



ENVIRONMENT

HEALTH

SAFETY



# Chronic Disease Prevention and Environmental Health: Building Connections Through Environmental Public Health Tracking



NATIONAL ASSOCIATION OF CHRONIC DISEASE DIRECTORS  
Promoting Health. Preventing Disease.



# Acknowledgements

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NACDD provides state chronic disease directors, epidemiologists and practitioners the training and technical assistance to increase awareness of the Tracking Network and understanding of the role of air quality (and other environmental hazards) in asthma and other chronic diseases. NACDD has focused much of its training and capacity-building effort towards promoting collaboration across categorical chronic disease prevention and health as well as establishing diverse public health partnerships for achievement of evidence-based public health strategies.

This publication features full-page inserts from two partner organizations, the Association of State and Territorial Health Officials (ASTHO) and the National Association of County and City Health Officials (NACCHO).

NACDD also places emphasis on improving the quality and accessibility of public health information and resources related to the Tracking Network by releasing publications like this one and "Tracking in Action: Success Stories from CDC's Environmental Public Health Tracking Network."

If you require this document in an alternative format, please contact [smathews@chronicdisease.org](mailto:smathews@chronicdisease.org) or call 770-458-7400.

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**DISCLAIMER:** The findings and views expressed in this document are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

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# Introduction

The National Association of Chronic Disease Directors (NACDD) has partnered with the Centers for Disease Control and Prevention (CDC) to highlight the work of the National Environmental Public Health Tracking Program (Tracking Program).

The Tracking Program with the National Environmental Public Health Tracking Network (Tracking Network) as its cornerstone, has made great strides in closing the gap between environmental hazards, disease, exposure, health and data. The Tracking Network has been able to successfully integrate collected data in a way that facilitates seamless access, interpretation and dissemination. The Tracking Program has provided a national network that gathers critical information, facts and data from a wide variety of sources. The Program has also led the way in building a foundation for health departments to collect and disseminate environmental and health information in a systematic and standardized way, making broad integration of data possible across local, state and national databases.

Environmental health is described as “a discipline that focuses on the interrelationships and interconnections between people and their environment, promotes human health and well-being, and fosters a safe and healthful environment.”<sup>4</sup>

An environmental health hazard is “a substance that has the ability to cause an adverse health event including physical, chemical or biological factors.” Health hazards can be either natural or man-made.<sup>4</sup>

There are certain health issues that have a proven environmental link. For instance, we know that air quality has a direct impact on asthma and that exposure to lead paint has an impact on child development. Some conditions, such as certain cancers, neurological diseases and developmental disabilities also have a suspected environmental connection.

According to CDC, chronic diseases account for approximately 70 percent of deaths each year and the cost for treatment of chronic conditions amounts to about 86 percent of the health care costs for the nation as a whole.<sup>1</sup> Many chronic diseases have known environmental associations and linkages. If chronic disease researchers and practitioners desire to continue using comprehensive approaches to prevent and control disease, then it is critical to advance further exploration and emphasis on the connections between chronic diseases and the environment.



The Tracking Network provides a wealth of resources and tools to explore the connections between chronic diseases and the environment. By definition, the Tracking Network is a system of integrated health, exposure, and environmental hazard information and data obtained from a variety of national, state and city sources. It presents the known location of existing environmental risks where people are exposed to hazards and how targeted action can protect health, reduce illness and save lives.<sup>3</sup> Using Tracking Network data, health departments are able to leverage resources and strengthen capacity in various areas including chronic disease prevention. Over just a few years, the Tracking Network has steadily expanded its reach and its support to states; but how did it all get started?



This publication will highlight the historical trajectory of the Tracking Network, its impact in promoting health and preventing disease, and its commitment to collaboration and partnership. This document will also draw attention to the importance of exploring linkages, related associations, and undertones of environmental hazards and chronic disease prevention. We hope that by seeing the full picture of what the Tracking Network does, you will be inspired to work with the Tracking Program in your own state or with the national organization to help prevent chronic disease and improve health.

# History of Tracking

Since its creation in 2002, the Tracking Program has diligently and consistently focused on improving public health through data collection, data mobilization, evaluation, collaboration, partnership, and capacity-building. The 2002 Pew Environmental Health Commission Report highlighted the need to connect data silos in order to obtain consistent and reliable health, exposure, and environmental surveillance data for linking environmental factors with health outcomes. Shortly thereafter, the Tracking Program was authorized through funds appropriated by Congress for CDC to begin the development of a nationwide network that would link information on environmentally-connected diseases, human exposures, and environmental hazards. The data from the new network would be used to respond to, and eventually reduce, the burden of environmentally-related diseases in the United States. Since then, the Tracking Program has gone through various phases and levels of development, and tremendous advances have been made.

As illustrated in **Figure 1**, each phase of development established the necessary program elements, infrastructure, and systems required to support environmental public health data collection and integration. The systems were also designed with the flexibility to accommodate evolving technical standards and capacities.

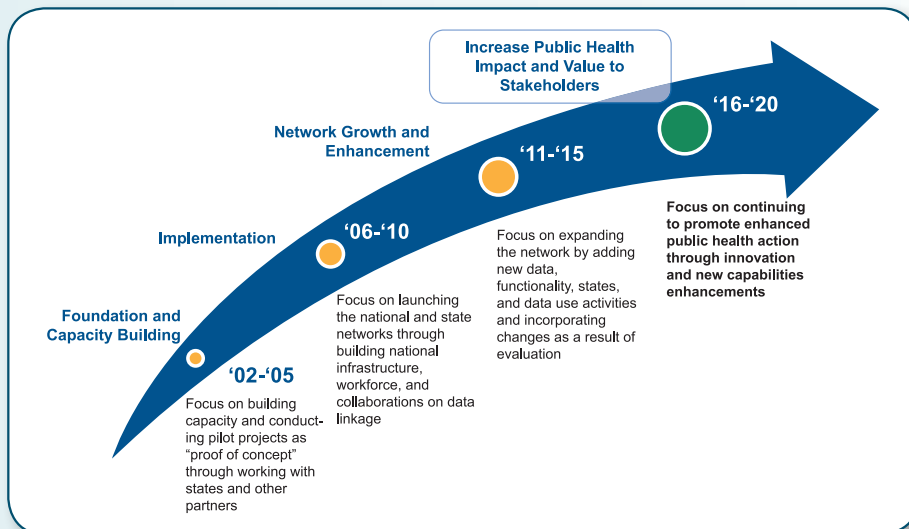


Figure 1: Historical timeline and focus of the Tracking Network.

Users are now able to access an extensive amount of environmental data down to the county level and as far back as the 1970s, which was not possible before the Tracking Network. Before tracking, the simplest questions about health and the environment could have taken months and a tremendous amount of resources to answer, but with the Tracking Network, officials are able respond quickly and efficiently to locate hazard sources or respond to concerns.

# About the Tracking Program

CDC's Environmental Public Health Tracking Program started with the idea and premise that health and environmental problems are sometimes connected issues with related solutions.

The Tracking Program launched the online Environmental Public Health Tracking Network in 2009. Since then, the Tracking Network website has grown and matured into a valuable tool that is helping to draw a clearer picture of the delicate and complex interrelatedness between the environment and health.

**Figure 2** illustrates a conceptual representation of the Environmental Public Health Tracking Program.

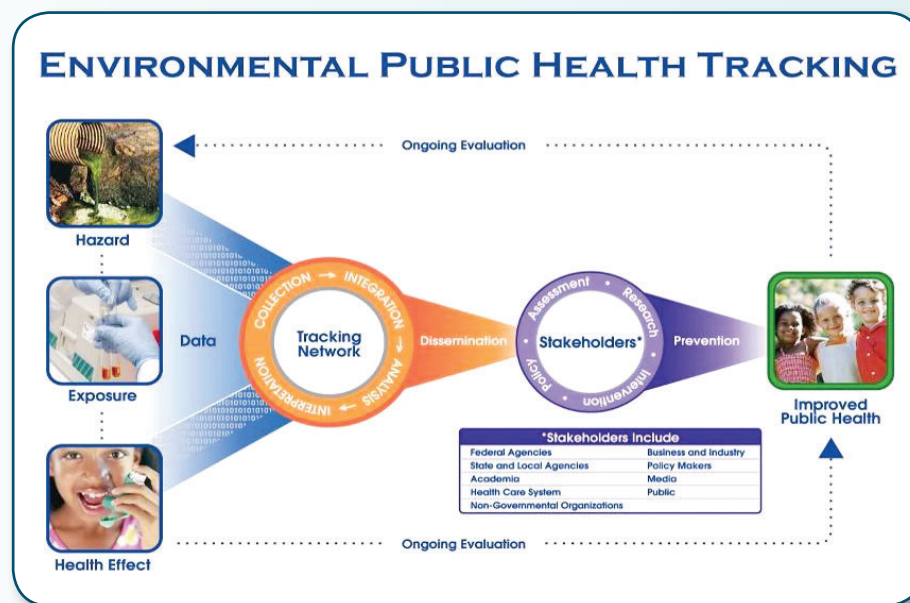
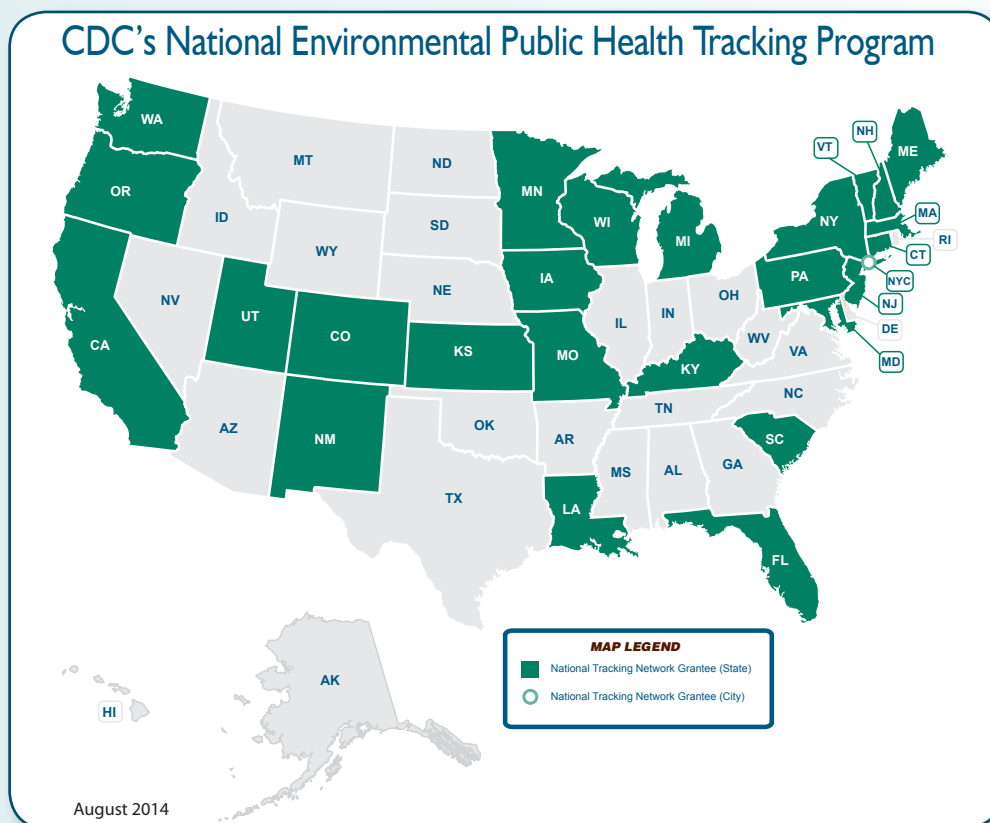


Figure 2:  
Conceptual  
diagram of CDC's  
Environmental  
Public Health  
Tracking Program.

The Tracking Program provides information that communities can use to improve and protect their health. This information comes from a nationwide network that integrates health data and environmental data. CDC's Tracking Program has laid the foundation for this national system by providing grants to state and local health departments.

CDC currently funds health departments in 25 states and 1 city to build and implement local tracking networks. These state and local data systems feed data into the National Tracking Network. Previous projects by these grantees have improved information technology through better infrastructure, expanded environmental public health tracking capacity and trained public health workers. Additionally, grantees have developed better ways to make information accessible on the Tracking Network to those who use it to take action, such as policy makers and public health officials.

**Figure 3** shows the states that are current grantees of the National Environmental Public Health Tracking Program.



*Figure 3:  
Map of Tracking  
Program Grantees.  
The states shown  
in green are current  
grantees of the  
Tracking Program.*

Several national organizations and federal agencies receive funding from CDC to enhance Tracking Program efforts. The funds help agencies share information that may advance environmental public health science and research, expand the workforce and infrastructure, and foster collaboration among public health and environmental programs.



# Why Is the Tracking Network Important?

The Tracking Network allows experts to explore the linkages and impact of environmental hazards on health and collect exposure estimates for various environmental hazards. Before Tracking, data on environmental hazards, exposures, and disease tracking systems were often not found together, making it difficult to study and monitor relationships between these factors and health effects.

**Visit the Tracking Network today!**  
[www.cdc.gov/ephtracking](http://www.cdc.gov/ephtracking)

The Tracking Network is a valuable resource and has been used in a variety of ways such as:

- Identifying people at risk of environmentally related diseases and conditions;
- Identifying health problems or conditions that can get worse from certain environmental exposures;
- Protecting public health through education, interventions, or policies;
- Detecting trends in health, exposures and hazards;
- Educating the public on environmental health hazards and guiding public health action; and
- Improving the speed and accuracy of public health activities and responses.

The Tracking Network also contributes to innovations and cost-savings in public health in many instances. For example, the Iowa Tracking Program generated a tool to show linkages between air pollution and cardiovascular disease. The Tracking Network data has been adapted by Iowa's immunization team for creating quarterly reports, saving several thousands of dollars per year in labor costs. With the Tracking Network, public health officials can monitor long-term trends in how environmental factors correlate to health data, informing prevention efforts and protective policies.

The Tracking Network also has a wealth of information for conducting Health Impact Assessments (HIAs) for communities to evaluate the potential health effect of a plan, project or policy.

# What Does the Tracking Network Do?

Environmental public health tracking allows public health professionals to apply the same “disease detective” skills used to track infectious diseases to determine possible relationships between some diseases and the environment. The Tracking Network provides public health officials with a tool to gather exposure estimates, analyze data, and make new hypotheses about the relationships between exposures to environmental health hazards and specific diseases or conditions.



Following three carbon monoxide (CO) poisoning deaths, the **Maine Tracking Program** identified off-roading as a more significant risk for CO poisoning than previously thought and has added specific prevention messages about off-roading risks to its spring health advisory.



The **New York City (NYC) Tracking Program** was able to help the city tailor its heat advisories to include information on cooler, but still potentially dangerous, heat waves after analyzing the number of illnesses and deaths related to NYC weather. The tracking program has also made it possible for the city to conduct the NYC Community Air Survey, which is the largest ongoing urban street-level air monitoring program in the U.S.

The Tracking Network provides ready-to-use data and innovative tools to help make sense of data—such as maps that show where environmental and health problems are happening—so users can share the information directly with people who need it, from scientists to decision-makers.



The **California Tracking Program** analyzed and mapped breast cancer data at the census tract levels for the whole state, which showed previously unknown geographic areas with elevated rates of invasive breast cancer. The maps helped a local hospital focus their outreach, education, and screening efforts to women in surrounding communities.

Many state and city health departments have successfully used the Tracking Network to respond to concerns about environmental hazards and health outcomes in their communities and to develop programs to address these issues.



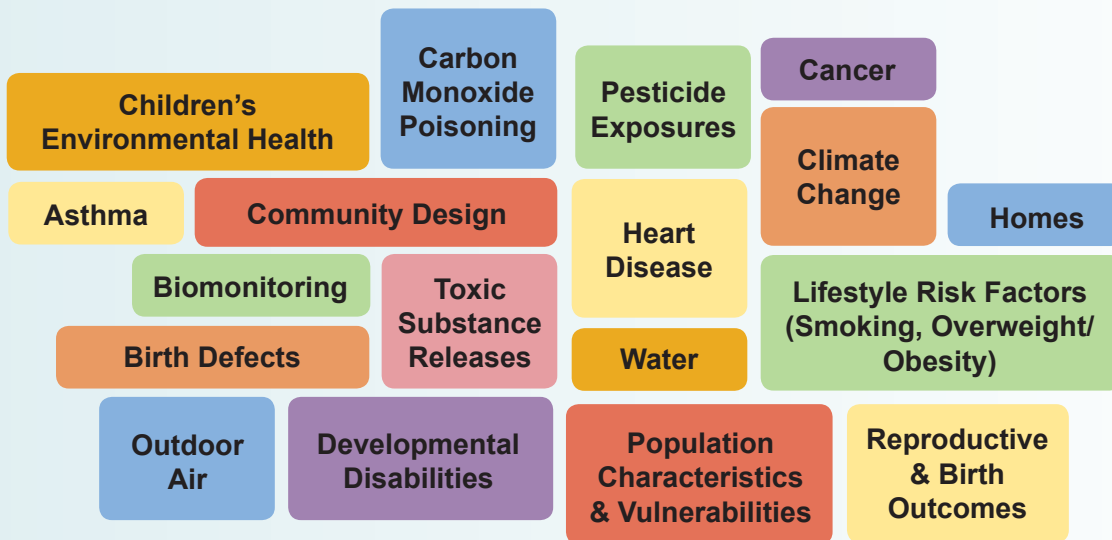
The **Massachusetts Tracking Program** worked with the Town of Norwood's health department using local tracking data to show that town residents had unusually high asthma-related hospital stays, possibly making them at higher risk for health problems from air pollution from a proposed asphalt plant in the town. The health department worked with the asphalt company to agree on certain conditions during construction of the plant to protect air quality and public health.



For more examples of what state Tracking Programs are doing visit: <http://www.cdc.gov/nceh/tracking/successstories.htm>

# What Data Does the Tracking Program Have?

Since it began, the Tracking Network has continuously expanded its reach to include data on many different conditions and environmental factors. Today, the Tracking Network captures various types of data to show relationships between health and the environment mainly in three categories: Health Effects Data, Environmental Data, and Population Health. The Network collects data on:



The Tracking Network is the best online source connecting environmental and health information, allowing organizations to access data on environmentally-related diseases, human exposures, and environmental hazards.



# Where Does the Tracking Program Get Its Data?

Tracking Network data come from a variety of national, state, and city sources. The data are collected from CDC/ATSDR, U.S. Government Agencies and other partner organizations (See **Figure 4**).

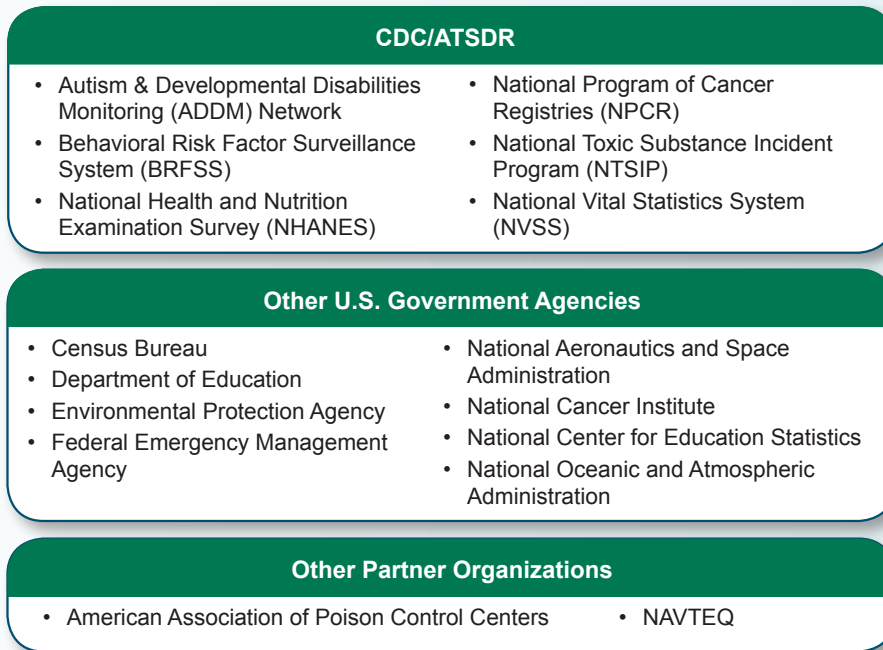


Figure 4: Tracking Network Data Sources.

The Tracking Network's data system consists of impressive amounts of data, measures, and maps (See **Figure 5**).

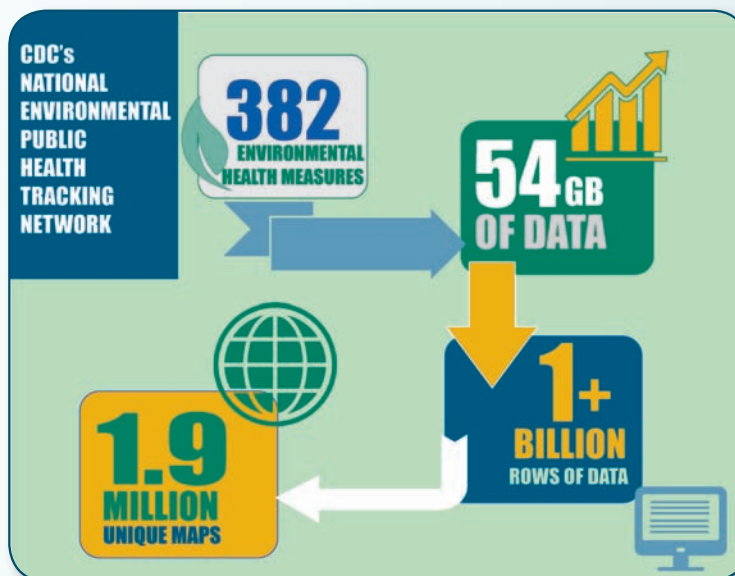


Figure 5: Tracking Network data infographic showing volume of data and measures collected.

# The Tracking Difference

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

**With the Tracking Network** in place, public health officials can respond quickly, often within hours, to locate hazard sources or answer citizens' concerns.

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

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

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**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,** 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.

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**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.

**Visit the Tracking Network today!**  
[www.cdc.gov/ephtracking](http://www.cdc.gov/ephtracking)

# Building Partnerships

Partnership has always been an integral part of the function and growth of the National Environmental Public Health Tracking Network. National partners such as the Association of State and Territorial Health Officials (ASTHO), the National Association of County and City Health Officials (NACCHO), the National Environmental Health Association (NEHA) and the National Association of Chronic Disease Directors (NACDD) play a major role in promoting the Tracking Network and its value to states and local communities.

## Health and the Environment Best Practices Team

The National Association of Chronic Disease Directors in collaboration with CDC's Environmental Public Health Tracking Program launched the virtual Health and the Environment Best Practices Team in alignment with NACDD's premier GEAR Framework (Generate.Educate.Activate.Respond).<sup>5</sup>

The Best Practices Team was formed as a community of practice to help participants exchange technical information and share experiences, lessons learned and best practices about health and the environment. The community of practice also provides a platform to facilitate discussions about the benefit of tracking data in chronic disease prevention and support opportunities for collaboration among environmental health professionals and chronic disease practitioners.

"We are dedicated to supporting collaborative learning efforts. The Health and the Environment Best Practices Team plays a key role in building a more informed workforce," John Robitscher, NACDD CEO, said.

Overall, the Health and the Environment Best Practices Team addresses:

- **Connections between chronic diseases and the environment**
- **Best practices for communicating environmental health data**

## Tracking Champions Workgroup

NACDD, working in collaboration with CDC's Environmental Public Health Tracking Program, relaunched the National Tracking Champions Workgroup. The workgroup promotes strategic alignment across organizations and works to strengthen national partnership. One major goal of the workgroup is to increase multi-categorical collaboration opportunities for stakeholders in chronic disease prevention and environmental health.

## Environmental Public Health Tracking Virtual Conference

NACDD sponsors the Environmental Public Health Tracking Virtual Conference in collaboration with CDC's Tracking Program to increase awareness about the role of air quality, asthma, and other chronic diseases and to highlight the impact of the National Environmental Public Health Tracking Program. Conference content includes a variety of topics such as air quality, cancer, health equity and the environment as well as other emerging topics.



NACDD collaborates with other national public health partners such as the National Environmental Health Association (NEHA), the Association of State and Territorial Health Officials (ASTHO), the National Association of County and City Health Officials (NACCHO), the Public Health Accreditation Board (PHAB) and others as co-sponsors of the virtual conference. Using innovative approaches and strategies such as conducting virtual meetings and conferences, NACDD enhances the delivery of capacity-building trainings, public health information, and best practices while expanding partnership efforts and its reach to local, state, and territorial public health departments. The virtual conference serves as a venue for collaboration between state leaders, decision makers, and practitioners working in environmental health and chronic disease prevention.





## Internship Opportunities

Over the years, NACDD has continuously worked to enhance and build its internship program and foster strong relationships with the university community at large. The internship experience provides students as well as NACDD with an opportunity to grow and expand. Not only are students able to gain public health experience while still in school, but the internship experience provides NACDD and the Tracking Program an opportunity to increase its reach and impact by educating the next generation of scientists, epidemiologists and tracking professionals.

## The Internship Experience

The NACDD internship is conducted over the course of 8-12 weeks. The educational experience is specifically focused on work activities related to health and the environment as related to chronic disease. Overall, the foundational basis of the internship is related to enhancing knowledge and skills, and increasing awareness of the Tracking Network and chronic disease communities.

The interns are given competency-based assignments that not only increase their knowledge base but also provide them with a great opportunity to develop new skills and gain experience for their prospective career paths. A few of the main competency areas addressed include Environmental Health Sciences, Communication and Informatics, Professionalism, and Diversity and Culture. During the internship students are given assignments that allow them to participate in many of NACDD's professional development opportunities such as General Member Webinars, the Health and the Environment Community of Practice, and the Environmental Public Health Tracking Virtual Conference.

If you would like to get more information on NACDD's internship program and how you can participate as a host site, please contact NACDD Human Resources Department at [careers.nacdd@chronicdisease.org](mailto:careers.nacdd@chronicdisease.org).



**Intern Article 1:**

***Environmental Health Internships: A Win-Win for Everyone***

Students obtaining a degree in environmental health would benefit tremendously from internship opportunities. Internships within the environmental health field provide valuable experience and help give students a better understanding of what it is like to work in the field. I have a bachelor's degree in veterinary science and I am currently enrolled into Fort Valley State University's Master of Public Health program. I do not have much experience with environmental health and it is crucial to my professional development to have internship experience in this field.

There are a number of benefits associated with internships. Internships open doors for environmental health students. Students gain an insider's view and experience to a possible career path. An internship participant also benefits from having networking opportunities while getting a real perspective of the real dynamics of environmental health occupations. Above all, internships are a source for networking that could lead to a full-time position for several companies or businesses.

Paid internships are always beneficial to the because they provide a sense of stability to the students. However, graduating students with paid or unpaid internships on their résumé have a much better chance at landing a full-time position upon graduation. In my experience, it is not unusual for recent graduates to take an unpaid internship with hopes of it leading to a permanent position or at least to professional connections.

Employers benefit from internships just as much as students. For employers who are looking for the cream of the crop among college-educated, entry-level employees, an internship program is the best way for them to build a pipeline of talented, young and fresh professionals. Internships also allow the employers to connect with and build strong relationships with students during their college career. Additionally, internships help employers evaluate how an individual would perform and blend into in the actual workplace. Hiring someone as an intern is the most effective way to evaluate an individual's potential as a full-time employee. When testing candidates through a semester or summer internship, employers make fewer mistakes when it is time to hire staff for the company. In the end, having an internship program lets employers benefit from added manpower, while more accurately assessing candidates.

Internship programs also allow employers to take advantage of short-term staffing needs as well. Having assistance can help full-time employees be more productive, prevent them from becoming overburdened by side projects, as well as free them up to accomplish other tasks where higher-level, strategic thinking or expertise is required.

In conclusion, employers get many benefits from what interns bring to the table. And in turn, interns gain further insight into the professional workforce while building their skill set. Both the intern and employer gain benefits from internships — it can be a win-win situation for both parties. This dynamic becomes all the more important when considering specialty areas such as environmental health.

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## **Intern Article 2:**

### ***Why Environmental Health and Internships Are Needed to Help Prevent Chronic Disease***

According to the Centers for Disease Control and Prevention, 117 million people — approximately half of all adults in 2012 — were living with a chronic disease in the United States. After combing through the internet for articles related to chronic disease prevention, I found a multitude of articles with almost identical headlines which included keywords such as physical activity, exercise, diet and/or nutrition. Surprisingly, there were rarely any mention of the impact the environment has on health.

The rise in chronic disease levels has led to many public health and scientific researchers eagerly investigating the cause. According to Schreinemachers and Ghio, environmental pollutants have been implicated as the source for the dramatic increase in chronic diseases. Exposure to environmental pollutants such as herbicides has been linked to diabetes, cancer, cardiovascular disease and many other chronic diseases (Schreinemachers & Ghio, 2016). Air pollution is another environmental pollutant that can wreak havoc on population health. Even short-term exposure to air pollution can increase the likelihood of experiencing an acute clinical cardiovascular event (Hazari, Lancaster, Starobin, Farraj, & Cascio, 2016).

The risks of exposure to environmental pollutants have become a global public health burden to developed and developing countries which has increased the need for more environmental health professionals and advocates (Briggs, 2003). Many efforts have been established to promote the field of environmental health. Larry Gordon created the nation's first local department of environmental health. He was also credited with establishing the nation's first city and county air pollution program. Gordon observed early on in his public health career the value of environmental health in public health (Marion & Sinde, 2015). His efforts lead to environmental public health core competencies. Many public health scientists share Gordon's sentiments and are continuing his work to grow and shed light on the field of environmental health. As environmental pollutants increasingly become a part of our everyday lives, there is a need for a new generation of environmental health professionals.

When I began my studies in public health I had no prior exposure to environmental health. I was very fortunate to have an environmental health course as part of my



curriculum in my Master of Public Health program. Unlike many of the other public health courses, there is no exposure to environmental health outside of the classroom. While enrolled in my environmental health course, I fell in love with the field. I immediately began searching for opportunities to hone the knowledge and skills I had learned, and I was very fortunate to find an internship in the field of environmental health.

Environmental health is a vital component of public health. It is a growing field not only because of the jobs and opportunities available, but because of the increasing amounts of environmental pollutants we are exposed to daily. There is a serious need for internships in environmental health so that students can receive hands on training and experience in the field of environmental public health. It is not enough to read about environmental public health issues in our textbooks. Public health students need to experience the magnitude of environmental public health through internships. An environmental public health internship will give students the opportunity to experience the value of their service in the field of environmental health.

The goal of public health professionals is to improve the health of the population. Health promotion efforts which encourages individuals to diet and exercise are important components in chronic disease prevention, however, it is not enough. Environmental health is a critical element to reducing the number of people suffering from chronic diseases. In order to serve this need, it is crucial for more internship opportunities in environment health to be made available to bring exposure to the field.

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# Special Feature:





## Insights From CDC Tracking Staff

### Tracking is...

*Tracking is both a noun and verb. As a noun, Tracking is a network of integrated data and the technical infrastructure for managing and sharing that data. It's also a network of people, including experts in environmental health, epidemiology, surveillance, exposure science, informatics, and communication at the national, state, and local level. Tracking is also a verb: a word of action. Specifically, it is the act of collecting, integrating, analyzing, and disseminating data and information to inform public health actions designed to prevent or reduce the impact of environmental hazards on health.*

**Heather Strosnider, Science Development Team**

Figure 6. Four main components of the Tracking Program: science, informatics, program services, and communication.

<p><b>Science Development</b> </p>	<p><b>Program Services</b> </p>
<p>The <b>Science Development Team</b> works to advance the science of tracking and support the practice of tracking by our state and local partners. We also conduct tracking at the national level and provide the scientific expertise needed for the Tracking Network by developing environmental health indicators and measures and identifying appropriate statistical, analytic, and data visualization methods.</p>	<p>The <b>Program Services Team</b> is a multi-disciplinary group of project officers who are the faces linking CDC and our Tracking grantees. Our primary role is to provide technical assistance to grantees on the programmatic, scientific, and/or technical aspects of their projects. We help grantees create a solid programmatic infrastructure in their jurisdictions, with the ultimate goal of improving overall environmental public health.</p>
<p><b>Informatics</b> </p>	<p><b>Communication</b> </p>
<p>The <b>Informatics Team</b> supports the goals and objectives of the program by developing informatics strategies and information technology solutions. We lead the development of the national Tracking Network as well as the infrastructure to support data exchange and dissemination. Working with Tracking partners from around the country and subject matter experts around CDC, the team also leads the effort to establish informatics standards which support the entire tracking community.</p>	<p>The <b>Communications Team</b> develops and implements communication, education, and outreach strategies to support the goals and objectives of the national Tracking Program. We lead efforts from the national level and provide support and technical assistance to our grantees who communicate about their local tracking programs as well as the national program. We also work with national partners, like NACDD, to increase awareness and usage of the Tracking Network among their membership.</p>



## What excites you about environmental public health tracking?

*Tracking and public health informatics go together like Goose and Maverick, and that is exciting! This natural pairing provides for a dynamic set of challenges that keeps us on the cutting edge of public health surveillance systems and the technology that drives them. It is exciting to step back, take a look at the Tracking Network, and marvel at the multiple years of hundreds of environmental health measures—all standardized over space and time—curated to allow users to improve the health of communities. For me, however, what lies ahead for Tracking—expanded content areas, more detailed geographical data, sophisticated analysis tools—is even more exciting than where we have been.*

### **Patrick Wall, Informatics Team**

*From a communication point of view, Tracking is exciting because we cover so many different environmental health topics, from air and water quality to cancer and poisonings. In addition, the Tracking Program has a variety of different audiences like concerned parents, librarians, researchers, students, decision-makers, nurses—all of whom have different information needs. Developing messages and products to meet the diverse needs of our audiences has allowed us to creatively explore and apply a range of communication strategies and channels including social media, data visualization, traditional print media, video production, and Web-based tools.*

### **Holly R. Wilson, Communications Team**

*Because Tracking goes beyond traditional environmental health to include areas like chronic disease and injury prevention, helping build partnerships and break down programmatic and operational silos is a big part of what the Program Services Team does. While this can be challenging, facilitating conversations among different public health programs is exciting! Finding commonalities and synergistic opportunities among the different programs increases the collective positive impact that we can have on public health.*

### **CDR Joseph R. Ralph, Program Services Team**

## What do you see as the next frontier for Tracking?

*I am looking forward to expanding our partnerships to help deliver our Tracking data to a broader group of traditional and non-traditional users, as well as to provide data and information at a more granular level, to help better address and enable public health action at a local level.*

*My vision is to transform the public's relationship with environmental health data, with Environmental Public Health Tracking as a relevant and essential resource. More specifically, a resource that is representative of and available from every state to help advance environmental public health capacity and practice across the United States.*

**CAPT Fuyuen Y. Yip, Branch Chief (Acting)**



**Visit the Tracking Network today!**  
[www.cdc.gov/ephtracking](http://www.cdc.gov/ephtracking)

# Chronic Disease Prevention:

## What Tracking Network Practitioners Need To Know

Centers for Disease Control and Prevention. *The Four Domains of Chronic Disease Prevention: Working Toward Healthy People in Healthy Communities*. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2015.

### The Four Domains of Chronic Disease Prevention

#### Working Toward Healthy People in Healthy Communities



Modern efforts to prevent disease, help people lead healthier lives, and end health disparities must include a focus on chronic diseases.

Chronic diseases—heart disease and stroke, type 2 diabetes, cancer, chronic lung diseases, and others—account for most deaths in the United States and globally.

Chronic diseases and conditions are the major drivers of sickness, disability, and health care costs in the nation.

#### Common Risk Factors

Much of the chronic disease burden is attributable to a short list of key risk factors; most US adults have more than one of these risk factors:

- ♦ High blood pressure.
- ♦ Tobacco use and exposure to secondhand smoke.
- ♦ Obesity (high body mass index).
- ♦ Physical inactivity.
- ♦ Excessive alcohol use.
- ♦ Diets low in fruits and vegetables.
- ♦ Diets high in sodium and saturated fats.

#### The Chronic Disease Prevention System

Just as most chronic diseases are caused or made worse by many of the same risk factors, they can be prevented or lessened by many of the same strategies and interventions. The risk factors for chronic disease can and must be addressed at two levels: the individual level (including health care interventions) and the population level (including policies and environments that promote health). Working at both levels is essential.

To optimize public health's efficiency and effectiveness, the Centers for Disease Control and Prevention (CDC) recommends coordinating chronic disease prevention efforts in four key domains:

1. Epidemiology and surveillance—to monitor trends and track progress.
2. Environmental approaches—to promote health and support healthy behaviors.
3. Health care system interventions—to improve the effective delivery and use of clinical and other high-value preventive services.
4. Community programs linked to clinical services—to improve and sustain management of chronic conditions.

The four domains help organize and focus the effective work the public health community has been doing for many years. At the same time, they help concentrate efforts to strengthen programs and build expertise to address gaps in services. Finally, they help government agencies, state and local grantees, and diverse public and private partners find new ways to work together and support each other's efforts.

#### Fast Facts

CDC works to prevent chronic diseases and their risk factors through four domains: epidemiology and surveillance, environmental approaches, health care system interventions, and community-clinical links.

- ♦ **Epidemiology and surveillance** refers to systems that are used to track chronic diseases and their risk factors.
- ♦ **Environmental approaches** refers to changes in policies and physical surroundings to make the healthy choice the easy choice.
- ♦ **Health care system interventions** refers to improvements in care that allow doctors to diagnose chronic diseases earlier and to manage them better.
- ♦ **Community programs linked to clinical services** refers to those that help patients prevent and manage their chronic diseases, with guidance from their doctor.





The four domains focus on strategies that

- ♦ Collectively address the behaviors and other risk factors that can cause chronic diseases.
- ♦ Work to simultaneously prevent and control multiple diseases and conditions.
- ♦ Reach more people by strengthening systems and environments to support health.
- ♦ Link community and health care efforts to prevent and control disease.

In sum, the four domains highlight shared strategies and opportunities to make real health improvements across a range of diseases, conditions, and risk factors to improve the health and quality of life of millions of Americans.

This coordinated approach to preventing chronic diseases and promoting health can help achieve NCCDPHP's vision of healthy people in healthy communities.



## Domain 1 : Epidemiology and Surveillance

Epidemiology and surveillance provide essential data to define and prioritize public health problems, identify populations most affected, guide solutions, and monitor progress. Insights can be used to educate decision makers and the public about

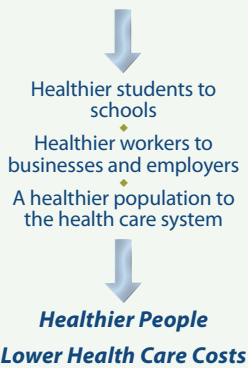
- ♦ The high rates of death and disability and the high health care costs associated with chronic diseases.
- ♦ Actions being taken by the public health community and its partners to prevent and control chronic diseases.
- ♦ Successes in preventing and controlling chronic diseases.
- ♦ Unmet needs and priorities in addressing chronic diseases.

### Epidemiology and Surveillance in Action

- ♦ Track chronic diseases and their risk factors and share the information in easy-to-use formats. Ensure coordination among multiple data systems, including behavioral risk factor surveys (e.g., the Behavioral Risk Factor Surveillance System), birth and death certificates (from the National Vital Statistics System), registries of cancer cases and deaths (e.g., the National Program of Cancer Registries), and health care data (e.g., from Medicare data sets).
- ♦ Monitor social and environmental factors that influence health, as well as policies that affect chronic diseases, such as those related to smoke-free air, access to healthy foods, and community water fluoridation.
- ♦ Conduct surveillance of health care preventive services, such as cancer screening, the "ABCS" of heart disease and stroke prevention (Aspirin use, Blood pressure and Cholesterol control, and Smoking cessation), and measures of diabetes control (e.g., hemoglobin A1C) and obesity (e.g., body mass index).
- ♦ Leverage health information technology to improve efficiency and timeliness of public health surveillance (e.g., use new US meaningful-use standards to speed reporting to state cancer registries).



Improving community conditions to support healthy behaviors and promote effective management of chronic conditions will deliver:



## Domain 2: Environmental Approaches

Environmental approaches promote health and support healthy behaviors across the nation, in states and communities, and in settings such as schools, child care programs, work sites, and businesses. Approaches that change the environment reach more people, are more cost efficient, and are more likely to have a lasting effect on population health.

### Environmental Approaches in Action

- ♦ Policies that change the context and make healthy lifestyles easier:
  - » Comprehensive smoke-free air laws that cover all workplaces, restaurants, and bars, protecting nonsmokers from secondhand tobacco smoke.
  - » Bans on flavored cigarettes, to make smoking less attractive to youth.
  - » Bans on artificial trans fats, eliminating a cardiotoxin from the food supply.
  - » Increases in the number of community water systems that have the best level of fluoride to prevent cavities.
  - » Price increases for unhealthy products (e.g., tobacco, alcohol, and high-calorie, low-nutrition foods and drinks) to reflect the medical and societal costs of their use.
- ♦ Changes to social and physical environments that make healthy choices easier, safer, cheaper, and more convenient:
  - » Community design that encourages walking and biking.
  - » More schools that offer more high-quality physical education, and child care programs that follow national physical activity standards.
  - » More access to healthy foods and beverages (e.g., full-service groceries and farmers markets in underserved areas, healthier menu items in restaurants).





# How Can You Get Involved With Tracking?





There are many ways that you can get involved with the National Environmental Public Health Tracking Network:

- 1. Visit the Tracking Website to Find Data**  
**Resources:** The Tracking Network is the best online source connecting environmental and health information. The Tracking Network website has a vast collection of data resources, toolkits, fact sheets, trainings, and more.
- 2. Contact the Tracking Program in Your State:**  
You can contact the Tracking Program in your state to get assistance with your data needs. (Refer to page 8 to see which states are currently funded)
- 3. Explore the ASTHO Fellowship Program for Chronic Disease Practitioners:** ASTHO has an Environmental Public Health Tracking Peer-to-Peer Fellowship Program for states that are not yet funded. (Refer to page 29 to learn more)
- 4. Take Tracking Courses Offered by CDC:**  
You can take advantage of the introductory courses provided by the Tracking Network. Just visit [www.ehtracking/cdc.gov](http://www.ehtracking/cdc.gov) to learn more and to see what courses are available for your team.
- 5. Join the Health and the Environment Best Practices Team:** NACDD working in collaboration with CDC's Environmental Public Health Tracking Program launched the virtual Health and the Environment Best Practices Team. The Best Practices Team helps participants exchange technical information and share experiences, lessons learned and best practices about health and the environment. The group also facilitates discussions about the utility of tracking data in chronic disease prevention and supports opportunities for collaboration among environmental health professionals and chronic disease practitioners.
- 6. Attend the Environmental Public Health Tracking Virtual Conference:** NACDD sponsors the Environmental Public Health Virtual Conference in collaboration with CDC's Tracking Program and other public health organizations in order to deliver capacity-building trainings, public health information and resources. The conference also helps to inform state health department chronic disease directors and their staff of the value and usage of the Tracking Network.
- 7. Take the E-Learning Training Course for Chronic Disease Practitioners:** NACDD is collaborating with the Tracking Network to develop a training course customized specifically for chronic disease practitioners.
- 8. Visit NACDD Tracking in Action Web Pages:**  
Visit NACDD's Tracking in Action web pages to see all the Tracking in Action resources that are available for chronic disease practitioners. You can view publications, success stories and other public health information.
- 9. Attend Tracking Webinars:** NACDD works with the Tracking Network to develop informational and training webinars for the environmental health and chronic disease communities.
- 10. Check Out Partner Websites:** The Tracking Program has many national partners who work to engage the public health community. Visit other partner websites (such as ASTHO, NACCHO, and NEHA) to learn more about how they are working with the Tracking Network.

**To learn more about how you can get involved with the Tracking Network, visit [www.chronicdisease.org](http://www.chronicdisease.org).**

# References

## References:

- <sup>1</sup> Centers for Disease Control and Prevention. [National Center for Chronic Disease Prevention and Health Promotion](http://www.cdc.gov/chronicdisease/preventionandhealthpromotion/). Retrieved from <http://www.cdc.gov/chronicdisease/>
- <sup>2</sup> Centers for Disease Control and Prevention. The Four Domains of Chronic Disease Prevention: Working Toward Healthy People in Healthy Communities. Atlanta, GA: Centers for Disease Control and Prevention, US Dept. of Health and Human Services; 2015
- <sup>3</sup> Centers for Disease Control and Prevention. National Center for Environmental Health. National Environmental Public Health Tracking Network. Retrieved from <http://ephtracking.cdc.gov>
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- <sup>5</sup> National Association of Chronic Disease Directors. Health and the Environment web pages. Retrieved from <http://www.chronicdisease.org>

## Contributors:

National Environmental Public Health Tracking Network: [www.ephtracking.cdc.gov](http://www.ephtracking.cdc.gov)

National Association of Chronic Disease Directors: [www.chronicdisease.org](http://www.chronicdisease.org)

Association of State and Territorial Health Officials: [www.astho.org](http://www.astho.org)

National Association of County and City Health Officials: [www.naccho.org](http://www.naccho.org)



# Environmental Public Health Tracking

## PEER-TO-PEER FELLOWSHIP PROGRAM



REPRODUCTIVE HEALTH  
BIRTH OUTCOMES



ASTHMA & HEART ATTACK  
HOSPITALIZATIONS



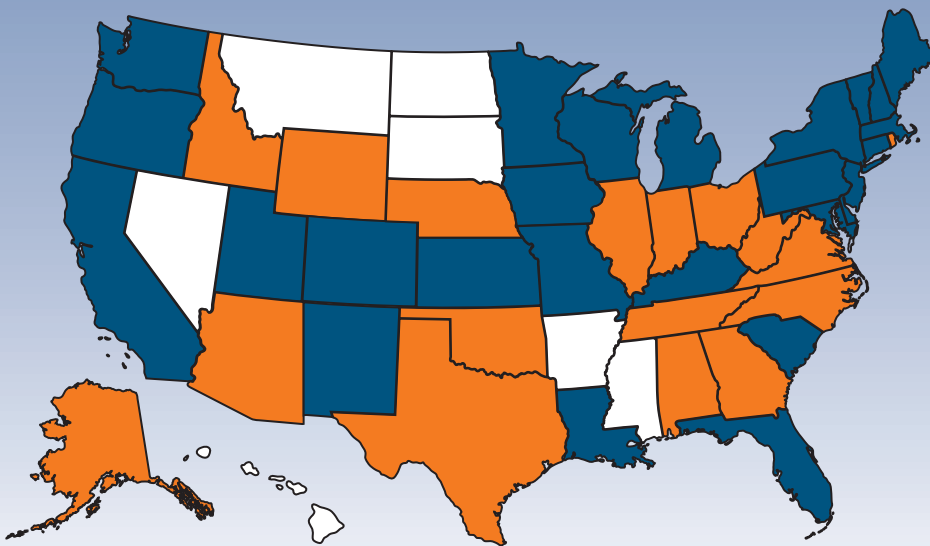
AIR QUALITY



WATER



CANCER  
COMMUNITY DESIGN



- CDC Tracking Grantees**
  - New York City
- ASTHO Tracking Fellows**
  - Cincinnati
  - Washington DC
  - Fairfax County, Virginia
  - Dayton & Montgomery County, Ohio

The Association of State and Territorial Health Officials (ASTHO) is the national nonprofit organization representing the state and territorial public health agencies of the United States, the U.S. territories, and the District of Columbia. ASTHO's members, the chief health officials of these jurisdictions, are dedicated to formulating and influencing sound public health policy and to ensuring excellence in state-based public health practice.

### Questions about this fellowship:

Samantha Williams, Analyst Environmental Health  
(571) 318-5486 | swilliams@astho.org

More information on ASTHO's Tracking Program:

[www.astho.org](http://www.astho.org)

Designed to enhance capacity of states and territories not currently funded as part of CDC's National Tracking Network, the fellowship program will provide up to four state and/or territorial health agencies with the opportunity to:

- Gain one-on-one, in-depth mentorship from a current Tracking Program grantee.
- Learn key tracking techniques and IT infrastructure that can be modeled around the needs and environmental challenges specific to the fellow's state.
- Build peer networks across state and territorial health agencies.
- Join the national tracking conversation.





## Discover the Greener Side of Public Health: NACCHO's Environmental Health Program

NACCHO strives to support health departments in advancing their environmental health efforts at the local, state, and national level. The following NACCHO resources are designed to inform, guide, and enhance the work of public health officials in this field:

### Healthy People, Healthy Places Blog

Updated daily, this blog serves as NACCHO's main digital source of environmental health news, events, tools, and resources that directly support and highlight the work of local health departments.

Access the blog at <http://essentialelements.naccho.org>

### Greener Side of Public Health Newsletter

This monthly electronic newsletter compiles the most pertinent environmental health information posted on the Healthy People, Healthy Places blog within the previous month.

Sign up to receive the newsletter at <http://bit.ly/1hyPAU9>

### Environmental Health Advisory Groups

NACCHO convenes four advisory groups on key environmental health issues. Composed of health department staff, these groups ensure the inclusion of the local perspective in guiding NACCHO decision-making and strategy related to environmental health.

Learn more about joining an advisory group at [www.naccho.org/about/advisory-groups](http://www.naccho.org/about/advisory-groups)

### Environmental health

focuses on the link between people and their environment; promotes human health and well-being; and fosters a safe and healthful environment.

NACCHO's environmental health team addresses the **most pressing** environmental health issues facing the world today, including climate change, food safety, vector-borne diseases, healthy community design, and hydraulic fracturing.

Learn more at

[www.naccho.org/programs/environmental-health](http://www.naccho.org/programs/environmental-health)

**NACCHO**

National Association of County & City Health Officials

The National Connection for Local Public Health



NATIONAL ASSOCIATION OF  
**CHRONIC DISEASE DIRECTORS**  
Promoting Health. Preventing Disease.

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770.458.7400  
[www.chronicdisease.org](http://www.chronicdisease.org)

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