



Introduction to Environmental Public Health Tracking



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[ALL IMAGES IN THIS LECTURE ARE SOURCED FROM CDC'S TRACKING NETWORK:
<http://ephttracking.cdc.gov/showHome.action>]

Objectives

- Increase knowledge of the National Environmental Public Health Tracking Network
- Develop skills in using the Tracking Network to mine data and identify trends to address public health problems

Preview

- About National Environmental Public Health Tracking Network
- Using the Tracking Network
- Tracking in Action: Success Stories



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NATIONAL ENVIRONMENTAL PUBLIC HEALTH TRACKING NETWORK



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What is the National Environmental Public Health Tracking Network?



CDC's Tracking Network: Working Toward a Healthier Planet for Healthier People

<http://www.youtube.com/watch?v=J42CLZH1NIE>

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To introduce you to the Tracking Network, I'm going to show you a quick video.

<http://www.youtube.com/watch?v=J42CLZH1NIE>

What is the Tracking Network?

- A system of integrated health, exposure, and hazard information and data from a variety of national, state, and city sources



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As the video showed: The Tracking Network is a system of integrated health, exposure, and hazard information and data from a variety of national, state, and city sources.

Tracking is just another word for surveillance, which we learned about in the previous lesson.

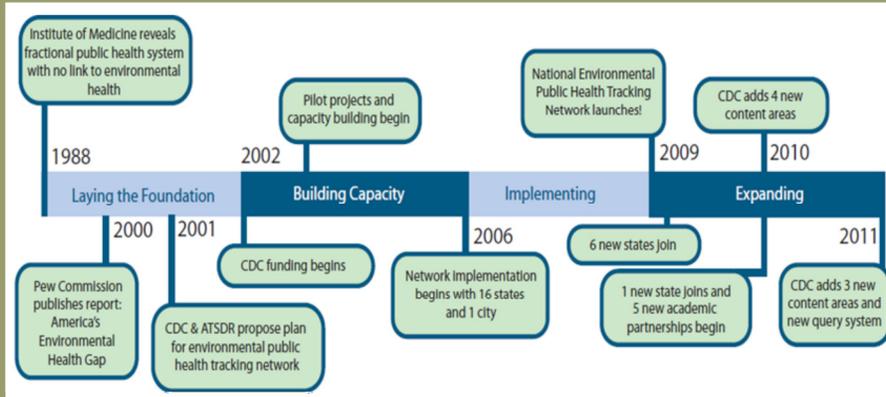
The overarching goal of the Tracking Network is to improve and protect public health by giving scientists, researchers, public health professionals, and policy makers access to data that were previously not available in standardized formats. This allows them to monitor trends over time and to see where resources are needed for further research or public health interventions.

Using the Tracking Network, you can view maps, tables, and charts with data about:

- Chemicals and other substances found in the environment
- Some chronic diseases and conditions
- The area where you live

SOURCE: <http://ephracking.cdc.gov/showHome.action>

Building the Tracking Network



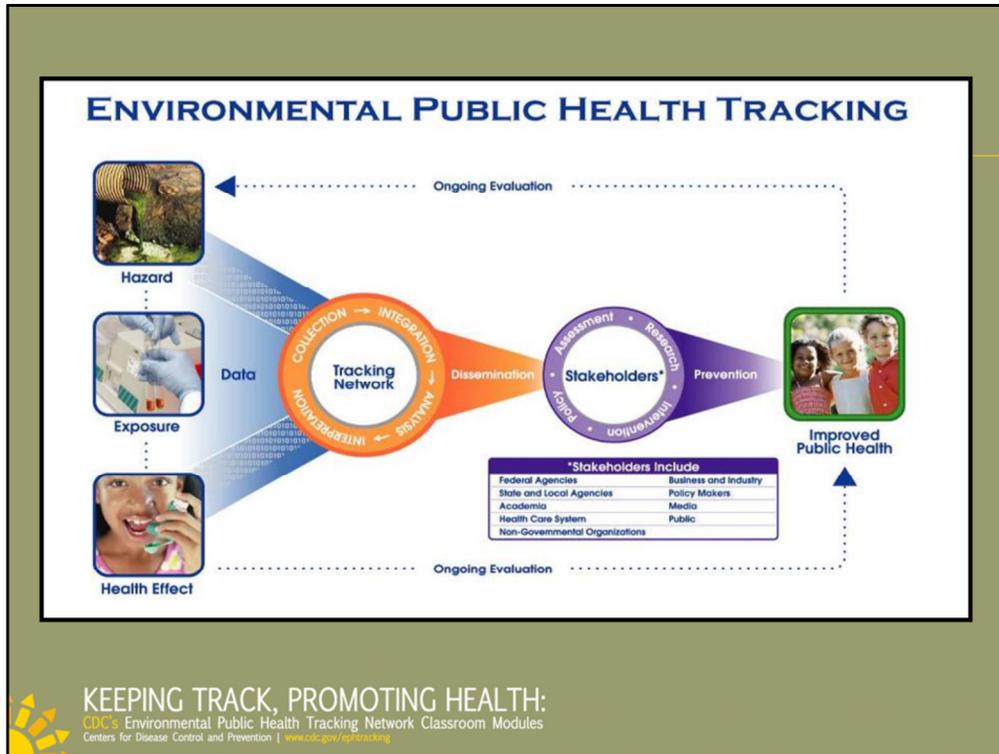
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[INSTRUCTORS: This is an optional slide. If you don't want to cover this in class, consider asking students to research the history of the Tracking Network as a homework assignment or for extra credit.]

I wanted to give a brief history of how the Tracking Network came to be.

It all started when a study from the Pew Commission determined a fundamental gap in knowledge about how the environment affects public health. This sparked Congress to provide funding to CDC to begin building the Tracking Network in 2002. By working with state and local health departments, federal partners, professional partners, and community groups, CDC laid the foundation for a system to track environmental hazards and the health problems they may cause. This required collecting and standardizing differing types of health and environmental data so they could be compared for analysis, and organizing the information into a user-friendly online resource with useful applications.

SOURCE: CDC's Environmental Public Health Tracking Program Presentation; L. Hines.



This conceptual model gives you a high-level visual of the foundational concepts that the Tracking Network is built on.

Hazard, Exposure, and Health Effect data are standardized and integrated into the National Tracking Network. In many states and at the national level environmental and health data are kept in disparate systems, which makes it difficult to combine them for meaningful analysis.

Once these data are integrated into one system, (*orange circle*), they can be analyzed, interpreted, and disseminated to the many stakeholders who want access to this type of information. Stakeholders (*purple circle*) include a wide variety of audiences.

SOURCE: CDC's Environmental Public Health Tracking Program Presentation; L. Hines.

Why is the Tracking Network Important?

Before Tracking	With Tracking
Simple questions could take months to answer	Can respond quickly—often within hours—to locate hazard sources or answer concerns
Environmental and health fields were often separated	These two worlds are brought together to the benefit of all
Focused mainly on acute events such as hazardous chemical releases or point-source pollution	Ability to trace amounts and geographic spread of pollutants over time, allowing monitoring of long-term trends and place those acute events in context
Environmental health surveillance was more difficult than infectious disease surveillance	The same "disease detective" skills can be applied to finding environmental causes of illnesses and then take preventive measures to protect the public's health


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Why would you want to use the Tracking Network? Let's consider these before and after points.

Before tracking, even simple questions about health and the environment could take months to answer.

With a tracking network in place, public health officials can respond quickly—often within hours—to locate hazard sources or answer citizens' concerns.

Before tracking, environmental and health fields were often separated both physically and philosophically.

With tracking, these two worlds are brought together to the benefit of all.

Before tracking, public health and environmental officials concentrated mainly on acute events such as hazardous chemical releases or point-source pollution, such as air pollution from a specific factory.

With tracking in place, officials can trace amounts and geographic spread of pollutants over time. This capability allows the officials to monitor long-term trends and place those acute events in context.

Before tracking, environmental health surveillance was more difficult than infectious disease surveillance, a traditional area of concern for CDC and state and local health departments.

With tracking, we can apply the same "disease detective" skills to finding environmental causes of illnesses and then take preventive measures to protect the public's health.

Why is the Tracking Network Important?

- The Tracking Network can help:
 - Determine areas with at-risk populations
 - Leverage resources and develop partnerships
 - Evaluation of control and prevention measures
 - Facilitate policy development



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As you see, the Tracking Network can help in a variety of areas, including:

- Determine areas with at-risk populations
- Leverage resources and develop partnerships
- Evaluation of control and prevention measures
- Facilitate policy development

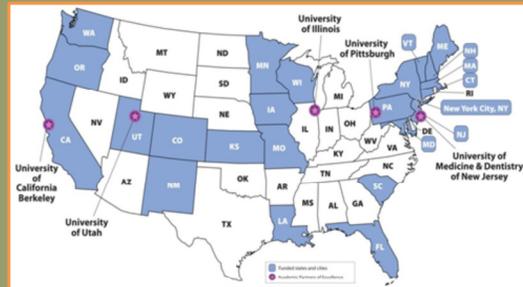
TRACKING NETWORK DATA



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Tracking Network Data Sources

- Grantees
 - Health departments in 23 states and 1 city (NYC)
- Partners
 - CDC programs
 - Federal agencies



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As you learned, the Tracking Network has data from a variety of sources.

CDC funds health departments in **23 states and 1 city (NYC)** to implement, maintain, and expand local tracking networks that contribute data to the National Tracking Network. Each local network contributes nationally consistent data and measures on topics such as hospitalizations for asthma and heart attacks, birth defects, and community drinking water. In addition, the local networks are able to include data that are important to their residents. Examples include environmental tobacco smoke (MN), pests and pesticide use (NYC), and coastal conditions (SC).

Other partners include federal agencies and CDC programs.

For example: CDC National Center for Health Statistics and the Childhood Lead Poisoning Prevention Program contribute health data and information included on the Tracking Network.

Federal agencies provide national data sets, for example: Environmental Protection Agency (air data), the National Institutes of Health's National Cancer Institute (some cancer data), National Aeronautics and Space Administration (temperature data related to climate change), US Census Bureau (population characteristics), National Oceanic and Atmospheric Administration

SOURCE: <http://ephttracking.cdc.gov/showStateTracking.action>

Data on the Tracking Network



Visit: <http://ephtracking.cdc.gov/docs/EPHTDataSources.pdf>

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The Tracking Network today has and continues to acquire data about:

- Hazards in the environment,
- If a person was exposed to one of them, and
- Health problems that may be related to these exposures.

Of note, in addition to data, the Tracking Network provides contextual information and prevention messages making it a robust resource.

I'm going to run through the environment data on the Tracking Network first. I encourage you all to carefully read the "Tracking" page about each specific health topic on your own time so you understand the data sources and limitations of the data sets. Additionally, here's a helpful handout.

(HANDOUT: Print Data Sources Overview Fact Sheet - <http://ephtracking.cdc.gov/docs/EPHTDataSources.pdf>)

ENVIRONMENTAL HAZARD DATA



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Environmental Hazard Data

- Air quality
- Water quality
- Climate change
- Community design
- Homes



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Environmental hazard data play a vital role in tracking efforts. Understanding the distribution and concentrations of pollutants in the environment will increase public health professionals' ability to understand the role these hazards play in peoples' health and to develop ways to help people stay healthier.

There are several types of hazard data that are useful to environmental public health tracking. These include air quality data and water quality data, climate change data, and information about hazards in the home and associated with community design, like lead poisoning, transportation, and motor vehicle fatalities.

[DISPLAY: <http://ephttracking.cdc.gov/showRiskLandingSolution.action>]

Environmental Hazard Data: Air

Outdoor Air

Home > Environments > Outdoor Air

National Environmental Public Health Tracking

Air Quality

Tracking Air Quality

Monitor + Modeled Air Data

Health Impacts of Fine Particles in Air

Related Links

Air Quality Indicators

Search Air Quality Data

Tracking Links

Environments

Health Effects

Population Data

Info by Location

Quick Links

Home

About Tracking Program

State & Local Tracking Portals

Indicators & Data

Secure Portal

Print page

Bookmark and share

CDC on Facebook

CDC on Twitter

Tracking Hot Topics

Check out CDC's Extreme Heat Media Toolkit

Test Your Knowledge: Hurricanes

Read in-depth biomonitoring info in CDC's national exposure report

Check out ATSDR's Toxic Substances Portal

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

Read More >>

Tracking Success Stories

Colorado

Florida

Maine

Maryland

Massachusetts

Tracking Air Quality

Learn how these data are collected and how they are being used on the Tracking Network.

Search Data

Access data through maps, tables, and charts.

Visit: <http://ephtracking.cdc.gov/showAirLanding.action>

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There are two kinds of air quality data that are particularly relevant to Tracking.

ACTIVITY: Please take 15 minutes to click through the Environment section of the Tracking Network and determine the types and sources of air quality data available on the Tracking Network. Please be prepared to share your findings with the class.

NOTE TO INSTRUCTOR: The two kinds of air quality data that are particularly relevant to Tracking are monitor and model.

[DISPLAY: <http://ephtracking.cdc.gov/showAirLanding.action>]

ACTIVITY

Environmental Hazard Data: Air

- Air quality
 - Monitored data
 - Modeled data



Quick Links

- [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 air agencies. The Environmental Protection Agency (EPA) provides air pollution data about ozone and particulate matter (PM_{2.5}) 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_{2.5} 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_{2.5}, evaluate health impact, conduct analytical studies linking health effects and the environment, and guide public health actions. For more information read the [Air Quality Data Available on the Tracking Network Fact Sheet](#).



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What did you find? (Call on four students)

Monitored Data, i.e., EPA's Air Quality System

- <http://ephracking.cdc.gov/showAirMonModData.action>
- Air monitoring in the United States is conducted by many federal, state, local, and tribal air agencies. The Environmental Protection Agency (EPA) provides air pollution data about ozone and particulate matter (PM_{2.5}) 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.

Modeled 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_{2.5} 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.

Environmental Hazard Data: Water

- Water quality
 - Community water



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[DISPLAY: <http://ephtesting.cdc.gov/showWaterLanding.action>]

Drinking water quality is an important public health issue because contamination in a single system can expose many people at once.

Exposure to contaminants in drinking water can cause many adverse effects from the more immediate gastrointestinal illness to long-term illnesses that can develop overtime, such as reproductive disorders, cancer, or neurological disorders.

The risk of developing a specific disease depends on many factors:

- The specific contaminant,
- The level and potency of the contaminant,
- The route of contamination into the body (e.g., drinking or showering), and
- The person's individual susceptibility.
- Sensitive groups, such as the elderly, children, and pregnant women, are more likely to suffer ill effects than the rest of the population.

ACTIVITY

Environmental Hazard Data: Water

- How is community drinking water tracked?
- What contaminants are being monitored?
- What are the data sources?



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ACTIVITY: Visit and read through the Water section:
<http://ephtracking.cdc.gov/showWaterLanding.action>

Answers:

- How is community drinking water tracked?
<http://ephtracking.cdc.gov/showWaterCollectionQuality.action>
- What contaminants are being monitored?
<http://ephtracking.cdc.gov/showWaterContaminants.action>
- What are the data sources?
<http://ephtracking.cdc.gov/showCommunityWaterIndicators.action>

(INSTRUCTOR: Call on two students to share findings.)

Environmental Hazard Data: Climate Change

- Extreme heat
 - Weather and health data can be used to identify patterns in extreme heat and their associated health effects.
 - These indicators use data from the past to identify extreme temperatures, deaths that might be related to heat, and conditions that make people vulnerable to heat.



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[DISPLAY: <http://ephtesting.cdc.gov/showClimateChangeLanding.action>]

Climate change is an area of study in environmental health that we've seen a lot about recently in the news. As a result of the changing climate, serious weather events such as heat waves, droughts, flooding, tropical cyclones, and rises in sea level happen more often. Some types of air pollution may also increase.

Our changing climate may affect some of the things you need to be healthy such as clean air and water, enough food, and a place to live. Changes in climate also can impact infectious disease rates. For example, climate change may result in changing distribution of vector-borne and zoonotic diseases prevalent in the United States. This could cause diseases such as malaria and dengue fever to re-emerge, or facilitate the introduction and spread of new disease agents, such as West Nile virus. In addition, climate directly affects the number of new cases of waterborne diseases, like cholera, through effects on water temperature and precipitation frequency and intensity.

A wide variety of organizations (federal, state, local, multilateral, private and nongovernmental) are working to address the implications of global climate change. Despite this breadth of activity, the public health effects of climate change remain largely unaddressed.

Today, climate change data on the Tracking Network covers heat waves. The Network includes a combination of weather and health data that can be used to identify patterns in extreme heat and their associated health effects. These indicators use data from the past to identify extreme temperatures, deaths that might be related to heat, and conditions that make people vulnerable to heat.

It is important to note that linking climate change to a specific health problem is difficult. For example, a person having a heart attack may have other health conditions not related to heat exposure. However, the information CDC has used is a good starting point to track how climate change can affect health.

Environmental Hazard Data: Community Design

- Types of transportation to work
- Air quality (ozone and PM_{2.5})
- Childhood lead poisoning
- Motor vehicle-related fatalities



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[DISPLAY: <http://ephttracking.cdc.gov/showCommunityDesignAndHealth.action>]

Public health problems in the United States, such as motor vehicle-related injuries, obesity, physical inactivity, and breathing and heart problems related to air pollution, are all influenced by the design of our communities. Community design and personal behaviors influence public health issues, such as injury, physical activity, obesity, and health problems due to pollution. Designing communities that encourage healthy choices is critical to improving the health and quality of life of community members.

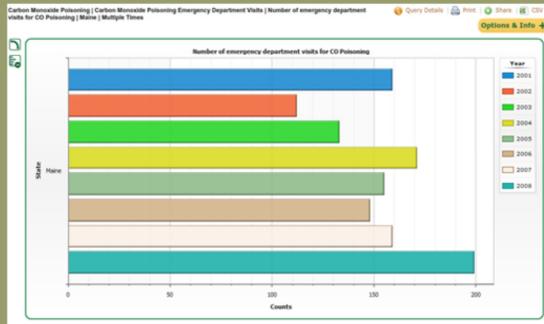
The Tracking Network currently contains data on the following indicators related to community design:

- Types of transportation to work
 - Source: U.S. Census American Community Survey
- Air quality (ozone and PM_{2.5})
 - Source: EPA's AQS
- Childhood lead poisoning
 - Source: State and local lead [prevention programs](#)
- Motor vehicle-related fatalities

Source: Fatality Analysis Reporting System (FARS) (<http://www-fars.nhtsa.dot.gov/Main/index.aspx>) collected by the National Highway Traffic Safety Administration (NHTSA)

Environmental Hazard Data: Homes

- Homes
 - Childhood lead poisoning
 - Age of housing
 - Carbon monoxide poisoning



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The connection between housing and health is well established. People spend half of every day, sometimes more, inside their homes and are exposed to a variety of environmental factors.

On the Tracking Network, information is available about two major health effects associated with housing: childhood lead poisoning and carbon monoxide (CO) (<http://ephtacking.cdc.gov/showChildhoodLeadPoisoning.action>) and carbon monoxide poisoning (<http://ephtacking.cdc.gov/showCarbonMonoxideLanding.action>).

Between 1999 and 2004, an estimated 240,000 children 1-5 years of age had elevated blood-lead levels, and most of these levels were caused by lead paint-hazards in and around their homes. Lead exposure causes lasting damage to a child's neurodevelopment and behavior problems. The Tracking Network provides information about:

- Blood-lead testing of children younger than 36 months by birth year cohort, and
- Census data to provide information about the number and percentage of homes built before 1950 and the poverty level in a specific area.

Having all of this information together helps assess areas of high risk. Living in pre-1950s homes and in poverty have been identified as risk factors for elevated blood-lead levels in children.

Carbon monoxide poisoning is one of the leading causes of unintentional poisoning deaths in the United States. Between 2001 and 2003, more than 15,000 Americans were treated in hospital emergency departments for non-fire-related CO exposure; 64% of these exposures occurred in the home. Data on the Tracking Network comes from hospital and emergency department databases and death certificate data.

[TABLE: Number of Emergency Room Visits for CO Poisoning in Maine, 2001-2008]

Environmental Hazard Data Limitations

- Coverage
- Spatial characteristics
- Temporal characteristics



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[INSTRUCTORS: This is an optional slide. If you don't want to cover this in class, consider asking students to research the limitations of environmental data as a homework assignment or for extra credit.]

Environmental data systems, while important to efforts to control pollution, are limited. Some of these limitations include coverage, spatial characteristics, and temporal characteristics.

Coverage: For example, a system might only include specific pollutants, and it might cover only a certain geographic area. Additionally, most data sets are subject to size cutoffs that limit their inclusion in certain data systems and hence their tracking use. Some of these cutoffs may include:

- *Throughput or discharge thresholds:* Facilities whose emissions fall below these thresholds are not included in these environmental data systems.
- *Potential to emit:* The potential of a facility to emit is not tracked by these systems.
- *Numbers of employees:* Only facilities of a certain size are required to submit data to some environmental data systems.

Spatial Characteristics

Unlike health effects data, environmental monitoring generally occurs in locations where pollutants are suspected. Areas where pollution is less likely may not be monitored at all. Additionally, monitoring may take place at the point of generation rather than at locations where people, animals, or the environment may be exposed to the pollutant. Thus the data may not capture the full extent of the pollution's potential effect.

Like health data, various sets of environmental data have various levels of detail based on their original intended uses. Consequently, the spatial resolution of environmental data systems may not be consistent with the health data resolution. Some of the more common spatial resolutions for environmental data systems are:

- Longitude/latitude coordinates of a specific point,
- Address,
- Grids of various dimensions, and
- Geopolitical unit (census tract, zip code, county).

Temporal Characteristics

The availability of environmental data varies over time. The duration of any data collection operation will mainly depend on existing environmental statutes and regulations. For example, the PM_{2.5} standard took effect in 1999, so monitoring data for that pollutant was not routinely required before that date. Discontinuities in available data can occur when environmental statutes and regulations are revised. Moreover, some monitoring data are only available seasonally. And data systems have different standards regarding when data collection begins and ends at various facilities.

Frequency of data collection also varies, and this variation must be considered when attempting to link environmental and health data. Some systems receive data continuously and some at intervals. These intervals can range from once every hour or once every day to once every year or even once every three years. For example, in Wisconsin surface water systems must monitor for arsenic either annually or once every three years. If, however, they meet certain requirements they may apply for a waiver that extends the monitoring interval to nine years.

SOURCE: ANGIE PLEASE ADD THE SOURCE

HEALTH DATA



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Health Data

- Asthma
- Birth defects
- Cancer
- Carbon monoxide poisoning



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[DISPLAY: Consider projecting and clicking through pages as you lecture:
<http://ephtracking.cdc.gov/showHealthEffects.action>]

Overall, tracking health conditions in a standard way over time can help us better understand each of their impact across the United States, monitor trends, identify high risk groups, and determine the impact of public health policy aimed at preventing these health conditions.

Asthma data

The Tracking Network includes data on asthma hospitalizations and asthma prevalence, which is the number of people diagnosed with and living with asthma. These data are useful in providing estimates about the geographic distribution and effects of asthma among different populations. These estimates can be used to plan and evaluate asthma interventions. Hospitalization data come from Tracking grantees and asthma prevalence data come from CDC's Behavioral Risk Factor Surveillance System (BRFSS).

Birth defects data

Birth defects data on the Tracking Network come from several grantee states. Not every state collects birth defects data. Among the states that do collect birth defects data, not all of their surveillance systems collect data in the same way; so you should not compare information from one state to another. Comparisons that can be made within a state include:

- Frequency of birth defects by area such as county,
- Frequency of birth defects over time, and
- Frequency of birth defects by race or ethnicity and changes in these measures over time.

Cancer data

A few websites host cancer data. However, the Tracking Network is making these data easier to access and use. In addition, the Tracking Network can add to existing public health surveillance of cancer by examining potential ecological relationships with environmental exposures. Cancer data on the Tracking Network come from the National Cancer Institute's Surveillance Epidemiology and End Results Program (SEER) and CDC's National Program of Cancer Registries.

Carbon monoxide poisoning data

The Tracking Network uses several sources to get state and local data about CO poisoning. These sources include Tracking grantees' hospital and emergency department databases and death certificate data collected by CDC's National Vital Statistics System.

SOURCE: ephtracking.cdc.gov/showhealtheffects.action

Health Data

- Childhood lead poisoning
- Developmental disabilities
- Heart attacks
- Reproductive and birth outcomes



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Childhood lead poisoning data

The Tracking Network uses several sources to get state and local data about **lead poisoning**. These sources include data collected by state and local childhood lead poisoning prevention programs. It provides information about blood lead testing and blood lead levels among children born in the same year, known as a birth cohort. The Tracking Network also uses U.S. Census data to provide information about the number of homes built before 1950 and the poverty level in a specific area. Having all of this information together helps assess testing within areas of high risk. Living in homes built before the 1950s and living in poverty have been identified as risk factors for elevated blood lead levels in children.

Developmental disabilities data

No nationwide system actively tracks all developmental disabilities. The Environmental Public Health Tracking Network is currently using two developmental disabilities data sources: CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network, and the Department of Education's Individuals with Disabilities Education Act (IDEA).

- The ADDM Network monitors autism spectrum disorders (ASDs) and other developmental disabilities for several locations across the country in order to estimate the population prevalence of ASDs among 8-year-old children.
- The IDEA data provide an estimate of children who are receiving public special education services in the U.S. IDEA data are collected for regulatory purposes and implementation varies from state to state.

Heart attack data

Currently, the United States does not have a single heart attack surveillance system, nor does a surveillance system exist for coronary heart disease in general. Death is the main descriptor for national data for heart attacks. The Tracking Network hosts heart attack hospitalization data from Tracking grantees. The Tracking Network is using hospital admission dates to count the cases of heart attacks. Other public health programs use the hospital discharge dates to count the cases of heart attacks. This counting variance may cause a difference in heart attack rates between the Tracking Network and other public health Web sites.

Reproductive and birth outcomes data

This category includes data on fertility and infertility; infant and perinatal deaths; sex ratio (the ratio of male to female births); premature births; low birthweight. Vital statistics data collected by CDC are used to estimate these measures.

SOURCE: ephtracking.cdc.gov/showhealtheffects.action

POPULATION DATA



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Population Data: Characteristics

- Data that can provide context about relationships between exposures and health effects
 - Information about age, sex, race, and behavior or lifestyle may help us understand why a person has a particular health problem



Population data contributes to better understanding of how our health is affected by the environment.



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[DISPLAY: <http://ephttracking.cdc.gov/showPopCharEnv.action>]

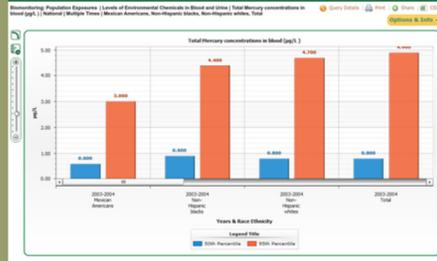
Other data on the Tracking Network includes population characteristics. These data help us learn about relationships between exposures and health effects. For example, information about age, sex, race, and behavior or lifestyle choices that may help us understand why a person has a particular health problem.

Data sources for Population Characteristics data on the Tracking Network include CDC's National Vital Statistics System and the U.S. Census Bureau

SOURCE: ANGIE PLEASE ADD THE SOURCE

Population Data: Biomonitoring/Population Exposures

- Measures human exposure to environmental chemicals, national estimates only



Visit: <http://ephtracking.cdc.gov/showBiomonitoringTracking.action>

Eleven Chemicals:

Arsenic
Benzene
Cadmium
Chloroform
Cotinine
Lead
Mercury
Naphthalene
Pyrene
Toluene
Uranium

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(DISPLAY: <http://ephtracking.cdc.gov/showBiomonitoringTracking.action>)

The Tracking Network also has biomonitoring data for 11 chemicals.

You can access these biomonitoring data to:

- Find out what chemicals people are exposed to and the levels of the chemicals found,
- Evaluate prevention efforts, and
- See if exposure levels are different among potentially vulnerable groups – the table shown here compares mercury blood levels across different ethnicities, for example.

These environmental chemicals were selected for one or more of the following reasons:

- At least half of the U.S. population has enough of the specific chemical in their blood or urine to measure,
- They have widespread environmental sources of exposure,
- The data are related to other data on the Tracking Network or other environmental data sources such as drinking water or air quality data, and
- We can likely reduce exposures to these chemicals through changes in policy, regulations, or personal behaviors.

Biomonitoring data come from CDC's National Health and Nutrition Examination Survey (NHANES) (<http://www.cdc.gov/nchs/nhanes.htm>). NHANES evaluates a nationally-representative sample of the U.S. population. It is designed for survey findings to reflect the nation as a whole rather than individual counties or states.

[TABLE: <http://ephtracking.cdc.gov/portal?query=E94460C4-5AFE-D54B-80F9-FB03FD211707>]

SOURCE: <http://ephtracking.cdc.gov/showBiomonitoringTracking.action>

USING THE TRACKING NETWORK

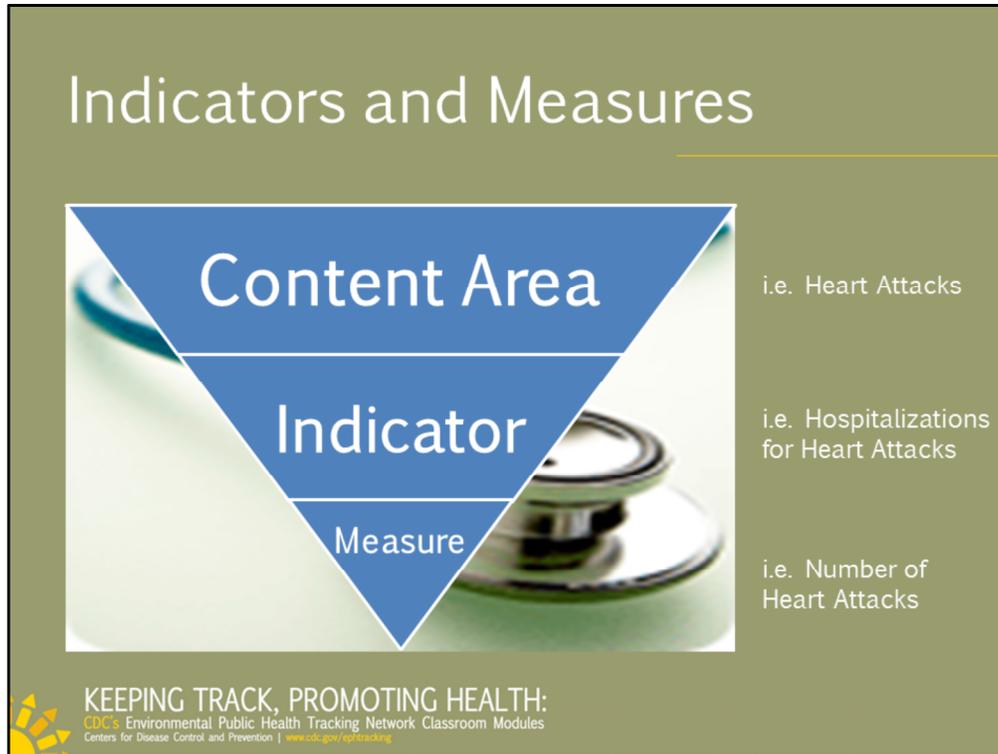


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Centers for Disease Control and Prevention | www.cdc.gov/ephttracking

Using the Tracking Network

- Queries
- Maps, charts, and tables
- Share, and export

Now comes the fun part – using the Tracking Network. You can search data by conducting a query, and display the data in maps, charts, and tables for easy evaluation, comparison, and sharing.



Each query you perform will require you to choose the:

- 1) Content area:** The health condition, hazard, or population characteristic.
- 2) Indicator:** An indicator is one or more items, characteristics or other things that will be assessed and that provide information about a population's health status, the environment, and other factors with the goal of allowing us to monitor trends, compare situations, and better understand the link between environment and health. It is assessed through the use of direct and indirect measures (e.g. levels of a pollutant in the environment as a measure of possible exposure) that describe health or a factor associated with health (i.e., environmental hazard, age) in a specified population.
- 3) Measure:** Measures are available for each indicator. On the Tracking Network, a measure is a summary characteristic or statistic, such as a sum, percentage, or rates

SOURCE: ephttracking.cdc.gov/showglossrybytermindex.action

Indicators and Measures

Content Area	Indicator	Measure
Heart Attacks	Hospitalizations for Heart Attacks	Number of Heart Attacks
Asthma	Asthma Prevalence among Children	Percent of Children Ever Diagnosed with Asthma
Asthma	Hospitalizations for Asthma	Crude Rate of Hospitalizations for Asthma per 10,000 population
Cancer	Incidence of Bladder Cancer	Annual Number of Cases of Bladder Cancer
Population Characteristics	Demographic Measures	Number of People
Climate Change	Heat-Related Mortality	Number of Deaths due to Heat Stroke/Exhaustion by state, by month, by year
Homes	Blood Lead Testing and Age Housing	Number of Homes Built Before 1950 (2000 census)

Visit: <http://ephtracking.cdc.gov/showIndicatorsData.action>



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Centers for Disease Control and Prevention | www.cdc.gov/ephtracking

Here are a few examples of content areas, indicators, and measures.

For more information and definition for each indicator, visit:
<http://ephtracking.cdc.gov/showIndicatorsData.action> (see View Indicator Definitions and Documentation) at bottom left of the page.

Air Quality Data Query

Visit: <http://ephracking.cdc.gov/showAirIndicators.action>

[DISPLAY and direct students to visit: <http://ephracking.cdc.gov/showAirIndicators.action>]

Please take a few minutes to read through this page and then we're going to conduct a query together.

[INSTRUCTOR: Scroll to the very bottom of this webpage to the drop down box "Search Air Quality Data." Provided below is an example query starting here; please feel free to customize for your location, if you wish]

Let's say we want to see how air quality is trending in California. Let's conduct three queries together:

- 1) First, we must chose an indicator. Select: Ozone-Days Above Regulatory Standard – Monitored and Modeled
- 2) Now we are on the Query Page, where we can customize our search further.
 - 3) Select the Measure – Number of days with maximum 8-hr average ozone concentration above the NAAQS
 - 4) Select California, All Counties
 - 5) Select 2005 and submit
 - 6) Look at San Bernardino (bottom right corner of map), 110 counts—the worst air quality in the state with the most number of days where the ozone concentration exceeds the regulatory standard.

- 1) Let's take a look at 2006. [INSTRUCTOR: Return to Air Quality Indicators page, which should still be open]: Choose the same indicator, measure, state, and then 2006 for the year:
 - 1) Ozone-Days Above Regulatory Standard – Monitored and Modeled
 - 2) Select the Measure – Number of days with maximum 8-hr average ozone concentration above the NAAQS
 - 3) Select California, All Counties
 - 4) Select 2006 and submit
 - 5) Now look at San Bernardino, 116 counts. Looks like the trend is that air quality in San Bernardino is getting worse from 2005-2006. Well, that's the great thing about having the Tracking Network, we have multiple years of data to review for trends.

- 2) Now let's look back at 2003 and 2004 and see if there is a trend.
 - 1) Ozone-Days Above Regulatory Standard – Monitored and Modeled
 - 2) Select the Measure – Number of days with maximum 8-hr average ozone concentration above the NAAQS
 - 3) Select California, All Counties
 - 4) Select 2003 and submit (do again, select 2004 and submit)
 - 5) Look at San Bernardino, 125 (in 2003) and 118 counts (in 2004)

Air Quality Data Query

Year	Number of Days Above Ozone Air Quality Standard, San Bernardino County
2003	125 counts
2004	118 counts
2005	110 counts
2006	116 counts

About the Indicator: Ozone - Days Above Regulatory Standard

The number of days in which the daily maximum 8-hour average ozone concentration exceeds a standard provides an indication of short-term spikes in ozone concentrations. This may give you an idea of how many days per year you may be exposed to unhealthy levels of ozone.

[Podcast: Asthma Rates and Air Quality](#)

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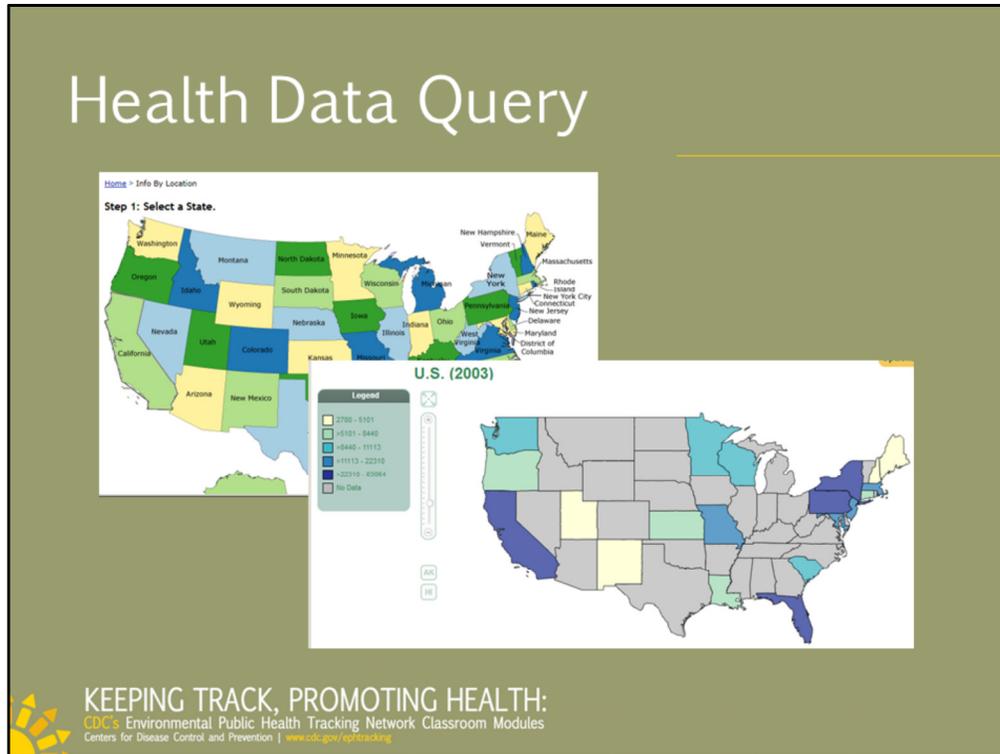
So, air quality was actually worse in years past. The number of days Above the Ozone Air Quality Standard are getting fewer, better. That's something to keep an eye on as we get more recent data; is air quality actually improving? Are intervention measures the region is taking working?

Regardless, members of this county are breathing in poor quality air many days of the year. How might that be affecting their health?

(For additional reading about EPA's Air Quality Standards visit:
<http://www.epa.gov/air/criteria.html>)

OPTIONAL PODCAST: (<http://www2c.cdc.gov/podcasts/player.asp?f=5883117>) CDC Tracking experts discuss how to link asthma rates and air quality data.

Health Data Query



You can conduct queries a number of ways, including by location.

[DISPLAY: <http://ephttracking.cdc.gov/showLocationLanding.action>]

Let's use this feature to query health information in California and see if we can see a connection to air quality.

Select California on the map. Scroll down the page, select the content area. Today let's look at heart attacks.

1) Content area: Heart Attack

Then select Indicator and Measure.

Let's choose:

- 1) Indicator: Hospitalizations
- 2) Measure: Number of Hospitalizations
- 3) Date: 2003
- 4) Then submit

We see that as a state California is on the high end nationally—dark blue—with 63,064 cases. Unfortunately, we don't have county-level data for this condition and indicator, but let's go ahead and see how this trends.

Health Data Query

Year	Number of Days Above Ozone Air Quality Standard, San Bernardino County	Number of Heart Attack Cases, CA
2003	125 counts	63,064
2004	118 counts	59,514
2005	110 counts	57,157
2006	116 counts	54,729

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I also ran queries for

- 2004: 59,514
- 2005: 57,157
- 2006: 54,729

So, if we look at air quality in San Bernardino that we pulled earlier, compare that with heart attack cases in the state year over year, it looks like both are trending better from 2003-2006 . We're seeing improvements in air quality, and heart attack cases are down—there's fewer heart attacks in the region at the same time.

Health Data Query

CA.GOV California Department of Public Health CDPH

CDPH EHB California Environmental Health Tracking Program

Home Data and Information Tools and Services Publications How to Use This Website About CEHTP Glossary

Home > Data and Information > Heart Attacks Last Edited: 9/30/10

Heart Attacks (Myocardial Infarctions)

Heart attacks are the leading cause of death for both men and women in the United States. There are early warning signs, known risk factors, and treatment available, that can prevent death and disability due to heart attacks. Research has found a relationship between environmental factors, like air pollution, and cardiovascular disease.

The California Environmental Health Tracking Program (CEHTP) provides heart attack data and information in an effort to better understand this relationship.

Make your own maps, tables, and charts with the Heart Attack Data Query

Additional information about heart attacks is provided in the links below. Select a topic below or use the left side bar to navigate.

- ➔ [What is a Heart Attack?](#) A heart attack occurs, most often as a result of heart disease, when blood flow that brings oxygen to the heart muscle is severely reduced or cut off completely. Heart attacks can be prevented by [more](#).
- ➔ [Who is at Risk?](#) Heart attacks are acute events that most often occur among people with chronic cardiovascular disease (CVD). Different segments of the population bear a disproportionate burden of hospitalizations due to heart attack... [more](#)
- ➔ [Prevention & Treatment:](#) It's important to know the warning signs of a heart attack. Warning signs include chest pain, upper body discomfort (e.g. arms, back, neck, jaw, stomach), shortness of breath, nausea, vomiting, and fainting. [more](#)

http://www.ehib.org/page.jsp?page_key=108

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Centers for Disease Control and Prevention | www.cdc.gov/ephttracking

Now let's see if we can find county-level health data for heart attacks on California's state tracking network. Again, the state tracking networks are a great place to look for more localized data sets.

[DISPLAY: http://www.ehib.org/page.jsp?page_key=108]

- Search: Data and Information/Heart Attacks/Data Query/Hospitalizations/2003/All Races/All Adults/Both Sexes/Counties/Age-Adjusted Rates
- So, San Bernardino County saw 3,418 hospitalizations from heart attacks in 2003.
- Let's look at how this trends with the other information we've pulled.

Health Data Query

Year	Number of Days Above Ozone Air Quality Standard, San Bernardino County (VERY HIGH)	Number of Heart Attack Cases, CA (HIGH nationally)	Number of Heart Attack Cases, San Bernardino
2003	125 counts	63,064	3,418
2004	118 counts	59,514	3,189
2005	110 counts	57,157	3,169
2006	116 counts	54,729	2,886

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And there we have it. County rates are also trending down. We're seeing improved health and air quality: Heart attack cases are decreasing in correlation with fewer days where air quality is poor and above the ozone air quality standard.

By conducting this query on the National Tracking Network, we were able to see how California air quality rates compared county-to-county; how heart attack rates compared to other states (they are high, which is worrisome to public health officials); and then visit the state tracking network to get the county-level health data we wanted.

Just for fun, let's look at heart attack rates in San Bernardino for 2009—the most recent info available on the state tracking network. It's 2,781. The trend continues—**heart attack rates are down further**—fewer residents are having heart attacks. The health department must be doing something right!

ACTIVITY: Query

Home | About | Contact Us | Help | Search | About This Data | Need Help?

Hide Query Panel

Step 1: Select Your Content Step 2: Choose Geography & Time Step 3: Advanced Options Step 4: Submit

Select Content Area
Select Indicator
Select Measure

Show only data about children

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tracking@cdc.gov

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CDC's Environmental Public Health Tracking Network
tracking@cdc.gov

Disclaimer:
By using these data, you signify your agreement to comply with the following requirements:

1. Use the data for statistical reporting and analysis only.
2. Do not attempt to learn the identity of any person included in the data and do not combine these data with other data for the purpose of matching records to identify individuals.
3. Do not disclose or make use of the identity of any person or establishment discovered inadvertently and report the discovery to: tracking@cdc.gov.
4. Do not imply or state, either in written or oral form, that interpretations based on the data are those of the original data sources and CDC unless the data user and data source are formally collaborating.
5. Acknowledge, in all reports or presentations based on these data, the original source of the data and CDC.
6. Suggested citation: Centers for Disease Control and Prevention, National Environmental Public Health Tracking Network, (n.d.) Web. Accessed: 6/4/2013. www.cdc.gov/ephrtracking.

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Now conduct your own query from the query home page. Starting on the homepage of the Tracking Network, click “Explore Tracking Data” in the middle of the page. This screen shown is what you should see
(<http://ephrtracking.cdc.gov/QueryPanel/EPHTNQuery/EPHTQuery.html?c=-1&i=-1&m=-1#>
)

Click “Need Help?” and read the instructions, then conduct a query of your choice and report back to the class the content area, indicator, measure, geography/time you chose, and the query result.

(HANDOUT: Tracking User Guide.pdf)

Please also refer to the User Guide for comprehensive query instructions on pages 32-43. Take five minutes to read these pages and five to conduct your query. If you have extra time, play around with the display features – maps, tables, charts.

(REGROUP: Call on students to share findings)

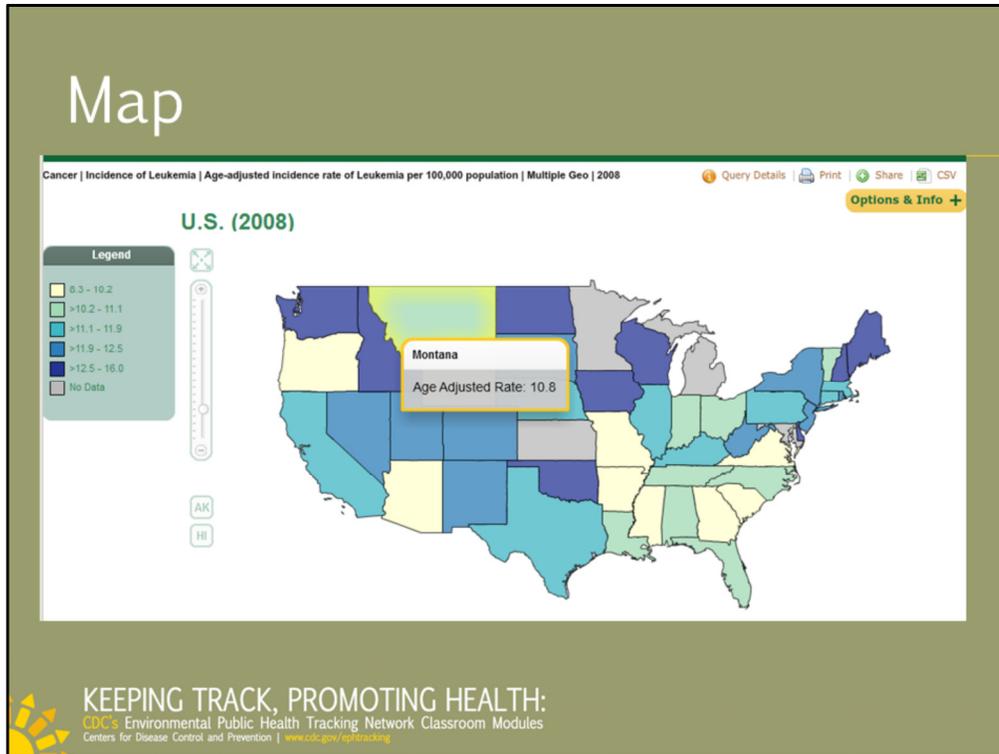
Using the Tracking Network

The screenshot shows a web-based query interface for the CDC's Environmental Public Health Tracking Network. The interface is divided into four steps:

- Step 1: Select Your Content**: Includes dropdown menus for "Cancer" (set to "Cancer"), "Incidence of Leukemia", and "Age-adjusted rate per 100,000 po...".
- Step 2: Choose Geography & Time**: Includes a list of states with checkboxes (Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut) and a list of years (2001-2008) with checkboxes. The year 2008 is selected.
- Step 3: Advanced Options**: Includes a section for "Advanced Options (Optional)" with expandable sections for "Gender" and "Race Ethnicity".
- Step 4: Submit**: Includes a "Run Query" button.

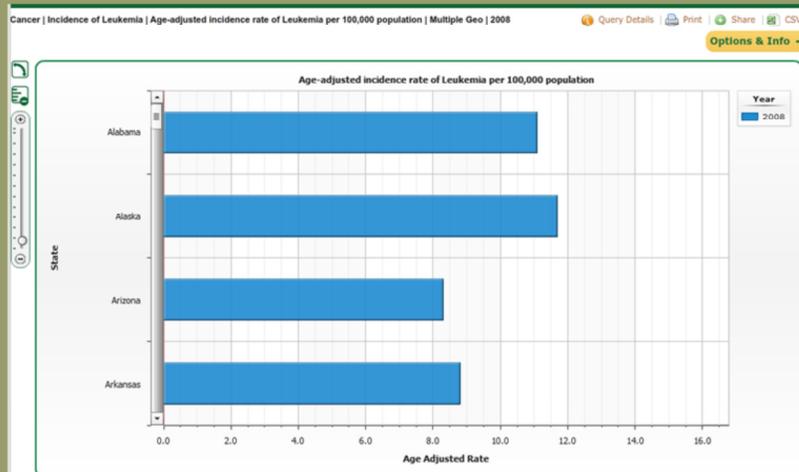
At the bottom of the interface, there is a status bar that reads: "Cancer | Incidence of Leukemia | Age-adjusted incidence rate of Leukemia per 100,000 population | Multiple Geo | 2008".

Let's explore the maps, charts, tables, and how to export and share the data you pull. Everyone please go to the query page and run this query.



You can view the results in a dynamic map—great for comparing state-to-state trends.

Chart



 **KEEPING TRACK, PROMOTING HEALTH:**
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Centers for Disease Control and Prevention | www.cdc.gov/ephttracking

Or chart.

Table

Cancer | Incidence of Leukemia | Age-adjusted incidence rate of Leukemia per 100,000 population | Multiple Geo | 2008

Query Details | Print | Share | CSV

Options & Info +

State	2008
Wisconsin	16.0
North Dakota	15.0
Maine	14.4
Delaware	14.3
New Hampshire	13.8
Idaho	13.4
Washington	13.2
Iowa	13.1
Rhode Island	12.5
Oklahoma	12.5
West Virginia	12.4
Colorado	12.4
New York	12.3
Nevada	12.3
Utah	12.2
South Dakota	12.1
New Mexico	12.1
New Jersey	12.0
Nebraska	11.9
Mississippi	11.8

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Or Table that can be sorted alphabetically by state or by data – high to low as shown.

Then click “Share” to get a quick link to the data you can send your professor, for example, or click “CSV” to export into Excel.

Metadata

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 #

Glossary A-Z CDC A-Z Tracking A-Z

Indicators and Data

Home » Indicators & Data



Environmental public health tracking is the ongoing collection, integration, analysis, and dissemination of data. It is essentially environmental public health surveillance. These data can be used to:

- Quantify the magnitude of a public health problem
- Detect unusual trends in health, exposures, and hazards
- Identify populations at risk of environmentally related diseases or of exposure to hazards
- Generate hypotheses about the relationship between health and the environment
- Direct and evaluate control and prevention measures and individual actions
- Facilitate policy development

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:
Select Content Area
Indicator:

Search for Data

Metadata are "data about data". Metadata describe the content, quality, and context of a dataset and provide links to additional information such as quality assurance documents and data dictionaries. The Tracking Network contains metadata records for datasets used to create the Tracking Indicators and for datasets maintained by national, state, and local environmental health partners.

Search Data-Indicators and Data:

Type in Keywords:

GO ADVANCED SEARCH

Quick Links

- Home
- About Tracking Program
- State & Local Tracking Portals
- Indicators & Data
- Secure Portal
- Print page
- Bookmark and share
- CDC on Facebook
- CDC on Twitter

Tracking Hot Topics

Read in-depth biomonitoring info in CDC's national exposure report

Check out ATSDR's Toxic Substances Portal

Get the dirt on cleaners and other household chemicals from ATSDR's ToxProfiles

Update on Blood Lead Levels in Children

Evaluation of a Heat Vulnerability Index on Abnormally Hot Days

View our Tracking Success Stories to learn how Tracking is making a difference across the U.S.

View our guide to Building an Environmental

If you're on the homepage, click on the Indicators and Data link in the right column.

Here, you can search by indicator and you can also search metadata— metadata are "data about data". Metadata describe the content, quality, and context of a dataset and provide links to additional information such as quality assurance documents and data dictionaries. The Tracking Network contains metadata records for datasets used to create the Tracking Indicators and for datasets maintained by national, state, and local environmental health partners.

Additional Features

- Resources
- Grantee tracking networks
- Secure portal
- Contextual information

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CDC's Environmental Public Health Tracking Network Classroom Modules
Centers for Disease Control and Prevention | www.cdc.gov/ephracking

The Tracking Network has even more detailed search and display capabilities. I encourage you all to read through the HANDOUT “Tracking Network User Guide” to learn about even more information that is available, and capabilities for searching and displaying data.

The Tracking Network also provides a number of features beyond data, such as links to success stories about how the data have been used to improve public health, a glossary of key terms, and more.

It features quick links to state and city tracking networks where you can find more local-level data and information. [DISPLAY: <http://ephracking.cdc.gov/showStateTracking.action>]

A secure portal provides access to resources for environmental and public health practitioners and researchers. Its primary functions are to:

- Support the implementation of the Tracking Network's nationally consistent data and measures, and
- Provide a secure, online resource center for grantees, partners, and other public health practitioners.

Contextual Information about each content area is also provided, covering:

- General information about the topic
- Exposure and risk information
- Prevention tips
- Information about why the topic is included on the Tracking Network
- Potential uses for the data

Why Use the Tracking Network?

- Quantify the magnitude of a public health problem
- Detect unusual trends in health, exposures, and hazards
- Identify populations at risk of environmentally related diseases or of exposure to hazards
- Generate hypotheses about the relationship between health and the environment
- Direct and evaluate control and prevention measures and individual actions
- Facilitate policy development
- Guide public health actions
- Educate the public so they can take action to protect their health and the health of their families

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Let's recap – why would you use the Tracking Network? Overall:

- 1) To search environment and health data easily in one place
- 2) Find contextual information and resources about how the environment may be affecting public health
- 3) And use that information to:
 - a) Quantify the magnitude of a public health problem;
 - b) Detect unusual trends in health, exposures, and hazards;
 - c) Identify populations at risk of environmentally related diseases or of exposure to hazards;
 - d) Generate hypotheses about the relationship between health and the environment;
 - e) Direct and evaluate control and prevention measures and individual actions;
 - f) Facilitate policy development;
 - g) Guide public health actions; and
 - h) Educate the public so they can take action to protect their health and the health of their families.

In other words, take air for example.

- Health professionals and researchers can search and use these data to track possible exposures to ozone and PM_{2.5}; to evaluate their health impact; to conduct analytical studies linking health effects and the environment; and to guide public health actions.
- Parents can learn about conditions such as asthma or the presence of contaminants in the air where they live and take action to protect their children.
- Elected officials can make more informed health policy decisions. For example, they can see their community's air quality trends to determine if actions taken to reduce pollution levels are working.

TRACKING IN ACTION: SUCCESS STORIES



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Success Story – Protecting People

Increasing Awareness of and Testing for Radon in Oregon

What is the problem?

- Radon is the second leading cause of lung cancer and is the leading environmental cause of cancer deaths in the United States. Radon is a colorless, odorless, tasteless radioactive gas. Testing is the only way to know if radon levels are high in a building or home. In 1993, the U.S. Environmental Protection Agency identified Oregon as having low to moderate levels of radon. However, recent data show that some areas of the state have high radon levels. The state needed more accurate data on radon hazards to promote testing.

What did Tracking do?

- The Oregon Tracking Program and partners developed maps showing radon hazards for areas smaller than counties. Tracking staff used these maps to support public education to encourage in-home radon testing during January 2013, Radon Action Month. They published the radon maps on the health department's Radon Program web pages and on Oregon Tracking's Facebook page. They sent news releases to media outlets announcing the maps and providing information about radon testing.

Improved public health

- Television news coverage and two front-page articles in The Oregonian newspaper about the maps helped raise public awareness of radon hazards and encourage radon testing. Following the media coverage, monthly average visits to the Radon Program's web pages tripled. Data from the American Lung Association (ALA) of Oregon showed that they sold nearly 300 test kits during the first day the front page Oregonian article ran. Within three days, ALA sold more radon test kits online than they did in the entire year of 2012. Increases in radon testing likely will lead to more people taking steps to decrease the amount of radon they come in contact with.



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Let's consider a few case studies to help us understand what types of products or public health actions you might create with the data and situations where you would turn to the Tracking Network.

Since the Tracking Network launched, public health officials have used state tracking networks to identify trends such as increased asthma and lead poisoning rates and areas with people at high-risk of consuming contaminated drinking water. Now, decisions about public health actions can be made much more quickly and easily both nationally and locally.

This first story is from Oregon.

[INSTRUCTOR: Coming soon: consider showing provided "Success Story" videos that feature a state/city representative talking about how they used the Tracking Network to approach an environmental health issue.]

SOURCE: <http://www.cdc.gov/nceh/tracking/success/new.htm#oregon>

Success Story – Protecting People

Evaluating Indoor Smoking Ban Legislation to Protect Residents from Secondhand Smoke in Minnesota

What is the Problem?

- Secondhand smoke, also known as environmental tobacco smoke, causes cancer and other health problems in both children and adults. To help reduce exposure to secondhand smoke, Minnesota passed Freedom to Breathe legislation in 2007. The legislation banned smoking in almost all indoor public places and indoor work sites, including bars and restaurants. In 2011, some legislators worked to repeal the legislation.

What did Tracking do?

- The Minnesota Tracking Program maintains data on secondhand smoke among nonsmokers for the state. Tracking staff analyzed state data to determine if Freedom to Breathe legislation helped reduce residents' exposures to secondhand smoke. Tracking staff found that since 2007, exposures to secondhand smoke decreased among non-smokers. In addition, children's exposures decreased by 20% and adults' exposures decreased by 25%.

Improved Public Health

- Freedom to Breathe legislation remains in place because the tracking program demonstrated that the legislation was associated with a decrease in exposures to secondhand smoke and because there is strong support to keep the smoking bans in Minnesota. In addition, tobacco prevention programs and others have been able to use the tracking data to plan more effective smoking cessation and awareness activities.



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SOURCE: <http://www.cdc.gov/nceh/tracking/success/new.htm#minnesota>

Success Story – Protecting People

Lowering exposure to arsenic from private well water in Utah

What is the problem?

- Some Millard County residents use private wells for cooking and drinking water. The Health Hazard Assessment team of the Utah Department of Health confirmed that in the Delta Conservation Districts, many of the private wells had arsenic concentrations high enough to be an urgent public health hazard.

What did Tracking do?

- The Health Hazard Assessment team used drinking water data from the Utah Tracking Network to assess health effects in residents of Millard County caused by drinking arsenic-contaminated water from private wells.

Improved public health

- Due to the high levels of arsenic found in this study, the Health Hazard Assessment team recommended that well water in this area not be used for drinking or cooking. They also suggested that residents of the area purchase and install water systems to reduce arsenic exposure in the community. Arsenic levels in water will be monitored until amounts are at levels that are not harmful to human health.



KEEPING TRACK, PROMOTING HEALTH:

CDC's Environmental Public Health Tracking Network Classroom Modules
Centers for Disease Control and Prevention | www.cdc.gov/epitracking

SOURCE: http://www.cdc.gov/nceh/tracking/success/pp_utah.htm

Success Story – Saving Money Through Prevention

Informing health care providers about asthma in NYC

What is the problem?

- Each Fall NYC sees a large increase in hospital stays and in emergency department visits for asthma, especially among children. Illness rates in the fall can be three times higher than rates during the summer. Possible reasons include infections among children returning to school, seasonal pollen, and cooler weather.

What did Tracking do?

- The NYC Tracking Program analyzed childhood asthma data. It used the results to write messages for health care providers. The messages—sent through the city's Health Alert Network—urged providers to update patients' asthma management plans in time for school year start.

Improved public health

- In the last few years, the seasonal fall mailing to health care providers and other asthma prevention activities have coincided with a decrease in rates of NYC hospital stays among children. Because of the program's success, advisories to health care providers have become a standard practice at the beginning of each school year in NYC.



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SOURCE: http://www.cdc.gov/nceh/tracking/success/savingmoney_newyorkcity.htm

Success Story – Educating Communities

Louisiana - Deepwater Horizon (British Petroleum) Oil Spill

What is the problem?

- On April 20, 2010, a drill rig explosion caused about 4.9 million barrels of oil to spill into the Gulf of Mexico. The explosion killed 11 platform workers and injured 17. Marine and wildlife habitats were severely affected, and the fishing and tourism industries of U.S. coastal states were devastated.

What did Tracking do?

- The Louisiana Tracking Program has been developing an oil spill response plan in collaboration with CDC/ATSDR*, CDC/NIOSH*, and agencies from other affected Gulf Coast states. Survey- and map-based tracking systems were developed to capture and track health complaints and environmental monitoring results. In addition, the Louisiana Tracking Program worked with the Occupational Safety and Health Administration (OSHA) to make sure that outreach materials were available in several languages and available to people with limited Internet access.

Improved public health

- The Louisiana Tracking Program worked with the state health department to notify OSHA about workplace exposures and health complaints from emergency response workers. Interventions were held to educate response workers, residents, and health care providers on topics such as personal protective equipment, seafood safety, chemicals of concern, potential routes of exposure, and associated health effects.



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SOURCE: http://www.cdc.gov/nceh/tracking/success/pp_louisiana.htm

Success Story – Educating Communities

Investigating Parents' Concerns about Childhood Cancer in Massachusetts

What is the problem?

- In Winchester, MA, unusually heavy rains can cause the Aberjona River to rise several feet. The river water spills over onto the ball field and playground areas of Ginn Field, a neighborhood park, and leaves behind sediment. Residents worried the sediment might contaminate the surface soil in the park. They also had concerns about herbicide applications on the field. Because of these issues, parents feared that their children might get cancer from playing in the park.

What did Tracking do?

- At the request of concerned residents and the Winchester Board of Health, Massachusetts Tracking staff investigated parents' concerns about childhood cancer. They used cancer data from the state tracking network to evaluate the pattern of cancer in children. Tracking staff also investigated herbicide use and contaminants in the river water and sediment to determine what children using the field might be exposed to.

Improved public health

- In January 2012, the state health department shared its findings in a report to the community and the Board of Health. The report showed that the number of new cases of childhood cancers for Winchester was similar to state trends. This information helped reassure Winchester parents and the Board of Health that touching or unintentionally eating small amounts of soil at Ginn Field would not be expected to make people sick. In addition, the Town of Winchester and the state have begun work to deepen the channel in this section of the Aberjona River as part of a series of projects to lessen the effects of flooding in the area.



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SOURCE: <http://www.cdc.gov/nceh/tracking/success/new.htm#massachusetts>

Success Story – Educating Communities

Identifying Exposures to Air Pollution from Traffic in California

What is the problem?

- Air pollution from traffic is associated with a variety of health problems. Researchers and public health workers use data on traffic to estimate air pollution and to look at the relationship between traffic pollution and health. However, traffic data can be difficult to access and use.

What did Tracking do?

- The California Tracking Program developed a traffic tool to make it easier to access and use CalTrans traffic data for public health activities. People can use the tool to calculate a range of traffic features, such as the average number of vehicles traveling near a location per day. Users of the tool can find out how much traffic passes through any geography, such as a zip code, neighborhood, or another custom area around a specific address. Researchers can compare data from the traffic tool with health data from the CA Tracking Network or other sources to understand better the possible links between air pollution and health.

Improved public health

- Several agencies have used the traffic tool to protect and improve public health. For example, the Bay Area Air Quality Management District uses the traffic tool to determine if a proposed project will increase risks of exposure to traffic pollutants. And the CA Environmental Protection Agency used the traffic tool to identify locations more likely to be exposed to pollution from traffic. The agency added this information to its screening tool which identifies communities likely to be affected most by environmental exposures and poor health.

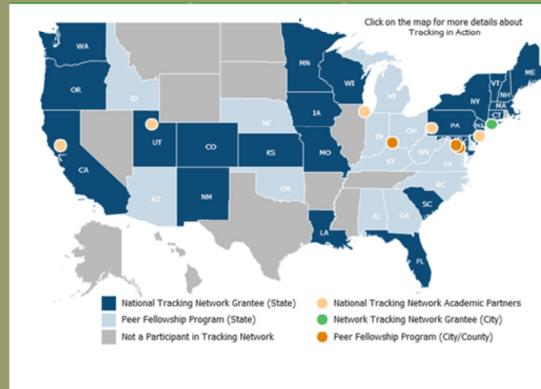


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Source: <http://www.cdc.gov/nceh/tracking/success/new.htm#california>

More Success Stories



Tracking in Action: Interactive Map

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I encourage you all to take time to read more case studies on the Tracking Network here.

HYPERLINK: The image is hyperlinked to the Tracking Network interactive map pictured here.

OPTIONAL HOMEWORK:

Spend 30 minutes reading through Tracking Network success stories:

<http://www.cdc.gov/nceh/tracking/successstories.htm>

Choose one success story and consider the following questions. Be prepared to share your thoughts in the next class.

- What interested you about this?
- Who 'wins' and 'loses' if things stay the same?
- What appeared to be easy for public health professionals to put in place?
- What tools did they have?
- What appeared to be most challenging? What were the roadblocks?
- How would you have approached this issue?
- If you were a member of this community, would you be satisfied with these results? Why or why not?

Group Activity

- **Scenario**
 - You are a student intern working for the Wisconsin Department of Health Services Program and Planning Office. The department's Heart Disease and Stroke Prevention Program wants to increase the public's awareness about women's risks for heart disease and stroke.
- **Your task**
 - You are asked to develop educational materials that highlight key points that women need to know about risks for heart disease and heart attacks. The fact sheet will be distributed to three counties in Wisconsin for which heart attack hospitalization rates are higher than the state rate. Use data and information from the National and Wisconsin Tracking Networks (<http://www.dhs.wisconsin.gov/epht/index.htm>) to identify the three counties in Wisconsin where educational efforts will be targeted. Your educational materials may include a poster, a fact sheet, or any other items you think would best convey your message.

Let's apply what we learned and use the Tracking Network to work through a scenario in small groups. We'll regroup in 20 minutes to share our findings/recommendations.

Homework: Scenarios

- Chose and complete one scenario



[DISTRIBUTE Handout: Homework 3_Scenarios]

OPTIONS:

1) Individual assignments:

- 1) Have students choose and complete one scenario or assign each student a scenario to complete so that all are covered.
- 2) Take 15 minutes of the following class to discuss homework findings and show two videos explaining the real-life solution to two of the scenarios.

2) Group assignment and presentation

- 1) Split the class into groups and randomly select a scenario for each group to complete in-class. Allow the students to present their scenario.

Homework: Queries

- Conduct three queries on the Tracking Network, choosing a content area/indicator/measure of your choice, and turn in the following for each:
 - Health: Output data in a chart
 - Environment: Output data in a table
 - Population characteristics: Output data in a map



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Thank You!

For additional details on CDC's
National Tracking Network, visit
www.cdc.gov/eph_tracking

The findings and conclusions in this presentation have not been formally disseminated by the CDC and should not be construed to represent any agency determination or policy.



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