

# CDC's National Center for Environmental Health: California

CDC 24/7: *Saving Lives. Protecting People from Health Threats. Saving Money through Prevention.*

## Environmental Health

Your environment is everything around you—the air you breathe, the water you drink, the community around you, the places where your food is grown or prepared, your workplace, and your home. When your environment is safe and healthy, you are more likely to stay healthy. But when your environment exposes you to dangerous events or toxic substances, your health can be affected negatively.

CDC is committed to saving lives and protecting people from environmental hazards by responding to natural and man-made disasters, supporting public health workers, educating communities, and providing scientific knowledge. We help maintain and improve the health of Americans by promoting a healthy environment and preventing premature death and avoidable illness caused by environmental and related factors. We also identify how people might be exposed to hazardous substances in the environment and assess exposures to determine if they are hazardous to human health. CDC invests in prevention to improve health and save money by reducing healthcare costs. We remain committed to maximizing the impact of every dollar entrusted to the agency.



### Asthma

- An estimated 2,970,573 adults and children in California had asthma in 2008. Asthma was the underlying cause of death for 402 adults and 17 children in California in 2007.

From:  
[http://www.cdc.gov/asthma/stateprofiles/Asthma\\_in\\_CA.pdf](http://www.cdc.gov/asthma/stateprofiles/Asthma_in_CA.pdf)

## Funded Activities

### National Asthma Control Program

(FY 2013 funding for California—\$486,000. A new funding announcement has been released; FY 2014 funding information will be available later in the year.)

Asthma is a common disease on the rise, with significant health disparities and associated healthcare costs. Nearly 1 in 12 Americans (26 million) have asthma. In the last decade, the proportion of people with asthma, grew by nearly 15%.

CDC has been working with states for more than 10 years to implement community-based interventions, build local coalitions, and track the impact of the disease on the U.S. population.

The program focuses on what works to control asthma: assessing and measuring changes in disease severity and control, using the right medications, educating people to manage their conditions, and controlling environmental irritants and allergens.

Even though the number of people with asthma has increased over the last 10 years, trends show that more are controlling their disease:

- 1.7 million fewer people had asthma attacks in 2009.
- 233,000 fewer asthma-related hospitalizations occurred in 2008, leading to \$3.96 billion in savings in hospital bills.
- 1,400 fewer people died of asthma in 2007.

### Lead Poisoning Prevention Program

(FY 2011 funding for California—\$594,000; because of funding reductions, the program was discontinued in 2012. Some funding was restored in FY 2014. States will be re-competing for funding and more information will be available later in the year.)

More than 12 million U.S. children are exposed to lead in their homes at levels that can harm their intellectual development. No safe blood level in children has been identified.

Reducing children's lead exposure is perhaps the greatest environmental health accomplishment in the past 20 years.

For more than 20 years, CDC funded state and local health agencies to

- Support surveillance, training, and technical capacity to help identify children with dangerous exposure to lead.
- Connect families and children to appropriate healthcare and case management.
- Inspect and remediate unsafe homes.

Children who are exposed to lead lose \$3,000 to almost \$8,000 in lifetime productivity for each 1 microgram per deciliter ( $\mu\text{g}/\text{dL}$ ) increase in blood lead level. Blood lead levels over 1  $\mu\text{g}/\text{dL}$  are associated with measurable reductions in IQ.

Between 2007–2008 and 2009–2010, interventions that control or eliminate lead hazards before children are exposed (primary prevention) helped reduce the number of children exposed to lead (blood lead levels  $\geq 1\mu\text{g}/\text{dL}$ ) by nearly 3 million, saving \$26–57 billion in lifetime productivity earnings alone. These estimates do not account for behavioral and other adverse effects on lifetime productivity linked to lead.

## Environmental Public Health Tracking Program

(FY 2013 funding for California—\$715,000. A new funding announcement has been released; FY 2014 funding information will be available later in the year.)

The World Health Organization (WHO) estimates that nearly 25% of all diseases are caused by environmental exposures. Some of these diseases—such as cancer, asthma, and cardiovascular disease—are the greatest killers today.

CDC's [Environmental Public Health Tracking Network](#) (Tracking Network) is a dynamic web-based tool that tracks and reports environmental hazards and the health problems that may be related to them.

The Tracking Network's integrated health, environmental exposure, and hazard information is used to

- Identify interventions and policies to reduce or prevent health effects from environmental exposures.
- Assess and research environmental links to diseases.
- Learn more about health and environmental issues in the communities where we live.

Since 2005, the Tracking Network has led to at least 160 public health interventions that prevent or control potential health effects from environmental exposures.

## Core Environmental Health Services Program

(FY 2013 funding for California—\$175,000. FY 2014 funding information will be available later in the year.)

Foodborne and waterborne outbreaks result in millions of illnesses and thousands of deaths each year. They can cost the United States more than \$150 billion annually.

Historically, clean drinking water systems have reduced overall deaths in large cities by nearly one-half and child deaths by nearly two-thirds. Current estimated hospitalization costs for just three common waterborne diseases (Legionnaires' disease, cryptosporidiosis, and giardiasis) in the United States are between \$149 and \$539 million per year.

CDC's [Core Environmental Health Services](#) program is the only federal program to provide essential leadership and guidance to the nation's frontline environmental health department staff.



### Tracking

- Tracking data are available on health indicators, including asthma, birth defects, cancer, carbon monoxide poisoning, heart attacks, lead poisoning, and reproductive outcomes.
- Tracking data are also available on environmental indicators such as air, water, and climate change, as well as on exposure data such as levels of chemicals in a person's blood or body fluids.

From:

[http://www.ehib.org/project.jsp?project\\_key=EHSS01](http://www.ehib.org/project.jsp?project_key=EHSS01)

## Core Environmental Health Services

- From 2001 to 2008, the California Department of Public Health reported 1,375 foodborne disease outbreaks involving 24,280 persons reporting symptoms. The outbreaks were attributed to bacterial (53.6%), viral (37.2%), chemical (7.4%), and parasitic (1.8%) agents.

From:

<http://www.cdph.ca.gov/data/statistics/Documents/fbdo-episummary.pdf>



## CDC's program

- Supports the professional development of state and local environmental public health staff. This staff makes up 25% of the nation's state, local, and tribal public health workforce and is essential to public health emergency response.
- Helps domestic water programs prevent waterborne diseases.
- Funds state and local health programs to investigate root causes of foodborne illness outbreaks.
- Responds rapidly to environmental disasters, including tornados, floods, foodborne and waterborne disease outbreaks, and control of vector borne diseases.

## Climate and Health Program

(FY 2013 funding for California—\$238,000 and San Francisco—\$174,000. FY 2014 funding information will be available later in the year.)

Changes occurring in the world's climate are affecting our health and well-being, especially among the most vulnerable of us—children, the elderly, the poor, and people with underlying health conditions.

Climate and Health Program funding for CDC represents the dedicated U.S. government investment in preparing our nation to anticipate and adapt to the health consequences (increased illness and death) of such climate events as extreme heat, extreme weather events, wildfires, air pollution, insect-borne disease, and threats to our food and water supply safety.

### CDC efforts support

- Identifying populations most vulnerable to these effects.
- Anticipating future trends.
- Ensuring that systems are in place to detect and respond to emerging health threats.
- Taking steps to assure that these health risks can be managed now and in the future.

## National Biomonitoring Program

(FY 2013 funding for California—\$2,652,000. A new funding announcement has been released; FY 2014 funding information will be available later in the year.)

CDC's National Biomonitoring Program assesses population and individual exposure to environmental chemicals using direct measurement of environmental chemicals, or their products, in people's blood and urine.

CDC's National Biomonitoring Program helps identify harmful chemical exposures, protect health, avoid unnecessary regulation, and reduce healthcare costs through

- Development of unique laboratory methods to detect environmental chemicals in people.
- The most comprehensive assessment of U.S. population exposure to more than 300 environmental chemicals.
- More than 50 studies of exposure and health effects each year.
- Support to state laboratories to increase national capacity and technical expertise in biomonitoring and assess specific exposures of concern in states.
- Quality assurance, training, and technology transfer to state laboratories conducting biomonitoring.

## Safe Water Program

(FY 2013 funding for California—\$175,000. FY 2014 funding information will be available later in the year.)

About 15% of households in the United States get their drinking water from private wells and other unregulated sources where little is known about the quality of water.

The Safe Water Program prevents human exposure to and disease from infectious and non-infectious waterborne contaminants by

- Building state capacity to identify and address unregulated drinking water issues.
- Advancing the science to describe the health effects of drinking water contaminants.
- Promoting effective, evidence-based strategies to prevent exposure to drinking water contaminants.
- Improving capacity to respond to environmental emergencies that affect water.

## Built Environment and Health Initiative<sup>1</sup>

(FY 2013 funding for California—\$167,000. A new funding announcement has been released; FY 2014 funding information will be available later in the year.)

The way we design and build our communities can affect our physical and mental health. Public health challenges like asthma, motor vehicle-related injuries, obesity and heart disease are related directly to how communities are designed and built.

CDC's Built Environment and Health Initiative is the only source of federal expertise to help states and communities integrate health considerations into transportation and community planning. Strategic community design can increase physical activity, reduce injuries, improve air and water quality and minimize contributions to climate change.

CDC's Built Environment and Health Initiative

- Helps cities reduce health costs by supporting health impact assessments (HIAs) that recommend proven public health approaches.
- Equips health departments with the tools to efficiently assess their community design and health needs and build ongoing relationships with local governments or planning commissions.
- Provides scientific expertise to promote important federal priorities like the National Prevention Strategy's focus on healthy physical environments.
- Provides training and assistance on how proposed projects; policies; and state, tribal and local decisions can affect community health.
- Tracks key environmental public health indicators related to active transportation and local and state community design data.
- Conducts research to identify the links between health and community design and translates that research into best practices.

<sup>1</sup>Built Environment and Health Initiative is also known as Healthy Community Design Initiative.

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

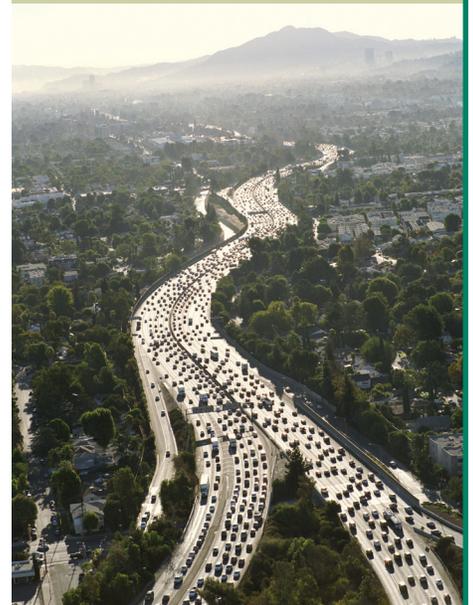
## Public Health in Action:

### Asthma Prevention in California

Asthma has been diagnosed in about 5 million adults and 1.7 million children in California. Every year, this disease results in about 500 deaths and 145,000 emergency room visits. In 2011, asthma caused California school children to miss more than a million school days. Children 19 years of age and younger visit emergency rooms for asthma treatment twice as often as adults.

## Built Environment and Health Initiative

- Communities use CDC's tools to build infrastructure that maximizes good health.
- CDC funded and supported three HIA projects on home energy efficiency subsidy programs, ventilation design rules for air quality hot spots, and area traffic calming techniques on the Grey Corridor.





#### Lead

- Of children ages 6 and under who were tested for blood lead in California in 2011, 16,641 had elevated blood lead levels ( $>5\mu\text{g}/\text{dL}$ ).
- \*CDC's funding to state lead poisoning prevention programs was eliminated in FY 2012 because of budget reductions.

The California Breathing Program and its partners focus on populations with the greatest needs. The program's efforts are paying off.

- California Breathing funded a local nonprofit to work with areas affected by air pollution at the Port of Oakland. Neighborhoods near the port have high asthma rates and high asthma-related hospital visits. As a result, the Port stopped using older-model trucks that emit dangerous diesel fumes. Today, diesel emissions and pollution around the Port of Oakland are down by half.
- State schools competed for and many received California Breathing's "Achievements in Respiratory Health" awards. Award-winning schools enforce policies that improve air quality, such as stopping bus idling near schools and reducing environmental asthma triggers—for example, by using nontoxic cleaning and school supplies. In addition, hundreds of school nurses have had asthma care and prevention training.
- Community clinics, such as one in West Oakland, benefited from the California Breathing program. California Breathing sent an asthma educator to the West Oakland clinic to work with children and families who had asthma emergencies. Families learned how to manage asthma at home, a skill that helped to reduce asthma-related emergency room visits.

In California, asthma results in hundreds of millions of dollars in healthcare costs. But a large part of those costs is preventable. Thanks in part to California Breathing and its partners, asthma-related hospital visits are on the decline, especially among young children.

### Lead Poisoning Prevention in California\*

The following describes activities carried out in in previous years with the support of CDC's Lead Poisoning Prevention Program when it was fully funded:

CDC funded California for its Childhood Lead Poisoning Prevention Branch from 2001–2011. This funding supported a web-based surveillance and case management system providing real-time access to blood lead reports in all California jurisdictions. The system allows the state to identify children and adults requiring case management and housing properties requiring remediation. Approximately 800,000 blood lead level test results are reported to the California lead poisoning prevention program annually. In 2008, 449 of 873 properties with known lead hazards were remediated to eliminate potential risks to lead exposure.

CDC funding also supported education to promote awareness of lead hazards among childcare and health care providers, property owners, local organizations, hardware stores, and members of the public. California's program promoted lead-safe work practices through training, outreach, and industry partnerships and oversaw the certification of lead workers. In 2009, more than 6,000 lead-related construction professionals were certified for lead-safe work practices.

In 2011, California's lead poisoning prevention program partnered with the California Breathing Program to build a Healthy Homes coalition and enhance partnerships with stakeholders.

### Tracking Preterm Births in California

Research shows that preterm birth is associated with the mother's exposure to traffic pollutants and lead. A routine review of data on the California Tracking Network revealed a pattern in the risk of preterm birth in Fresno County, a major population center in the state's Central Valley area.

California's Environmental Health Tracking Network informed the Fresno Department of Public Health of the trends. The local health department asked the Tracking Network for more data about

- Preterm birth trends by race and ethnicity
- Maternal Infant Health indicators, including very preterm birth (less than 32 weeks' gestation)
- Rates by census tracts

Fresno County used the information to identify locations that may have high traffic pollutant and lead exposures for targeting activities related to childhood lead poisoning, air quality, and asthma.

## **Supporting Environmental Health Services – Addressing Drinking Water Concerns in Migrant Farm Camps in the Sacramento Delta**

CDC's Environmental Health Specialists Network (EHS-Net) has been instrumental in several significant accomplishments in California. From 2005–2010, California EHS-Net members increased monitoring to measure bacteria and chemicals in drinking water at 15 migrant farm camps in the Sacramento Delta. The program

- Educated workers on the dangers of high nitrates and bacteria in well water.
- Held meetings in five communities.
- Provided a bilingual workshop on proper well disinfection along with a well water disinfection kit.

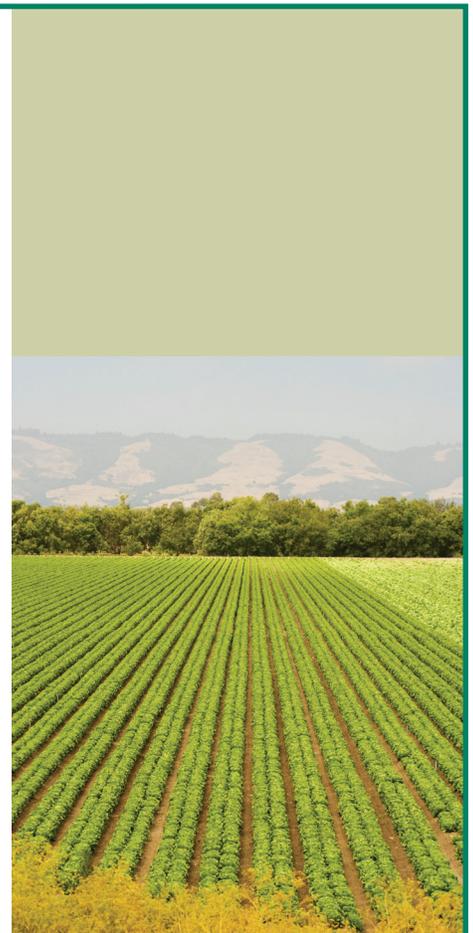
These activities reached 1,583 workers at the migrant farm camps. Disinfection efforts decreased rates of positive bacteriological samples in the Sacramento delta from 35% during the first year to 20% in the second year. Rates continue to decline.

## **Looking at Climate and Health in California**

CDC funded a University of California-Davis study confirming that rising temperatures will increase the risk of mosquito-borne arbovirus transmission at temperate latitudes, although the increases will not be uniform. Relatively cool regions, including several western population centers, have the greatest potential for increased risk, while the warmest regions already are seeing maximally efficient transmission during much of the year. This information led to temperature variation being added to the decision support system used by the California Department of Public Health (CDPH) and local agencies to mitigate West Nile virus infections through mosquito control efforts.

In addition, CDC's Climate and Health Initiative is helping San Francisco evaluate the city's vulnerability to the health effects of extreme heat and associated air quality issues. The project is designed to guide city agencies in more effective prevention and response to health effects of an increase in future heat waves. People working on the project have

- mapped surface temperatures by using NASA satellite images, verifying them with local temperature readings,
- collected information about the factors that make people more vulnerable to extreme heat events (e.g., age, health conditions, socioeconomics, housing, access to air conditioning and green space), and
- prepared to compare heat index predictions to actual health outcomes, including ambulance, state emergency department, and hospitalization data.



### Climate and Health

- A 2009 climate change scenario assessment of California (years 1900–2100) shows a significant rise in temperatures and sea levels, as well as increases in the frequency, magnitude, and duration of heat waves. Greater warming is forecasted to occur during summer and in inland areas. Drier conditions are expected to develop in central and southern California.

From:

<http://www.energy.ca.gov/2009publications/CEC-500-2009-014/CEC-500-2009-014-F.PDF>

CDC also supported an analysis of communities with greater health risks from weather events related to climate change. Specifically, CDPH developed a tool to investigate climate change health and safety risks at a county level. CDPH pilot-tested the tool in Los Angeles and Fresno, examining such environmental factors as rising sea level and land use, as well as such social factors as age, race, and income level.

### **Biomonitoring in California**

CDC funds the Biomonitoring California program to expand national laboratory capacity to measure human exposure to environmental chemicals and assess specific environmental exposures in the state. The state works closely with local health departments to identify potential chemical exposures in the communities that they serve.

The state conducts studies in vulnerable populations, including young girls, to examine how exposures to lead, mercury, and cadmium affect the onset of puberty. In addition, Biomonitoring California evaluates exposures of mothers and infants, as well as of a regionally representative adult population in California's Central Valley, to perfluorinated compounds, metals, perchlorate, phthalates, environmental phenols, nonpersistent organic pesticides, flame retardants, polychlorinated biphenyls, organochlorine pesticides, and polyaromatic hydrocarbons. The state is studying exposure to flame retardants and other chemicals in Orange County firefighters. Biomonitoring California is also collaborating with the California Environmental Health Tracking Program to evaluate exposures to the pesticide chlorpyrifos near orange groves in Tulare County, a major agricultural area in California's Central Valley where this pesticide is applied.

### **Built Environment and Health Initiative in California**

CDC collaborated with the San Francisco Department of Public Health in its efforts to promote health impact assessments (HIAs), which allow policy makers and health officials to evaluate the potential health effects of a plan, project, or policy before it is built or implemented. HIAs can provide recommendations to improve public health and minimize negative health effects.

In San Francisco, CDC trained 55 local and regional health professionals on using CDC's Health Development Measurement Tool to improve community design. Over 40 participants also trained with CDC on using HIA methods. California county health officers, including staff and officials from local and regional planning agencies, attended CDC's technical assistance workshop. San Francisco Department of Health has also developed

- Programs to improve HIA policy and projects.
- A sustainability plan to institutionalize HIA activities.
- Ways to measure the effect of changes in urban vehicle speed.
- A new method of analyzing traffic injury patterns.

CDC will continue to collaborate on multiple HIA-related grant proposals with new and diverse partners at the local and regional level.

