air Quality Metrics and Displays

**Indicators**

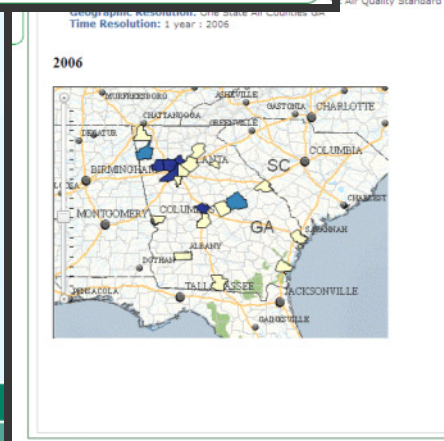
An **environmental public health indicator** provides information about a population's health status with respect to environmental factors. Tracking Indicators were developed in collaboration with national, state, and local environmental health partners. Here you can access detailed information about each indicator available on the Tracking Network.

**View Indicator Definitions and Documentation:**

Content Area: Air Quality

Indicator: **Select an Indicator**

- Select an Indicator
- Annual PM 2.5 Level (Monitor + Modeled)
- Annual PM 2.5 Level (Monitor only)
- Ozone Days above regulatory standard (Monitor + Modeled)
- Ozone Days above regulatory standard (Monitor only)
- PM<sub>2.5</sub> - Days above regulatory standard (Monitor + Modeled)
- PM<sub>2.5</sub> - Days above regulatory standard (Monitor only)



**About These Data**

- Data provided by [US Environmental Protection Agency \(EPA\)](#).
- Most data are submitted to EPA by state air programs, as required under the Clean Air Act.

Home About Tracking Program State & Local Tracking Portals Indicators & Data Secure Portal

Tracking A-Z Index **A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #**

Home > Query and Results

**Query and Results**

View Data Related To:  
Content Area: Air Quality  
Indicator: Ozone Days above regulatory standard (Monitor + Modeled)  
Measure: Number of days with maximum 8-hour average

**Location and Time:**  
Select Indicator first and then Measure to display Geography. Select Geography to display Time Period.

All States  
 ALABAMA  
 ALASKA  
 ARIZONA  
 ARKANSAS  
 CALIFORNIA  
 COLORADO  
 CONNECTICUT  
 DELAWARE

2001 2002 2003 2004 2005 2006 2007 2008

**View:**

**Advanced View Options** **RUN QUERY**

**Number of days with maximum 8-hour average**

**GEORGIA**

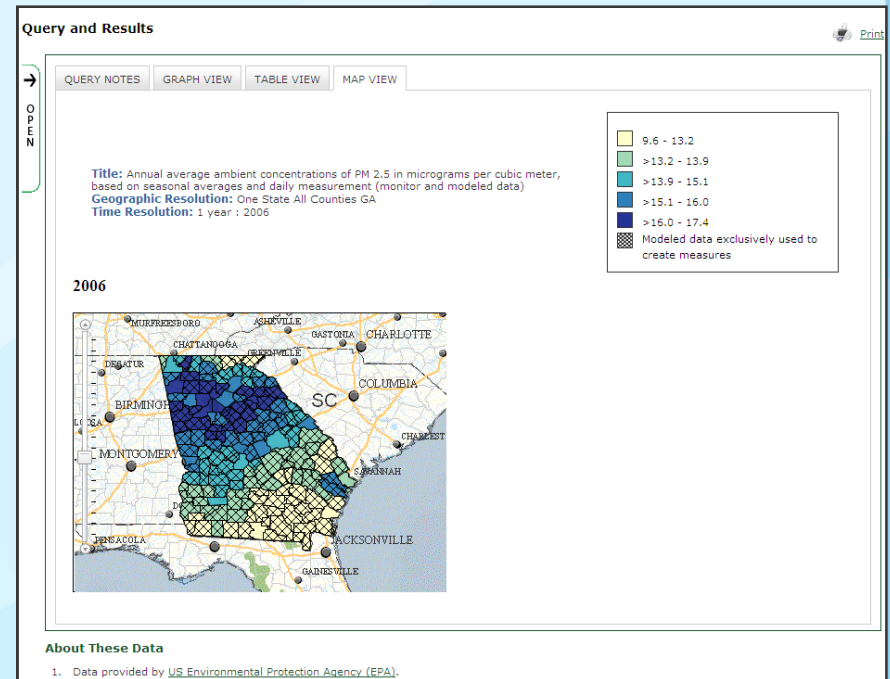
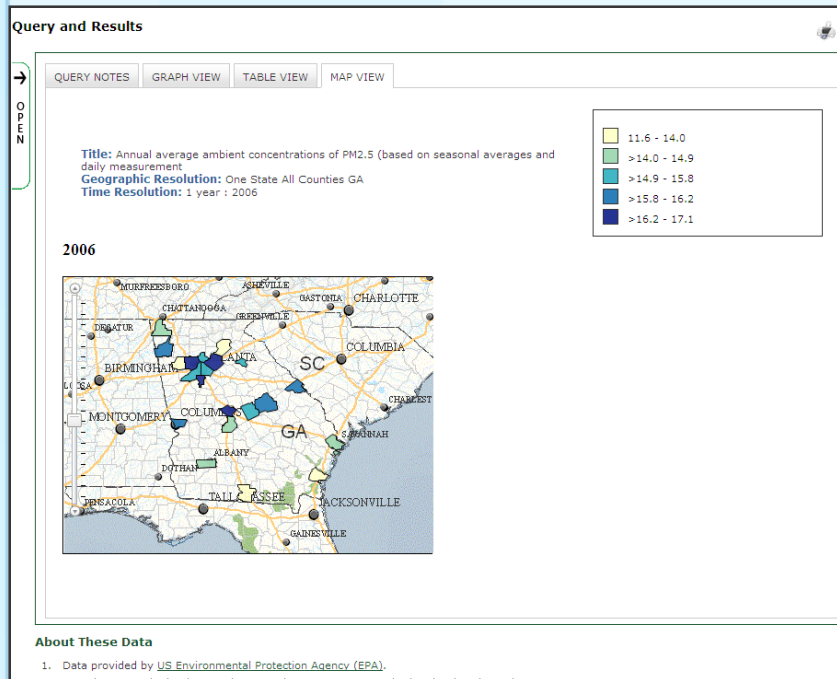
County	Number of days with maximum 8-hour average
BIBB COUNTY, GA	~15
CHITPAH COUNTY, GA	~10
CHITTOGA COUNTY, GA	~10
CLARKE COUNTY, GA	~10
COBB COUNTY, GA	~10
COLUMBIA COUNTY, GA	~10
COWETA COUNTY, GA	~10

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# Monitor only vs. Monitor + Model



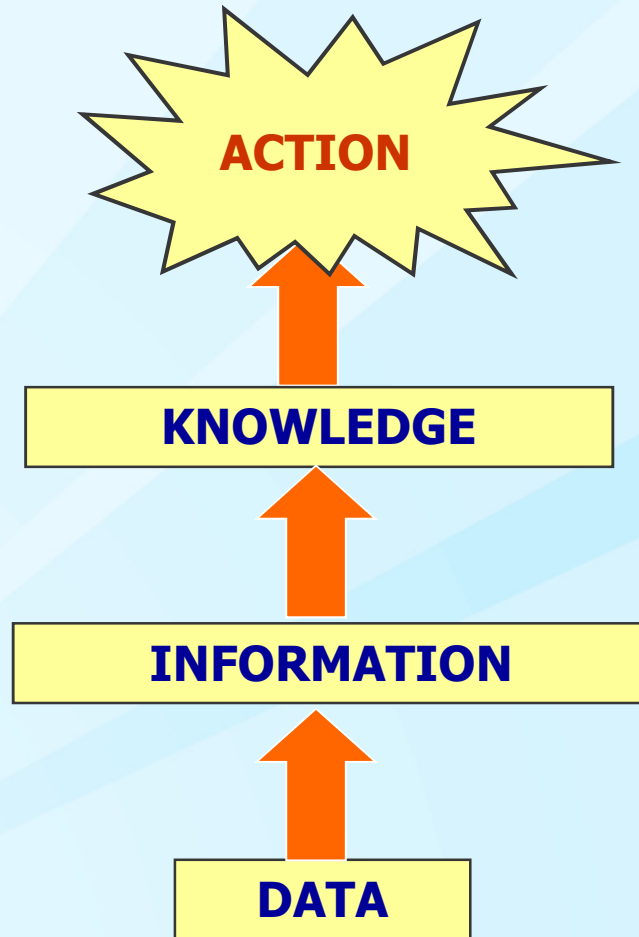
## Monitor + Modeled Air Data:

- ❑ Not for regulatory compliance purposes
- ❑ Looking at spatial and temporal patterns
- ❑ Identifying potential "at risk" populations





# Goal -- Data for Public Health Action



# Tracking in Action

## ❑ California

- ❑ Identified populations at risk of asthma, preterm birth and low birth weight due to traffic exposure, prompting Kaiser Permanente health educators to look for ways to improve education practices for asthma

## ❑ Massachusetts

- ❑ Responded to a town's concerns about health impact of expansion of a asphalt facility

## ❑ New York State

- ❑ Addressed citizens concerns that a coal-fired power plant might be causing respiratory illness - responded in hours rather than weeks.

## ❑ NYC

- ❑ Identified neighborhoods with higher potential exposure, sources of exposure, and estimating health impact



# Experiences with State EPHT programs

**Steve Anderson, New Jersey Department of Environmental Protection**

- Linkage Demonstration Projects
- Network Implementation
- Next steps



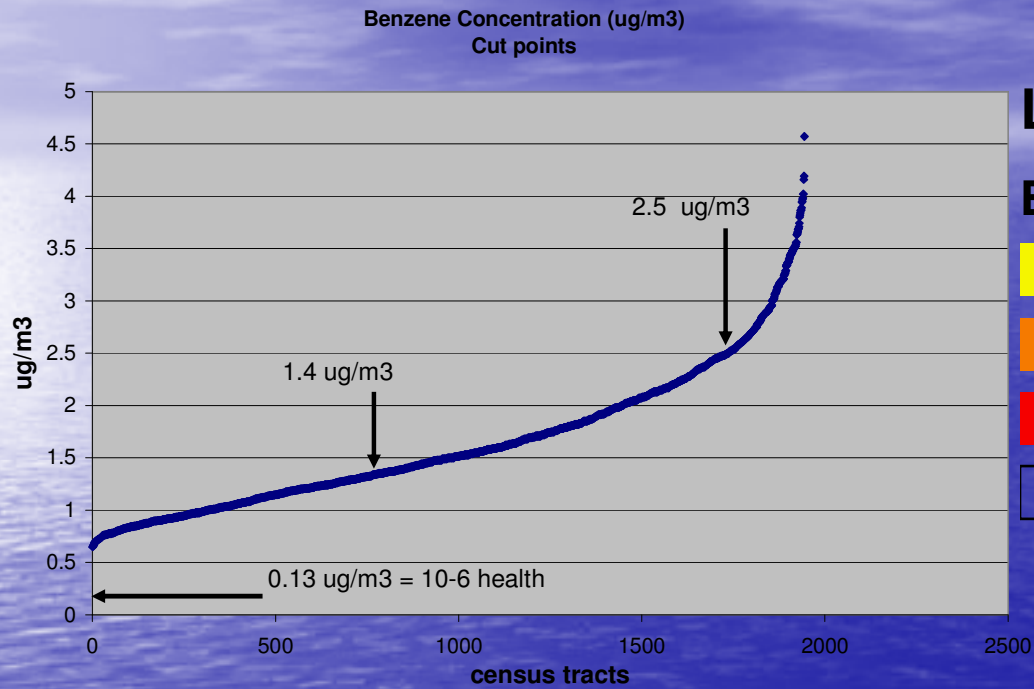
# Demonstration Projects

Goals: Develop and evaluate methods for linking health effects surveillance data with existing data for environmental hazards and exposures.

Linkage Pilot	Primary Source	Metric	Geographic Scale	Time Period
Cancer	EPA	Benzene NATA	Census Tract	1996 (used to estimate 1979 - 2002)
	EPA	Vinly Chloride NATA	Census Tract	1996 (used to estimate 1979 - 2002)
	NJDEP	Benzene "Tracking"	100 meter grid--avg to Census Tract	Avg Release for 1988 - 2003
	NJDEP	Vinyl Chloride "Tracking"	100 meter grid--avg to Census Tract	Avg Release for 1988 - 2003
	NJDEP	Vehicle Miles Traveled	Census Tract	2003
	DHSS	THM drinking water	Census Tract	1979 - 1985
Lead	EPA	EPA NATA Lead	Census Tract	1999
	NJDEP	DEP drinking Water	Water Purveyor Area	Annual (for each year 2000 - 2004)
Birth Defects	NJDEP	THM drinking water	Water Purveyor Area	quarterly (for each quarter 2000 - 2004)

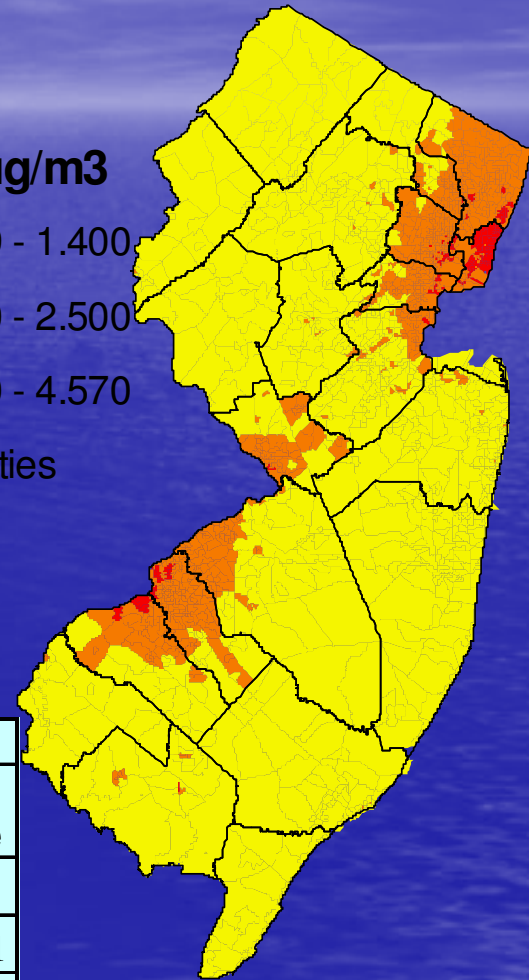
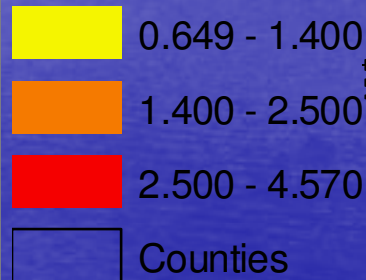


# EPA NATA Data for Benzene for 1996: Linked to Leukemia



## Legend

### Benzene ug/m3



Variable		Population	RR	95% CI	P-value
	Benzene < 1.40 $\mu\text{g}/\text{m}^3$	3,785,122	1.00	-	-
	Benzene 1.40 - 2.49 $\mu\text{g}/\text{m}^3$	3,781,901	1.09	1.06 - 1.12	<0.001
	Benzene 2.50+ $\mu\text{g}/\text{m}^3$	845,494	1.04	0.98 - 1.09	0.214

# NJ EPHT Network

STATE OF NEW JERSEY  
**DEPARTMENT OF HEALTH AND SENIOR SERVICES**

NEW JERSEY DEPARTMENT OF HEALTH SENIOR SERVICES

SHAD

» New Jersey State Health Assessment Data

Home **Publications** **Indicator Reports** Dataset Queries

## Complete Indicator Profile Categorized Index

You are Here: [NJSHAD](#) > [Indicator Reports](#) > current page

The categorized index is a selection menu in the form of a hierarchical folder tree and is organized by topic or subject area. Listed below are the main categories. Click on a category to see its sub-items and select an indicator profile.

The same reports are organized alphabetically on the [Alphabetical Indicator Profile Index](#) page.

Some of the folders below are placeholders for future indicator profiles.  
⊗ indicates that the profile has not yet been created.

- Complete Indicator Profile Categorized Index
  - Birth and Infant Health
  - Environmental Public Health Tracking Network
  - Healthy New Jersey 2010
  - Healthy People 2010
  - Leading Health Indicators
  - Mortality and Leading Causes of Death
  - Nutrition, Physical Activity, and Obesity Surveillance

- Currently on NJ Department of Health and Senior Services web site
- 3 different levels of information
- Integrated with many other health data sets

# EPHT Indicators Available



STATE OF NEW JERSEY  
DEPARTMENT OF HEALTH AND SENIOR SERVICES



» New Jersey State Health Assessment Data



[Home](#)   [Publications](#)   [Indicator Reports](#)   [Dataset Queries](#)

Introduction
Contents and Usage
Categorized Indicator Profile Report Index-->
Alphabetical Indicator Profile Report Index

## Environmental Public Health Tracking Network Categorized Index

You are Here: [NJSHAD](#) > [Indicator Reports](#) > current page

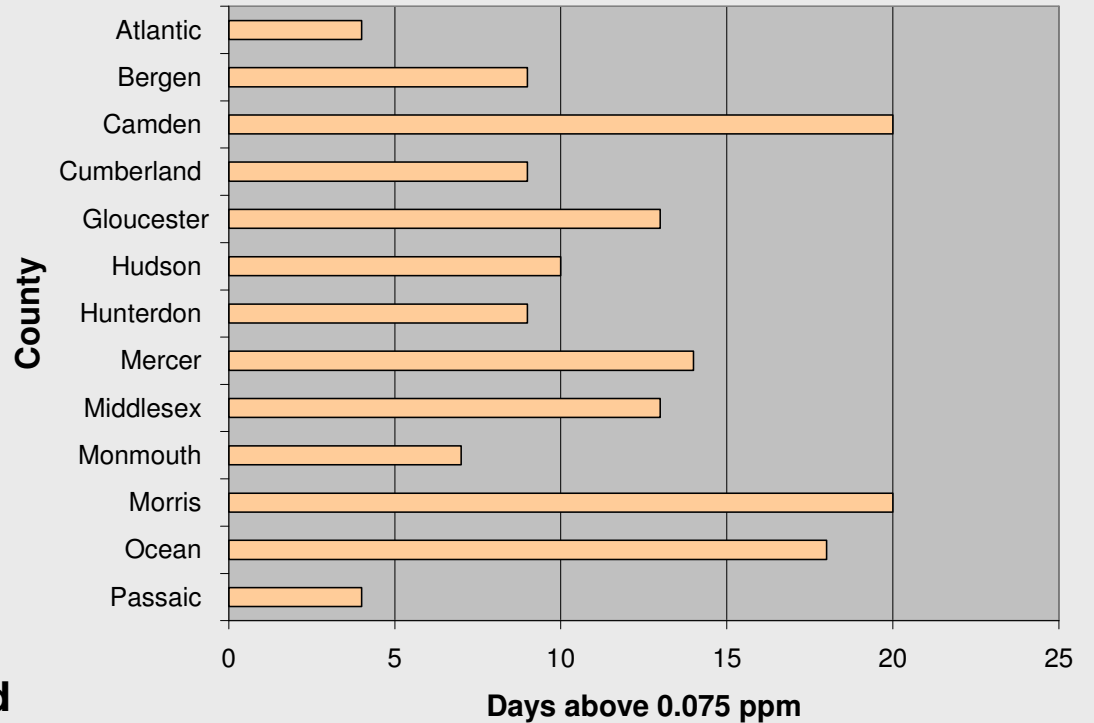
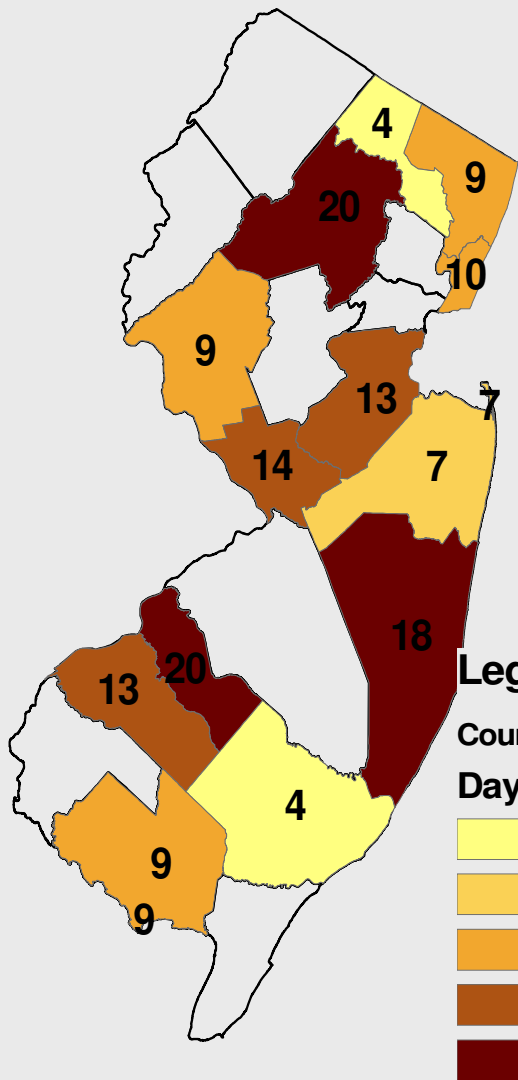
This page provides an indicator profile selection menu organized in a hierarchical folder tree. To open/show the folder's contents, click on the link to the right of the closed folder icon. Clicking on the link to the right of an open folder icon will hide/collapse that folder's contents. Viewable indicator reports are represented by the document icon. To view, simply click on indicator's title link to the right of the document icon.

The same reports are organized alphabetically on the [Alphabetical Indicator Profile Index](#) page.

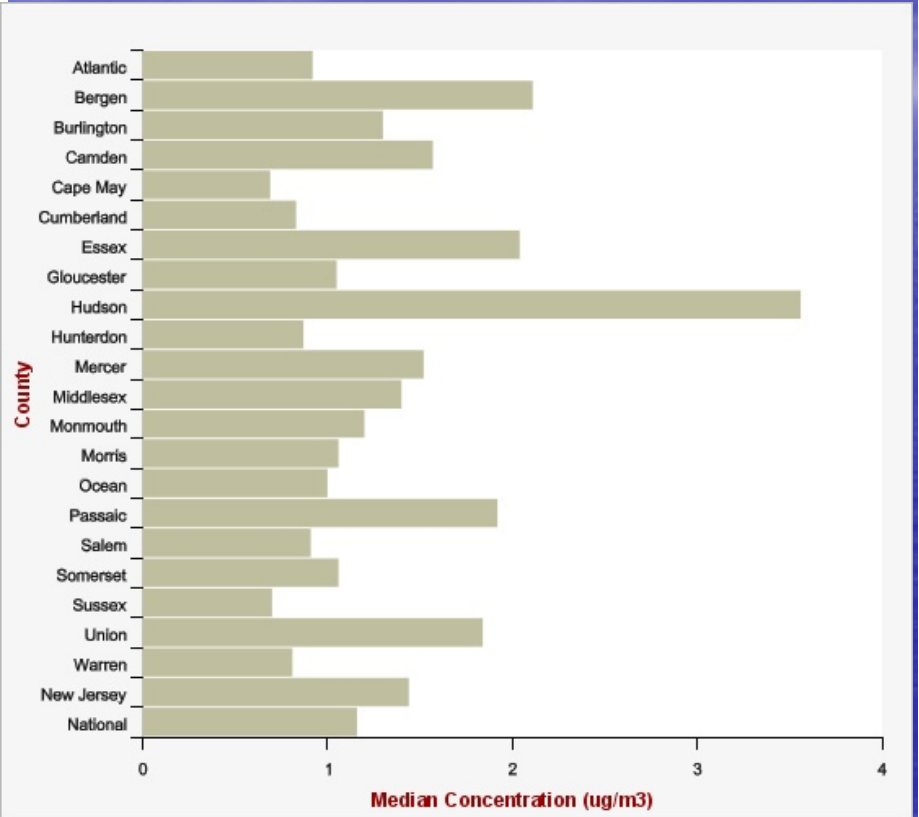
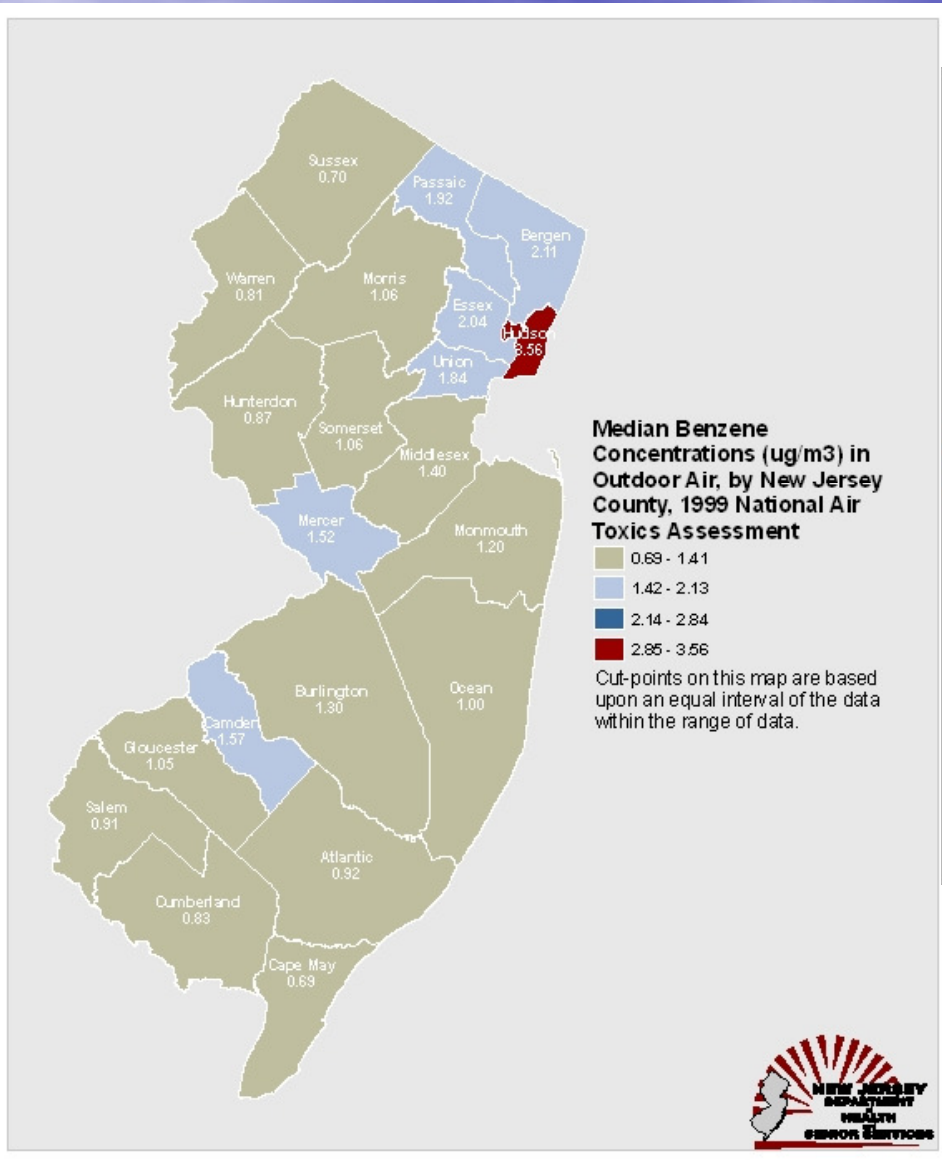
Some of the folders below are placeholders for future indicator profiles. indicates that the profile has not yet been created.

- Environmental Public Health Tracking Network Categorized Index**
- [Outdoor Air Quality](#)
- [Drinking Water Quality](#)
- [Lead Exposure](#)
- [Birth and Infant Outcomes](#)
- [Cancer Incidence](#)
- [Asthma](#)
- [Heart Attack](#)
- [Carbon Monoxide Poisoning](#)
- [Fatal Occupational Injuries](#)

# Ozone Air Indicators



# Benzene EPA NATA (1999)





# Links to NJDEP Air Monitoring Site



new jersey **njdep**  
department of environmental protection

**Current Air Quality**

**Current Statewide Readings**

**Current Status**

**Reports**

**Information**

**Publications**

**Links**

**Login**

Close

**Site Statistics**

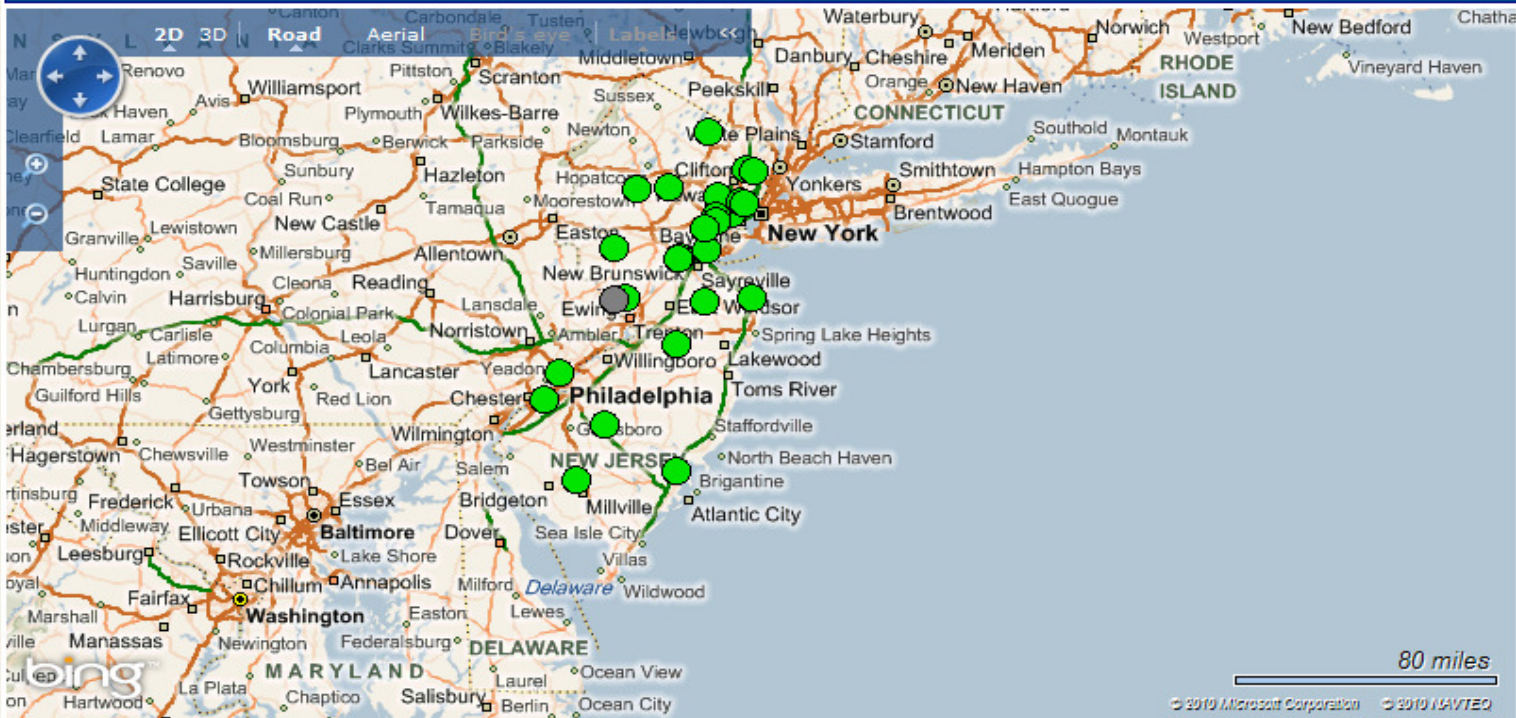
Total: 9818  
Current: 0  
User: Guest  
Last Update: 7/1/2010

**Index Legend**

- Good
- Moderate
- Unhealthy For Sensitive Groups
- Unhealthy
- Very Unhealthy
- Hazardous

**Air Quality - All Sites**

Resolution: 800 \* 600



80 miles

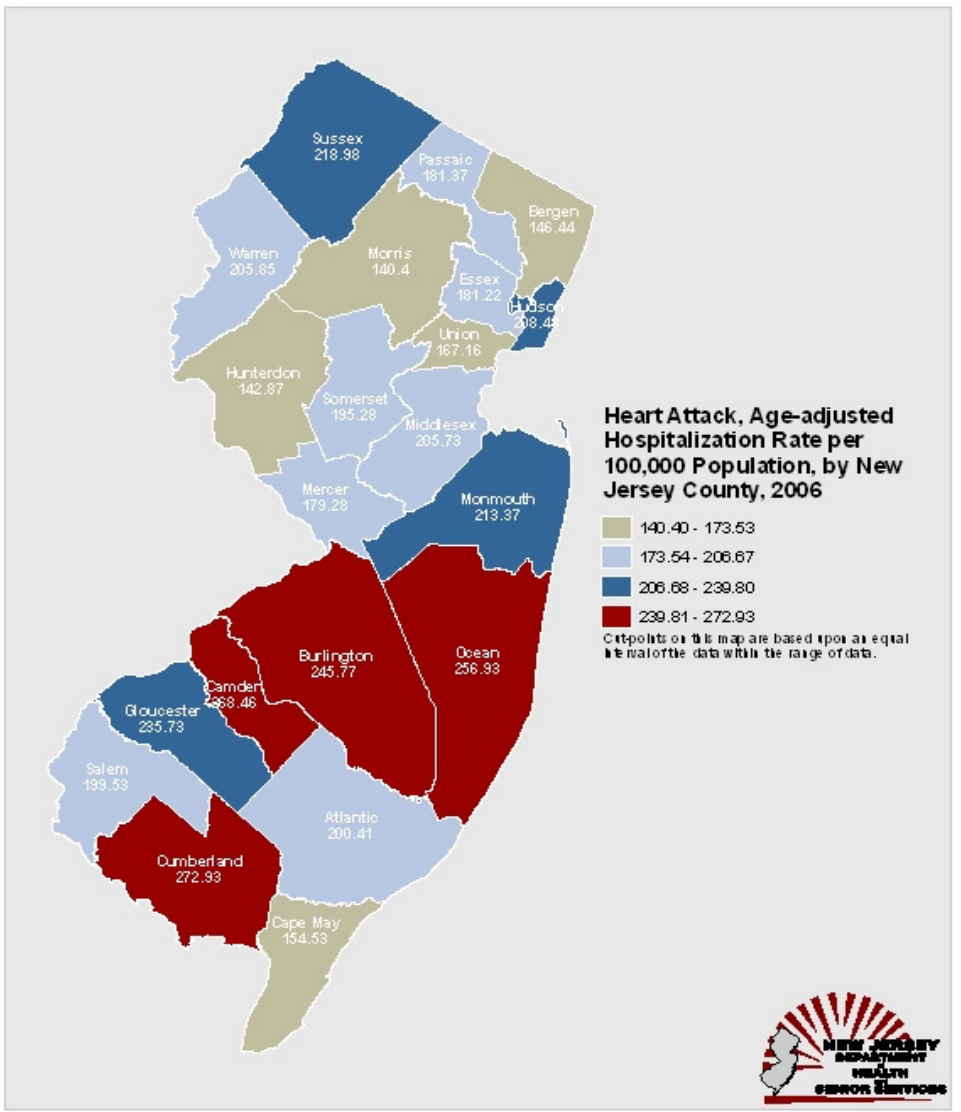
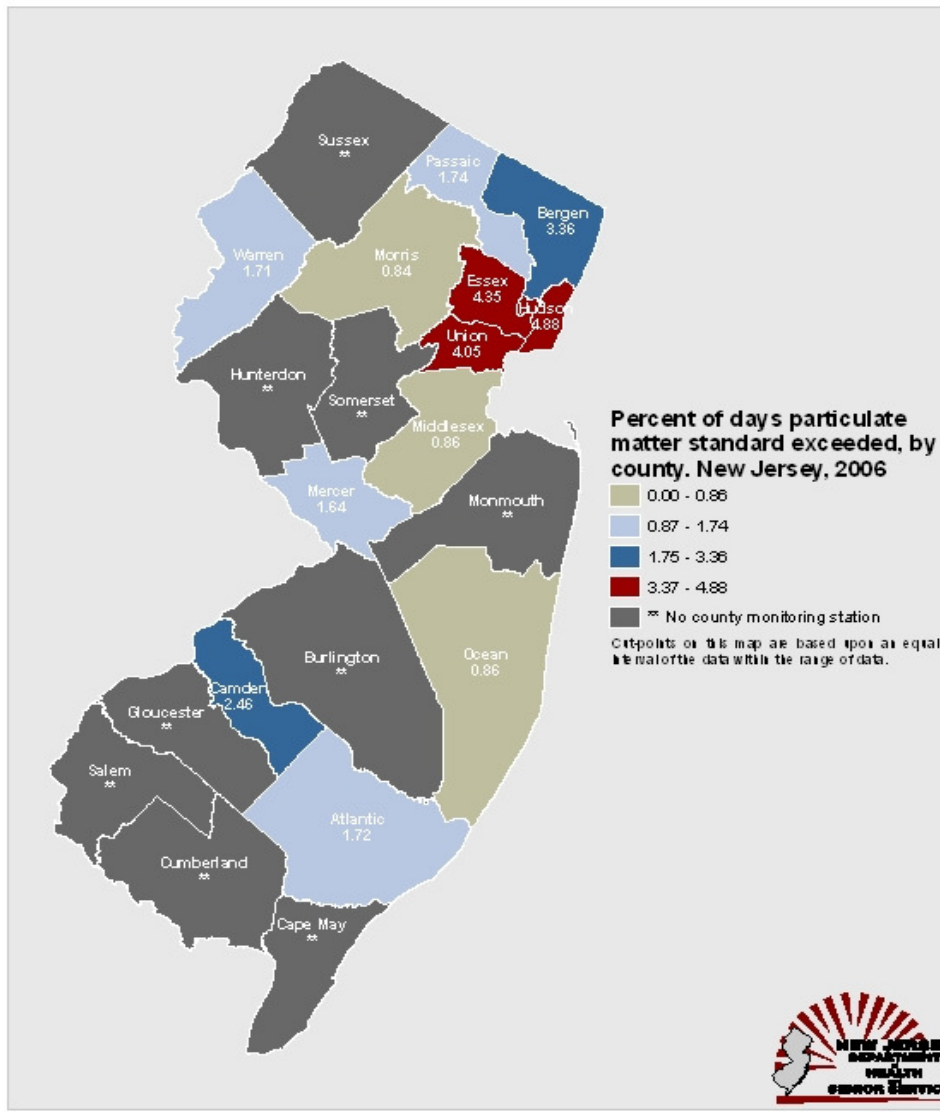
© 2010 Microsoft Corporation © 2010 NAVTEQ

Preliminary data: We update these Web pages hourly, every day, around the clock. Data labeled "current" on these pages are preliminary and subject to change.

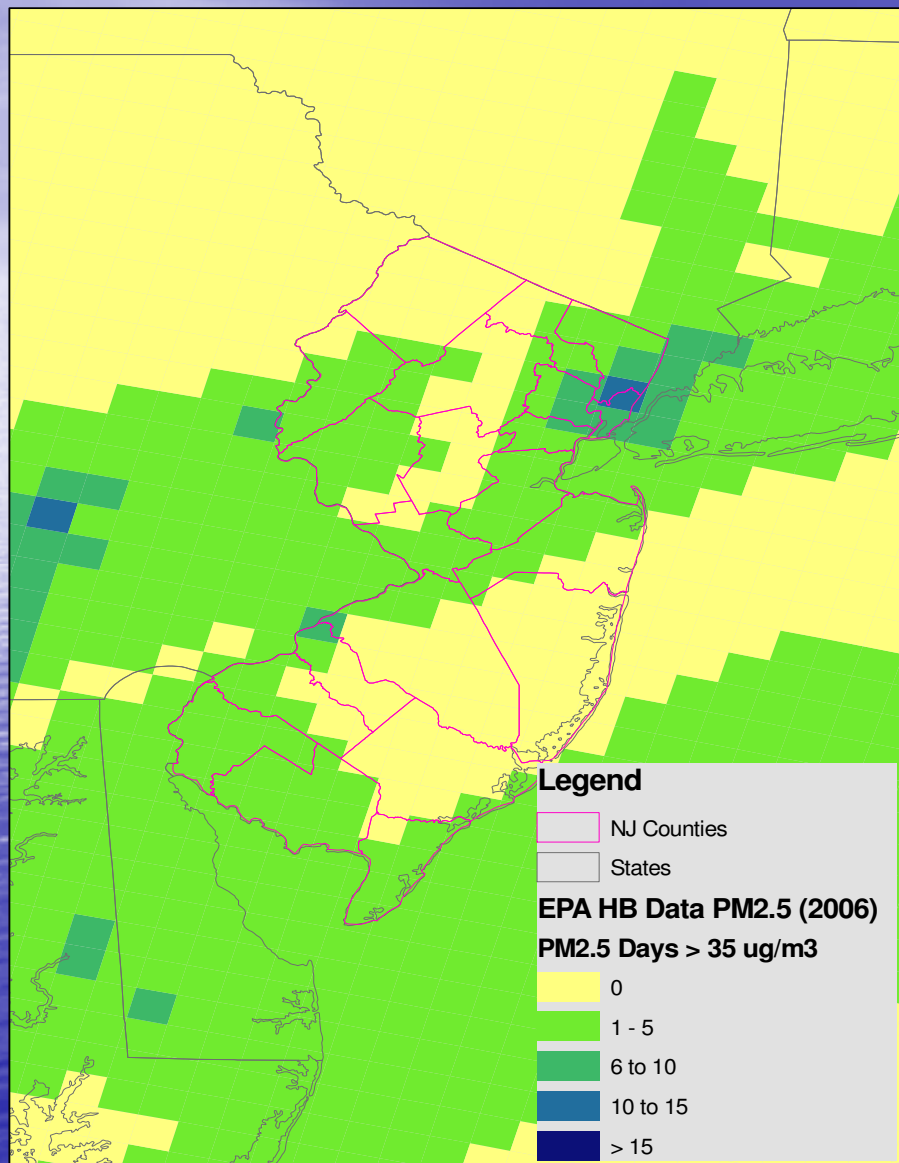
# Side by Side Comparison

## PM2.5

## Heart Attack



# EPA Hierarchical Bayesian Predictions for PM2.5 (12km grids)



- Spatial and temporal coverage
- Fill gaps in indicators
- Linkage with health data



# State Perspectives

## Successes

- Uses existing monitoring data
- Indicators Centrally Calculated by EPA and CDC
- Environmental and public health data in one central location

## Challenges

- Need final indicators accessible using Environmental Exchange Network
- Potential confusion with compliance issues and attainment status or designation
- Does not use all monitoring data (continuous PM 2.5 data)
- County based data misses true spatial variation

# Pilot Project: Health Impact Assessments

**Tom Matte, City University of New York**

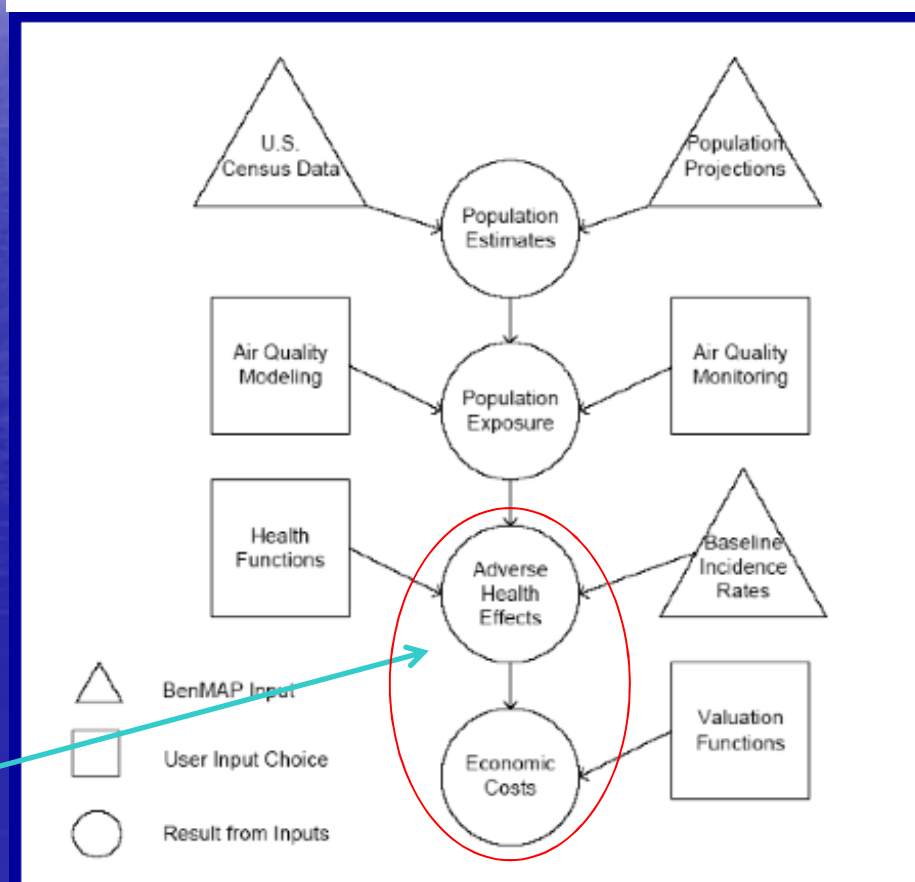


# Background

- Criteria air pollutants have major public health impacts
- EPA and state AQ managers estimate impacts and benefits of pollution control
- Often use available county (mortality) and regional (morbidity) incidence data.

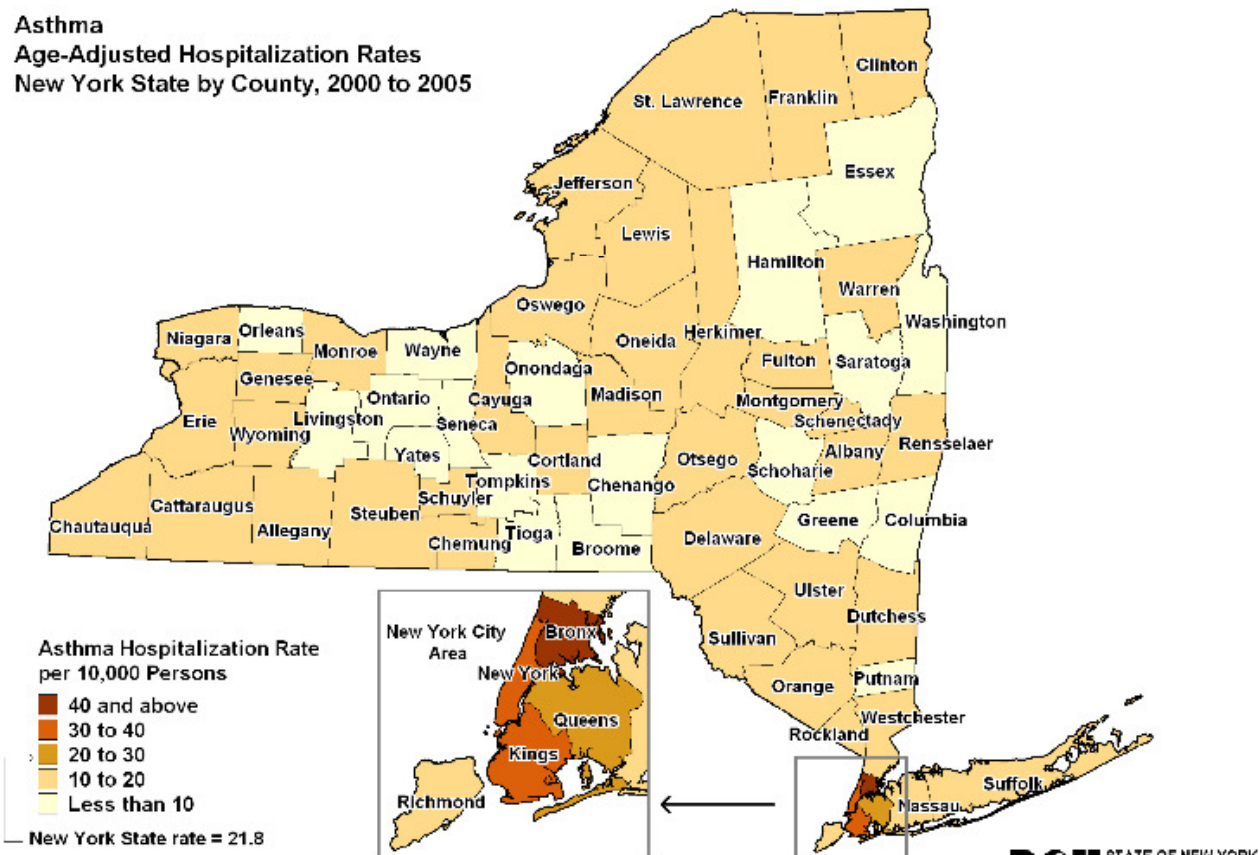
**Awareness of the public and stakeholders?**

## Quantitative Health Risk Assessment for Particulate Matter



# Morbidity and mortality rates vary within regions, states, and...

**Asthma**  
**Age-Adjusted Hospitalization Rates**  
**New York State by County, 2000 to 2005**



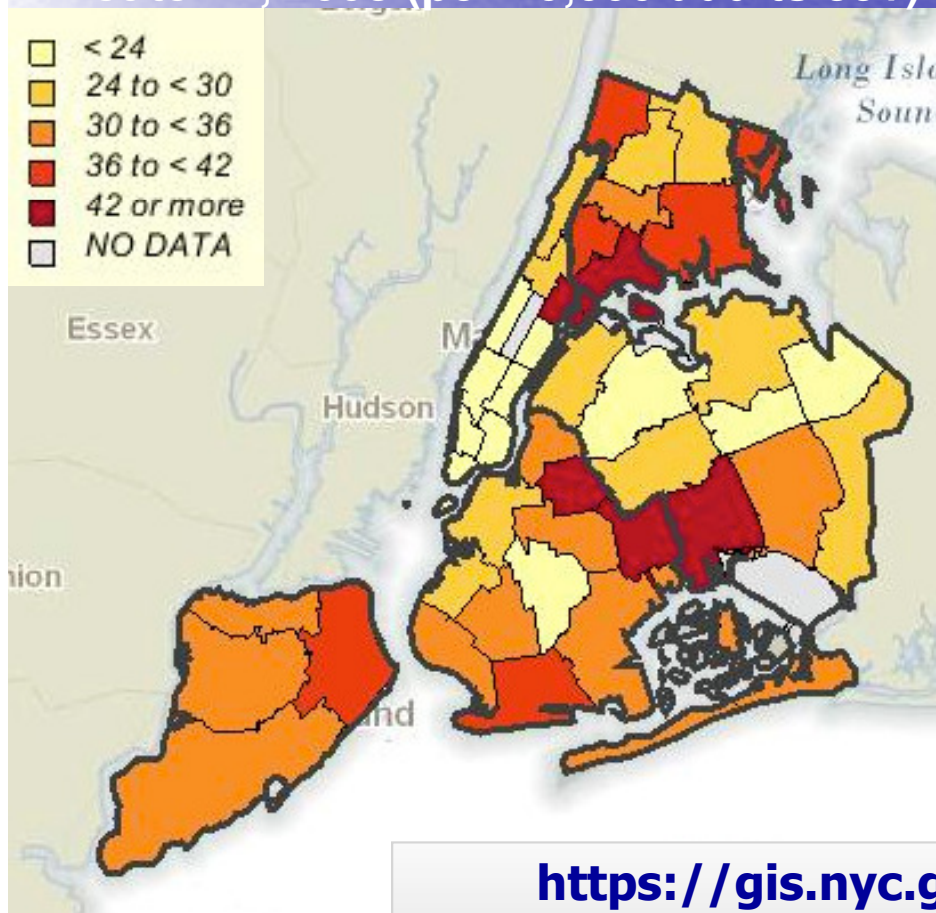
Hospitalization data from Bureau of Biometrics and Health Statistics, NYSDOH, 2006  
 Rates are age-adjusted to the 2000 US standard population



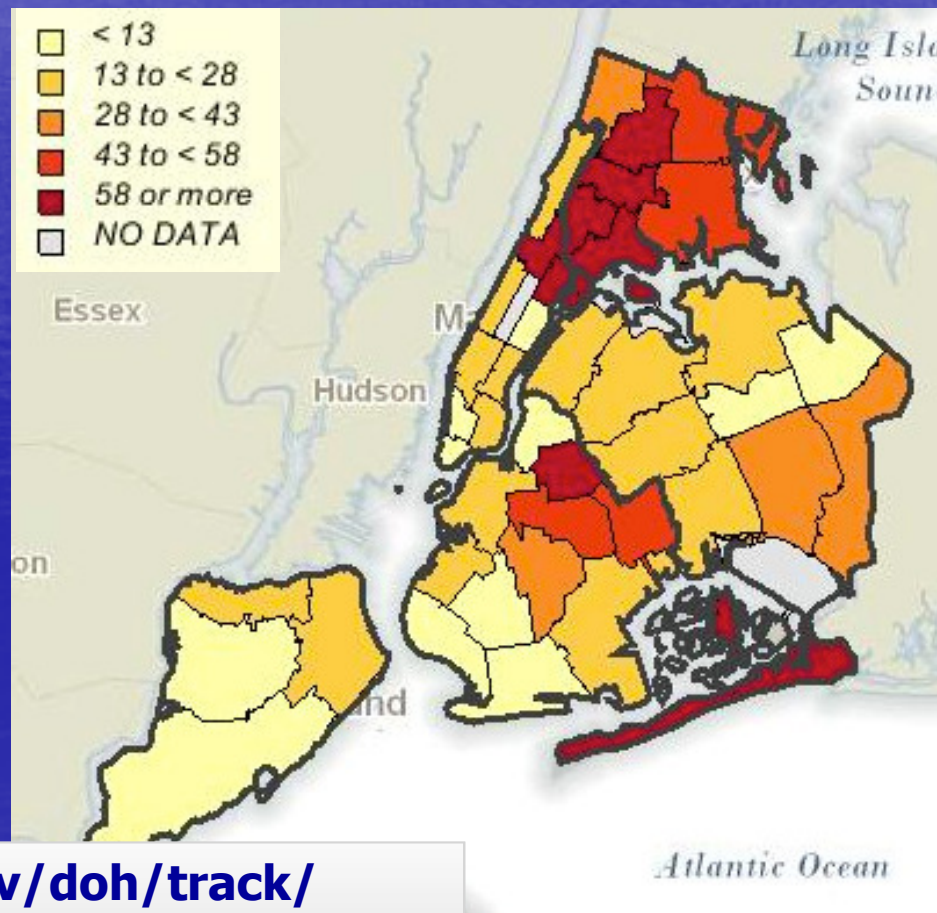
...within counties.

# EPHTN: Access and capacity to provide timely, local health data

Acute MI, 2008 (per 10,000 adults 35+)



Asthma, 2008 (per 10,000 children 5-14)



<https://gis.nyc.gov/doh/track/>



# Health agencies: disseminators of health information



## NYC Vital Signs Investigation Report

New York City Department of Health and Mental Hygiene November 2006 Special Report

### Deaths Associated with Heat Waves in 2006

This report summarizes findings from an investigation of deaths associated with heat waves that occurred in New York City during the summer of 2006. 46 heat stroke deaths resulted from two heat waves – the first was from July 16 to 18 (3 days, causing 6 heat stroke deaths), and the second was longer and hotter, from July 27 to August 5 (10 days, causing 40 heat stroke deaths). The investigation largely focuses on the second heat wave.

Heat stroke deaths are caused by prolonged exposure to extreme heat. Deaths from other causes, such as cardiovascular and respiratory disease, also increase during heat waves. Heat stroke deaths are preventable with appropriate interventions among those at high risk. Such measures might also reduce excess deaths from other causes.

**Heat Wave Definition:** 3 or more consecutive days of  $\geq 90^{\circ}\text{F}$  maximum temperatures

The investigation of deaths related to heat exposure in NYC during the summer of 2006 included (1) a review of personal characteristics and circumstances of people who died from heat stroke between July 16 and September 6, 2006, and (2) a statistical estimate of the excess mortality that occurred due to other causes as a result of the second heat wave from July 27 to August 5, 2006.

The findings revealed that people who died of heat stroke had known risk factors, including older age and chronic health conditions. Lack of air conditioning, also a known risk factor for heat stroke, was documented as a problem in several deaths, but information was unavailable for many of the people who died. During the second heat wave, the average daily death rate from natural causes, such as heart and lung disease, increased by an estimated 8%; this increase is similar in magnitude to increases during past heat waves.

### 46 heat stroke deaths in NYC, July 15 – September 6, 2006

- Heat Stroke Deaths, July
- Heat Stroke Deaths, August



CON-ED LIC power network (boundaries of possibly affected area)  
Confirmed Power Outage Area, July 17-26, 2006

- As a result of the first heat wave (July 16-18), 6 heat stroke deaths occurred, 5 of which were in Queens. These are noted in red on the map.
- No deaths were attributable to the Western Queens power outage (LIC power network) that occurred in mid-July.
- Although one death occurred in the LIC power network area during the first heat wave, the person had been living in a vehicle and was unlikely to have been affected by the outage.
- 40 heat stroke deaths occurred throughout the city as a result of the second heat wave, July 27-August 5. These are shown in black on the map.

A special report from the New York City Health Department



## NYC Vital Signs

New York City Department of Health and Mental Hygiene July 2009 Volume 8, No. 2

### Unintentional Poisoning in New York City Children

**P**oisons are substances that can be harmful or fatal when swallowed, inhaled or touched. Even beneficial substances can have toxic effects in extreme quantities; in other words, "the dose makes the poison."

Poisoning is the third leading cause of hospitalization for injury among children ages one to four. Toddlers with emerging mobility have a natural curiosity to explore their environment, often by putting things in their mouths. In addition, infants and young children can be harmed by relatively low doses of toxic substances because of their small body size.

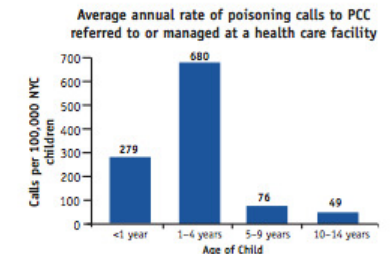
This report summarizes recent data from the NYC Poison Control Center (PCC) from the years 2000 through 2007. The PCC provides 24-hour emergency treatment recommendations and routine poisoning information to families and health care providers, responding to more than 70,000 calls every year.

Though many poisonings cases are managed at home, this report focuses on those calls to the PCC concerning someone who was exposed to a potentially toxic substance, resulting in referral to, treatment in, or admission to a health care facility.

Strategies to protect young children from poisoning can be found on page four.

### Most childhood poisonings occur before age five, in the home

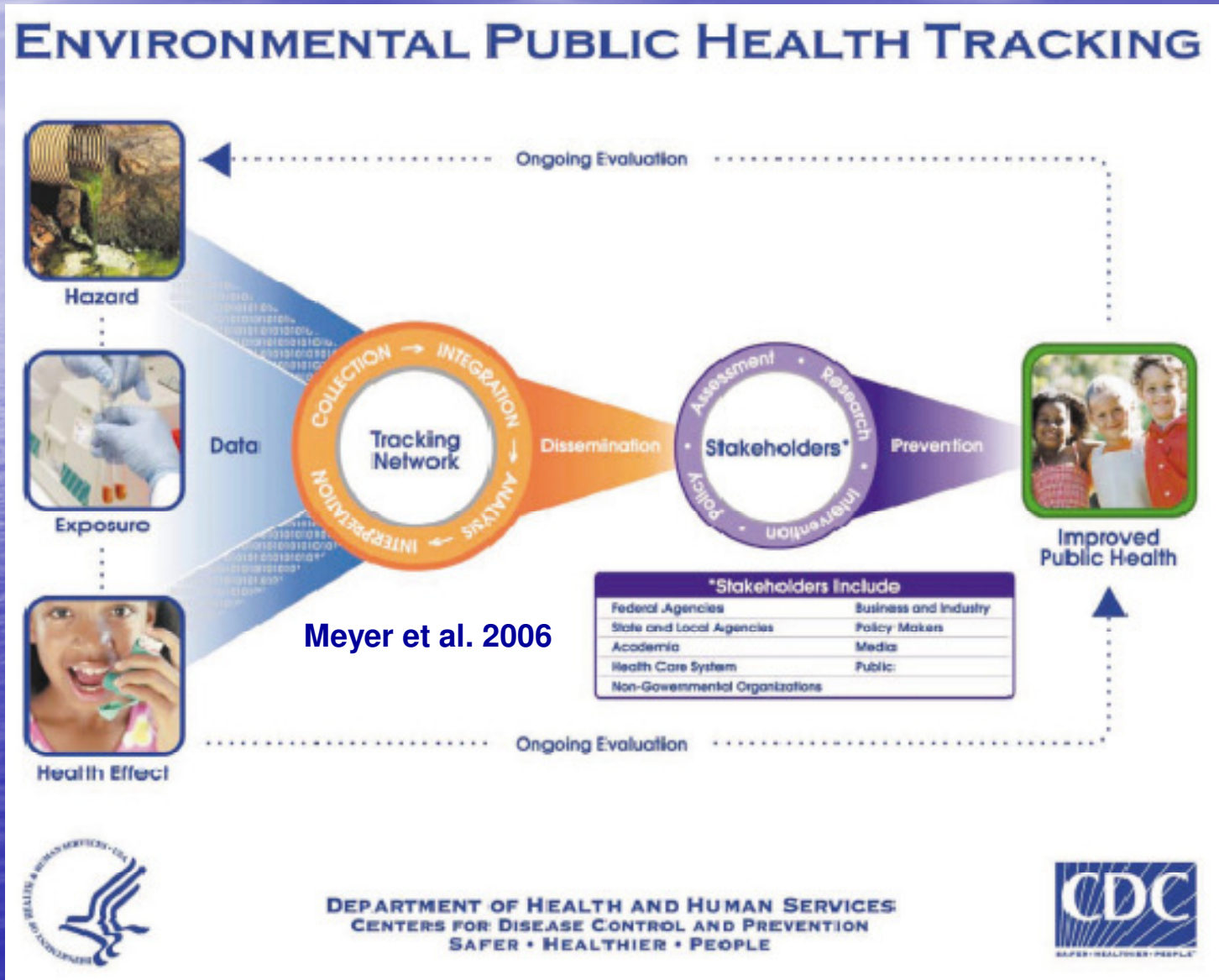
- The PCC receives approximately 4,000 poisoning calls annually for NYC children younger than 15 years that are referred to or managed at a health care facility.
- Most of these calls (75%) concern children younger than five years, peaking among one- to four-year-olds (680 calls per 100,000 NYC children).
- Nearly all poisonings among young children (98%) occur in the child's own home.



The data in this report are drawn from calls to the NYC Poison Control Center reporting known or suspected exposure of children to toxic substances. Food poisoning reports were excluded due to their generally infectious causes, and lead poisoning calls were also excluded because they frequently reflect cumulative, chronic (non-acute) exposure. Rates were calculated using US Census Bureau, Population Estimate Program, 2000-2006 and NYC DOHMH neighborhood population estimates (version 01/2009), modified from the US Census Bureau 2006 estimates were used for 2007 rates. Ranked hospitalization data are from: Top 10 Leading Causes of Injury Hospitalization 2002-2006 (NYC DOHMH, Injury Epidemiology Unit/Bureau of Epidemiology Services)

For more New York City health data and publications, visit My Community's Health at [nyc.gov/health/mycommunityhealth](http://nyc.gov/health/mycommunityhealth).

# Estimating and disseminating air pollution health impacts is consistent EPHTN goals





# Growing interest in more geographically refined analyses

- NRC “Air Quality Management in the United States (2004)”: recommended transition to a **multi-pollutant, risk-based approach**. Examples:
- Fann et al. (2009) *“The influence of location, source, and emission type in estimates of the human health benefits of reducing a ton of air pollution.”*\*
- Detroit multi-pollutant pilot project:\*\*
  - 1km grid AQ modeling, zip code level health incidence compiled specifically for this project
  - Location of sources, population density and susceptibility
- Timely, local health data not routinely available

\* Fann et al. Air Qual Atmos Health (2009) 2:169–176 DOI 10.1007/s11869-009-0044-0

\*\* [http://www.cmascenter.org/conference/2009/slides/wesson\\_detroit\\_multi-pollutant\\_2009.ppt](http://www.cmascenter.org/conference/2009/slides/wesson_detroit_multi-pollutant_2009.ppt)

# Workshop on Methodologies for Environmental Public Health Tracking of Air Pollution Effects

January 15-16, 2008  
Baltimore, Maryland

Proceedings available:

[http://www.springer.com/cda/content/document/cda\\_downloaddocument/Cohen+Special+Issue.pdf?SGWID=0-0-45-921237-p173719103](http://www.springer.com/cda/content/document/cda_downloaddocument/Cohen+Special+Issue.pdf?SGWID=0-0-45-921237-p173719103)



# EPHTN Air Quality Health Impact Pilot Project (1)

- Collaboration of CDC, EPA, Emory University (Coordinating Center), and four EPHTN grantees (Oregon, Florida, New York State and New York City)
- Development, testing, and application of consistent protocol for local HIA
- Will use EPA's BenMAP

# EPHTN Air Quality Health Impact Pilot Project (2)

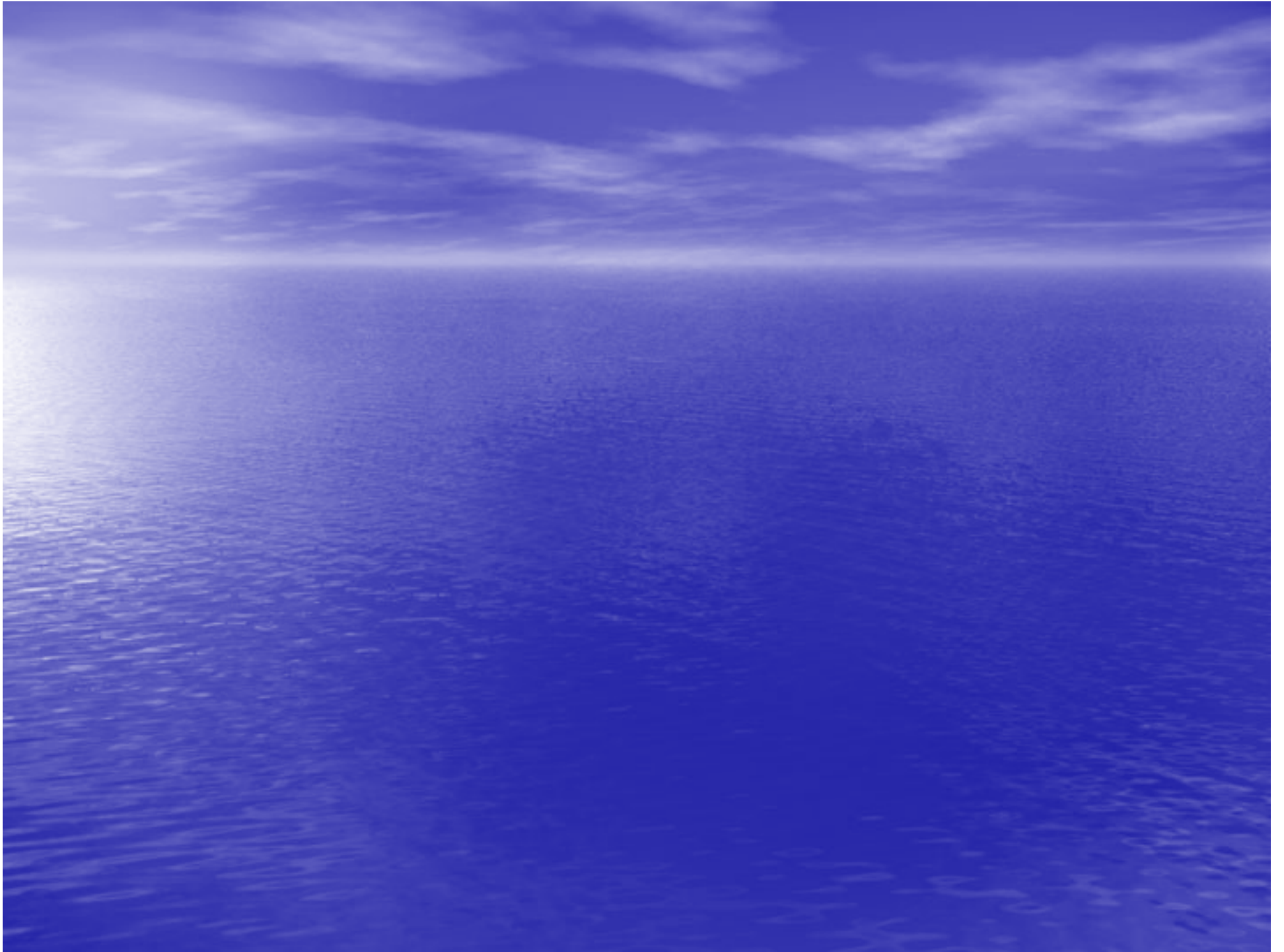
- CR function choice, sensitivity analyses
- Baseline and comparison pollution surfaces:
  - One common comparison scenario (e.g. policy-relevant background)
  - One or more scenarios of local interest
- Template for dissemination of results
- Two-year project launched this past summer



# Near and Longer Term Goals for Pilot Projects

- Developing a consistent approach
- Routinely applying the most timely and locally relevant data to air quality health impact and benefits analyses
- Establishing or enhancing ties between air quality managers and health agencies
- Improving public and stakeholder awareness of the public health dimensions of air pollution and the benefits of control measures.





**Environmental Public Health Tracking:  
Working Together to Improve Our  
Understanding of Air Pollution and Health**



Q & A

Thank you for your  
attention and inquiries