

## U.S. Environmental Protection Agency

# Mid-Atlantic Air Protection

Serving Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia

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### **Asthma and indoor environments**

EPA's national asthma Web site, with basic information including [frequent questions](#)

### **Managing asthma in the school environment**

resources for managing asthma at school

### **America's Children and the Environment: Asthma**

Information about asthma and related environmental measures among children in the U.S.

**Fight Asthma Campaign Public Service Announcement** Available in both English and Spanish - [www.noattacks.org/psa.html](http://www.noattacks.org/psa.html)

**EPA's guide for health plans, *Implementing An Asthma Home Visit Program: 10 Steps To Help Health Plans Get Started***, offers step-by-step instructions on how to start an asthma home visit program with a particular emphasis on environmental risk factor management.

PDF file (PDF, 24 pp, 1.3MB [About PDF](#)) [EPA 402-K-05-006, Sept. 2005]

**Educational and media materials** :[Resources](#) page

## **ASTHMA AND AIR POLLUTION IN PENNSYLVANIA**

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## Overview

Asthma is a chronic, inflammatory lung disease characterized by recurrent breathing problems. During normal breathing, air flows freely in and out of the lungs. But, during an asthma episode, the lining of the airways swells, muscles around the airways tighten and mucus clogs the tiny airways in the lungs, making breathing difficult. The airways become overly responsive to environmental changes, resulting in wheezing and coughing. Asthma is a public health problem for both developed and developing countries. It occurs in all age groups and ethnic groups. It often starts in childhood.

[Additional Asthma facts and links](#) [link to EPA headquarters' web site]

### **Causes of Asthma**

People who have asthma tend to have airways that narrow more easily than nonasthmatics and are usually allergic to inhale allergens. A variety of factors can set off an asthma episode including viral infections; exposure to allergens (e.g. dust mites, protein particles shed by cats and dogs, and pollen); exercise; tobacco smoke; air pollution; strong emotional expressions; chemical irritants; and drugs (aspirin and beta blockers). Each person with asthma reacts to a different set of factors.

### **Asthma Diagnosis and treatment**

A careful medical history, physical examination, and test of pulmonary function provide information needed for a diagnosis of asthma. Symptoms include breathlessness, wheezing, chest tightness and cough, worse particularly at night or in the early morning.

Symptoms occur or worsen in the presence of exercise, allergens, irritants, and viral infections. Young children whose primary symptom is a cough or who wheeze with respiratory infections are often misdiagnosed as having bronchitis or pneumonia (including acute respiratory infection, ARI), and thus are ineffectively treated with antibiotics or cough suppressants. Tobacco smokers and elderly patients frequently suffer from chronic obstructive pulmonary disease with symptoms similar to asthma. Yet they may also have asthma and benefit from treatment.

Control of asthma is defined as the absence of symptoms and acute attacks, no use of relief medication, no emergency room visits, normal activity level, including exercise, and normal lung function. This can be achieved in almost all patients and with no side effects from medications. Control of asthma can be achieved through the implementation of an effective asthma management program.

### **National Asthma statistics**

From 1980 to 1996, the number of Americans afflicted with asthma more than doubled to almost 15 million, with children under five years old experiencing the highest rate of increase. The steady rise in the prevalence of asthma is continuing. In 2002, an estimated 30.8 million people in the United States had been diagnosed with *asthma during their lifetime*, 20.0 million **currently** were diagnosed with asthma, and 11.9 million had experienced an asthma episode/attack in the previous year. Asthma accounted for 13.9 million outpatient visits, 1.9 million emergency room visits, and 484,000 hospitalizations. In 2001, asthma accounted for 4,269 deaths.

Asthma targets children and elderly. While children make up only 25 percent of the population, they represent 40 percent of all asthma cases. Some 5 million asthmatics are U.S. children younger than 18 and approximately 3.6 million children have had an asthma attack within the last year. Asthma has far outpaced the population, growing 70 percent from the mid-1980s to the mid-1990s. More information on just what Asthma is: PowerPoint presentation that explains asthma and to help manage it. [Asthma 101: What is it?](#)

## **Asthma in Pennsylvania**

In Pennsylvania, it is estimated that over 237,000 children and over 796,000 adults suffer from asthma. Asthma prevalence, morbidity, and mortality in Pennsylvania has followed the national trends for the past several years. The Behavioral Risk Factor Surveillance System (BRFSS) provides information on asthma prevalence for Pennsylvania and for the entire nation. In 2004, the BRFSS data estimated that more than 1,000,000 (1 million) Pennsylvania adult residents aged 18 years and older reported currently having asthma. Pennsylvania rates for current asthma prevalence are similar to those of the United States as a whole. Pennsylvania BRFSS data for adults aged 18 years and older indicate that African-Americans, females, young adults, persons with low income, and persons with limited education are disproportionately burdened by asthma.

Thirteen percent of Pennsylvania adults responded in the 2004 survey that a health care professional had told them that **they had asthma**. Nine percent of Pennsylvania adults indicated in the 2004 survey that they **currently** have asthma. Women had a significantly higher percentage of **currently having asthma** (11 percent) compared to men (7 percent).

More information <http://www.dsf.health.state.pa.us/health/lib/health/BRFSS/PA2003/AsthmaBRFSS2003web.pdf>

### **Mortality**

During the 6 year period from 1998-2002, an average of 180 Pennsylvania residents died from asthma annually (age-adjusted rate of 13.3 deaths per million persons). Pennsylvania age-adjusted rates for asthma mortality are similar to those of the United States as a whole. Pennsylvania vital statistics data for the last few years indicate that African-Americans are disproportionately burdened by asthma in terms of mortality, with age-adjusted mortality rates about 3 times those of Caucasians. Several Pennsylvania counties, most notably Philadelphia county, appear to be particularly burdened by asthma, with concentrations of increased prevalence, morbidity, and mortality in the Southeast and Southwest regions of the Commonwealth in particular.

### **Mortality and hospitalization data for PA by age, race or Hispanic origin, 1999**

<http://www.amerihealthmercyhp.com/community/stayactivewithasthma.asp>

More information : [http://app2.health.state.pa.us/epiqms/Asp/SelectParams\\_Tbl.asp](http://app2.health.state.pa.us/epiqms/Asp/SelectParams_Tbl.asp)

### **Prevalence - School Children**

Based on data (1997-2003) from the Bureau of Community Health Systems and Bureau of Epidemiology, reported asthma prevalence rates for students (grades K-12) in Pennsylvania have increased every year.

The statistics were obtained from the Department's Division of School Health database. All information in the database is submitted annually to the Department via the *Request for Reimbursement and Report of School Health Services (Annual Report)* by Pennsylvania's public school districts. The schools report only aggregate statistics for each condition. Data are not available by age, grade, sex, or race.

The average reported prevalence rate over the 6 years (1997-2003) is 7.9 percent. In the **1997-1998** school year there were 137,792 students (grades K-12) in Pennsylvania reported to have asthma from an average daily enrollment of 2,080,634 total students, computing to a prevalence rate of **6.6 percent** for that year. In the **2002-2003** school year there were 189,691 students (grades K-12) in Pennsylvania reported to have asthma from an average daily enrollment of 2,080,634 total students, computing to a prevalence rate of **9.2 percent** for that year. In Allegheny County, the rate of children with asthma in the 2003-2004 school year was 10.2 percent, according to the county Health Department. By comparison, in 1997-98, the rate was 7 percent

More information: <http://www.dsf.health.state.pa.us/health/lib/health/schoolhealth/AsthmaByDistricts03-04.pdf>

## Asthma Strategies

Several national strategies have been developed to address asthma and air pollution. Some states have their own asthma control programs. In the absence of a specific program, states follow the national asthma control plans. The Environmental Health Risks and Safety to Children Task Force is a combination of governmental agencies, the U.S. Department of Health and Human Services (DHHS), and the U.S. Environmental Protection Agency (EPA). On February 17, 1999, the task force released the "*Asthma and the Environment: An Action Plan to Protect Children.*" The plan is designed to promote federal action to protect all children with asthma from environmental risks that worsen this disease.

### PLAN FOR COMBATING ASTHMA IN THE MID-ATLANTIC REGION

US EPA, Region III has chosen to aggressively tackle the asthma issue because the region is home to a high concentration of urban areas and as well as a high concentration of academic institutions and people who are knowledgeable about asthma. The Mid-Atlantic regional offices of EPA and DHHS decided to collaborate their efforts in the commitment to support a regional strategy to reach the national goals. The effort is named the Mid-Atlantic Regional Asthma Initiative (MARAI). To combat asthma, a conference was held in November 1999 at John Hopkins' School of Nursing, Baltimore, Maryland. This conference resulted in the formation of four topic area subcommittees: Data & Monitoring, Education & Communication, Health Care and Environmental Intervention.

#### Mid-Atlantic Regional Asthma Initiative (MARAI)

MARAI is a stakeholder driven initiative Serving Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia, involving organizations and educational institutions with a vested interest in asthma.

[Click here for the MARAI Fact Sheet and list of stakeholders.](#)

The objectives of MARAI are:

- To establish a network of public and private sector stakeholders who have an interest and a role in implementing the National Asthma Strategy.
- To provide an educational forum to exchange information about the public health, policy and political issues pertaining to the asthma epidemic.
- To create a communications infrastructure among the asthma community.
- To serve as a catalyst for the development of new cooperative projects with regional stakeholders.

As part of this collaborative effort, MARAI has enhanced existing asthma programs as well as launched new ones to address indoor and outdoor environmental triggers. Activities have included special events, media outreach, public education and communications. Some of these are:

1. **Thomas Jefferson University Hospital** - improved asthma-related services currently provided by the City of Philadelphia's various ambulatory health centers for 50 families;
2. **Asthma and Allergy Foundation (Baltimore, MD)** - provided asthma education for over 1,000 child-care providers in Baltimore, MD and other locations around the region;
3. **The Health Federation of Philadelphia** - provided the American Lung Association's "*Open Airways for Schools*" training for over 180 school-aged children throughout 30 Philadelphia-area schools;
4. **Children's Hospital of Philadelphia (CHOP)** - increased asthma education for 100 asthmatics and their families through CHOP's *Community Asthma Prevention Program*;
5. **National Nursing Centers Consortium (formerly Regional Nursing Centers Consortium)** - recently expanded the *Asthma Safe Kids* program from North Philadelphia to Western Pennsylvania and parts of West Virginia; expected to educate 100 asthmatics and their families;

6. **Baltimore City Health Department (Maryland)** - development of a retrospective public health surveillance system called the *Baltimore Asthma Surveillance System (BASS)*. This system will enable the City of Baltimore to tackle asthma more effectively and develop, target, prioritize and evaluate asthma programs and create public awareness and guide public policy.
7. **Keystone Mercy and The Healthy Hoops Coalition** - educated over 400 asthmatic children and their families at kick-off event; during follow-up phase will provide additional in-home asthma education to over 100 asthmatic children who participate in asthma/basketball camp.
8. **City of Philadelphia/University of Delaware** - development of Asthma Weather Watch Warning System that will identify and evaluate entire oppressive air masses using first order weather data, ozone pollution and aeroallergen information. The system will perform a comparison to similar historical data and determine if there may be increases in asthma admissions at hospitals, therefore triggering an alert.

In addition to the above, for the past three years, MARAI has joined forces with the City of Philadelphia's Department of Public Health and held events in observance of *World Asthma Day (WAD)*. The theme for these events was "*Everyone Deserves the Right to Breathe...*" WAD was created a few years ago to help raise public awareness about asthma and how to control it. Over 200 schoolchildren (combined) have participated and been educated on the management of asthma.

[Janice Lewis](#), Regional Asthma Program Manager, Air Protection Division, U.S. EPA, at 215-814-2185 or

Dr. Dalton Paxman, Regional Health Administrator, Office of Public Health & Science, U.S. DHHS at 215-861-4631

[Mid-Atlantic Air Protection Home](#) || [Mid-Atlantic Region Home](#) [State & Local Agencies](#)

## Region III ,State and Local Air Quality Agencies

Listed below are the names, addresses and telephone numbers of the State and local air quality control agencies in Region III, as well as links to their respective web sites. Just click on the State or local agency name to go to that agency's web site.

[Delaware](#) [EXIT disclaimer >](#)

Air Quality Management Section  
 Department of Natural Resources & Environmental Control  
 89 Kings Highway, P.O. Box 1401  
 Dover, DE 19903  
 302-739-4791  
 fax 302-739-3106

[District of Columbia](#) [EXIT disclaimer >](#)

Air Quality Division  
 Environmental Health Administration  
 Department of Health  
 51 "N" Street, N.E., 5th Floor  
 Washington, D.C. 20002  
 202-535-2250  
 fax 202-535-1371

[Maryland](#) [EXIT disclaimer >](#)

Air & Radiation Management Administration  
 Maryland Department of the Environment  
 Montgomery Park Business Center  
 1800 Washington Blvd.  
 Baltimore, MD 21230  
 410-537-3000

[Pennsylvania](#) [EXIT disclaimer >](#)

Bureau of Air Quality  
 Pennsylvania Department of Environmental Protection  
 Rachel Carson State Office Building  
 P.O. Box 8468  
 400 Market Street  
 Harrisburg, PA 17105-2063  
 717-787-9702  
 fax 717-772-2303

[Virginia](#) [EXIT disclaimer >](#)

Virginia Department of Environmental Quality  
 629 East Main Street  
 P.O. Box 10009  
 Richmond, VA 23240  
 804-698-4000  
 fax 804-698-4510

[West Virginia](#) [EXIT disclaimer >](#)

West Virginia Division of Air Quality  
601 57th Street S.E.  
Charleston, WV 25304  
304-926-0499 ext. 1238  
fax 304-926-0488

Philadelphia [EXIT disclaimer >](#)

Air Management Services  
Philadelphia Department of Public Health  
321 University Ave., 2nd Floor  
Philadelphia, PA 19104  
215-823-7584  
fax 215-823-7593

Allegheny County [EXIT disclaimer >](#)

Air Quality Program  
Allegheny County Health Department  
301 39th Street, Building #7  
Pittsburgh, PA 15201  
412-578-8103  
fax 412-578-8144

MARAMA [EXIT disclaimer >](#)

Mid-Atlantic Regional Air Management Association  
711 West 40th Street, Suite 318  
Baltimore, MD 21211-2109  
410-467-0170  
fax 410-467-1737

STAPPA/ALAPCO [EXIT disclaimer >](#)

State and Territorial  
Air Pollution Program Administrators (STAPPA)

Association of Local  
Air Pollution Control Officials (ALAPCO)  
444 North Capitol Street, N.W.  
Suite 307  
Washington, D.C. 20001  
202-624-7864  
fax 202-624-7863

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## Asthma Programs in Pennsylvania

### **The American Lung Association of Pennsylvania (ALAPA)**

#### **Programs and activities.**

The American Lung Association of Pennsylvania has programs and activities for families with asthma and has the most comprehensive information in the state to fight the disease. Web site contains information on [asthma](#), [air quality](#).

**THE NEW PENNSYLVANIA ASTHMA INHALER LAW. MORE INFORMATION, 814-833-2882.**

#### **ASTHMA ACTION PLAN**

#### **WHAT CAN PARENTS DO?**

#### **ASTHMA & CHILDREN FACT SHEET**

#### **ASTHMA IN CULTUALLY DIVERSE COMMUNITIES**

#### **ASTHMA RESOURCES**

- Asthma Camp Experience (ACE)
- Asthma Olympics
- Family Asthma Programs
- Early Childhood Asthma Programs
- Open Airways for Schools (OAS)
- Asthma Friendly School Initiative (AFSI)

### **ASTHMA CAMP EXPERIENCE (ACE)**

This Camp is a residential camp for children ages 8-13 who have asthma. The camp serves two purposes for youth: to have fun and enjoy a true camping experience, and also to gain knowledge about living with their respiratory condition. Topics include basic asthma information, triggers and medications.

### **ASTHMA OLYMPICS**

Provides children with asthma an opportunity to have fun participating in track and field events, while learning about their asthma and how to better manage it. The 5-12 year old participants rotate through athletic events as well as educational stations to learn about peak flow meters and metered dose inhalers. [click here](#).

### **FAMILY ASTHMA PROGRAMS**

Family Asthma Programs are one-day asthma camps for the whole family. Held in various locations throughout the year, asthma education, along with other age-appropriate activities, are offered to participants. Medical professionals spend time with parents and grandparents of children with asthma, helping them to better understand asthma and its management. The children with asthma spend time separately from the adults, and learn about their condition, how to keep themselves healthy, and how to cope with asthma at school, home, and play. In addition to the asthma education, fun activities are planned for the entire family.

### **EARLY CHILDHOOD ASTHMA PROGRAMS**

The ALAPA conducts educational asthma programs for children ages 3-6. Designed to bring asthma management lessons to life, early childhood asthma programs are a fun and educational way for children to learn about the condition. Most sessions feature Sesame Street A is For Asthma lessons. Sesame Street A Is for Asthma is an asthma awareness project for children ages 3 to 6 years old and their caregivers.

### **OPEN AIRWAYS FOR SCHOOLS (OAS)**

OAS is an in-school asthma education program for children ages 8-11 years old. The Open Airways curriculum is taught in a small group setting, teaching children basic asthma facts and how to manage their asthma on a daily basis. Leader training is available for anyone interested in becoming an Open Airways Facilitator.

### **ASTHMA FRIENDLY SCHOOL INITIATIVE**

The American Lung Association started the Asthma-Friendly Schools Initiative (AFSI) in 2001 as a cooperative agreement with the [Centers for Disease Control and Prevention](#) Division of Adolescent and School Health. Three formal partners include: the [American Academy of Pediatrics](#), the [National Association of School Nurses](#), and the [National Education Association Health Information Network](#). All of these partners are very active in school health and asthma and have valuable information on the ideas to help local agencies, communities, and schools implement a comprehensive asthma management program. The document called the Asthma-Friendly Schools Toolkit, extensively pilot tested during 2002 and 2003 and released October of 2003 : Toolkit [Click Here](#)

## **2. American Lung Association of Pennsylvania**

The American Lung Association is the nations oldest voluntary health agency. Since 1892, the American Lung Association of Pennsylvania (ALAPA) has been fighting lung disease through education, community service, advocacy, and research

## **3. PENNSYLVANIA PEDIATRIC & ADULT ASTHMA COALITION**

Pennsylvania Pediatric and Adult Asthma Coalition (PPAAC) is dedicated to advocating and promoting education, management, treatment and access to health care providers for persons with asthma. PPAAC seeks to build capacity in Pennsylvania and through policy and environmental changes . [website](#)

### **Partners of The Pennsylvania Pediatric and Adult Asthma Coalition (PPAAC)**

[Astra Zeneca](#)

[Blue Cross of Northeast Pennsylvania](#) –

[Children's Hospital of Philadelphia](#) –

[The Community Asthma Prevention Program at The Children's Hospital of Philadelphia](#)

[Cumberland Valley Asthma Alliance- Summit Health](#)

[Glaxo SmithKline](#) -

Capital Region Health System at Hamilton Health Center, Inc. - A non-profit Federally Qualified Health Center in Harrisburg, Pennsylvania serving the community for over 30 years. Hamilton Health Center offers three medical sites, two dental sites, 22 mobile van sites,

Pennsylvania Chapter of the American Academy of Pediatrics

Pennsylvania Department of Health

Philadelphia Allies Against Asthma - Allies Against Asthma is a program to improve asthma care for children and adolescents., supports seven community-based coalitions throughout the United States. Allies Against Asthma is a national demonstration project funded by The Robert Wood Johnson Foundation. The Health Promotion Council serves as the lead agency for the Coalition, which consists of 102 individuals representing over 40 organizations. Combining clinical and public health approaches to control asthma in the community, the Coalition is comprised of stakeholders from health care systems, providers, schools, insurers, community-based agencies, nursing centers, state and local health departments and parents and caregivers.

St. Andrew Development - St. Andrew Development is a technology process company that designs and builds information delivery systems

#### **4. The American Respiratory Alliance of Western Pennsylvania**

##### **School Asthma Initiative**

The American Respiratory Alliance of Western Pennsylvania offers a free school-based asthma management training program for school nurses, teachers and students. The goal of this program is to improve childhood asthma management in the school system through the following :

- Increase asthma awareness throughout school
- Build support system among school personnel and peers
- Provide tool (T.E.A.M.) for collecting asthma information for each child with asthma
- Develop asthma action plan for school personnel
- Educate students with asthma about their disease and teach management skills
- Provide asthma monitoring tools.

##### **PROGRAM DESCRIPTION**

Multi-pronged program approach to managing students with asthma in school:

***T.E.A.M.*** – an individualized plan, that **T**eaches **E**ffective **A**sthma **M**anagement. It is designed to create a partnership of care for the student with asthma to reduce school absences, emergency room visits and hospital stays related to asthma.

***Understanding My Friend's Asthma*** – an educational program offered to all students, grades K-12, in response to issues related to students with asthma, i.e. peer pressure, self-esteem, taking responsibility for medication.

***School Personnel In-Service*** – provides asthma awareness in the classroom and education about asthma management. Developing an asthma action plan.

***School Nurses Update*** – Development of an asthma medication back-up kit for school; Medication/Spacers; Peak Flow Meters/Exercise.

***Students with Asthma In-Service***– special 40-minute session for students with asthma, grades K-12. Promotes understanding of asthma, improves management skills, provides hands-on training. Also addresses peer pressure and how to communicate needs to school personnel.

***My Friend Has Asthma***— An Asthma Awareness Day– an asthma education program for elementary school age children and school personnel. Focuses on issues related to students with asthma

##### **Asthma Education Camps**

**Camp Breathe E-Z** is a one-day camp educational program for children with asthma, ages 6-12. Young adults with asthma, ages 13-18, are invited to participate as Junior Counselors.

**Camp Huff 'n Puff:** A four-day residential camp for children 8 to 13 years of age. Campers stay in cabins and participate in asthma education sessions along with hiking, swimming, and team challenges

#### **Parents of Children with Asthma (POCWA)**

Educational program for families who receive regular information about asthma management and treatment.

#### **Teaching Effective Asthma Management (TEAM)**

An action plan that provides vital information for school personnel to help them understand and manage a student with asthma using physician's orders and parents' consents.: 1-800-220-1990 or e-mail [info@healthylungs.org](mailto:info@healthylungs.org)

#### **5. Asthma and Allergy Foundation of America AAFA's Southeastern Pennsylvania Chapter,**

AAFA's Southeastern Pennsylvania Chapter, serves the counties of Chester, Delaware, Montgomery, Philadelphia, Berks and Bucks. This Chapter offers a variety of programs and services for patients, caregivers, physicians. The Chapter established a "Children at Risk" program that provides an emergency 30-day supply of medication to children recently diagnosed with asthma who not have medical insurance.

P.O. Box 115, 32 Caspertown St., Gibbstown, NJ 08027, 856.224.9547, [aafasepa@prodigy.net](mailto:aafasepa@prodigy.net)

#### **6. The American Respiratory Alliance of Western Pennsylvania**

Dedicated to the prevention and control of lung disease through education, training, direct services, research funding and advocacy since 1904. Offer information on *Asthma*

##### ***Today's Pollen/Mold Counts***

**Click here** current mold and pollen counts provided by Allegheny General Hospital.

##### **7th Annual Asthma Fair & Healthy Lung Village**

This year's Fair is about more than asthma... it's all about breathing!  
Call 1-800-220-1990

##### **Save the Date... 4th Annual Walk for a Healthy Community**

Highmark Blue Cross Blue Shield will present the fourth annual Walk for a Healthy Community on Saturday, May 20, 2006 at the Chevrolet Amphitheatre at Station Square in Pittsburgh, PA **Group Against Smog and Pollution (GASP)**

#### **7. Group Against Smog and Pollution (GASP)**

A non-profit citizens' group in Southwestern Pennsylvania working for a healthy, sustainable environment. Founded in 1969, GASP has been a diligent watchdog, educator, litigator, and policy-maker on many environmental issues, with a focus on air quality in the Pittsburgh region. In an effort to raise awareness about the deleterious effects of school bus diesel exhaust on human and environmental health, and particularly the link between diesel exhaust and asthma, GASP proposed that Allegheny County Council proclaim May 6th "Stop School Bus Idling" Day, which was done on April 15th 2000.

#### **8. Healthy Home Resources' AT HOME program (Asthma Trigger HOME Evaluation Program)**

CLEARCorps/Pittsburgh is operated by the nonprofit Healthy Home Resources. Healthy Home Resources was created to address the rise in illnesses caused by indoor environmental hazards. The AT HOME program includes a set of research based in-home environmental interventions that have been designed to directly and positively influence the health of asthmatic children by lowering in-home environmental trigger. The ClearCorps volunteers help educate child asthmatics and their caretakers about asthma trigger prevention. They also play an integral role in the remediation of the home. <http://www.clearcorps.org/pittsburgh.htm>

#### **9. Information regarding [treatment for asthma](#)**

American Lung Association of Pennsylvania <http://www.alapa.org>

American Respiratory Alliance of Pennsylvania <http://www.healthylungs.org>

Pennsylvania Chapter of the American Academy of Pediatrics <http://www.paaap.org/>



## LINKS

### Allergy and Asthma Network/Mothers of Asthmatics, Inc

Founded in 1985, AANMA is a national nonprofit network of families whose desire is to overcome, not cope with, allergies and asthma. The shortest route to that goal is knowledge - that's why AANMA produces the most accurate, timely, practical, and livable alternatives to suffering. AANMA's **Allergy & Asthma Today** magazine, **THE MA REPORT** newsletter, e-news updates, toll-free help line, community awareness programs, and of course, Breatherville, USA™ [www.asthmabusters.org](http://www.asthmabusters.org), an online club for kids with asthma!

### National Library of Medicine, Breath of Life

How do people cope with asthma? To search for answers, this exhibition examines the medical and human history of asthma. The times and places in which people live shape their experience of the disease. Healers battle it using the tools and knowledge of their time. People from all ages and walks of life are here--poets and politicians, doctors and demagogues, singers and sports heroes--all who have responded valiantly, often creatively, to the challenges of living productively with asthma. The exhibition concludes with resources for coping with asthma today, and a glimpse of what the future might bring.

### American Academy of Allergy, Asthma and Immunology

The AAAAI has more than 6,300 members, making it the largest professional medical specialty organization in the United States, representing allergists, clinical immunologists, allied health professionals, and others with a special interest in treating and researching diseases such as allergic rhinitis, asthma, atopic dermatitis/eczema, and anaphylaxis. The mission of the AAAAI is the advancement of the knowledge and practice of allergy, asthma and immunology for optimal patient care. The AAAAI Web site provides many resources for patients and for healthcare professionals

## State Asthma Resources

### Pennsylvania Asthma Action Plan

PA Department of Health received a grant for \$594,000 in 2004 for over three years from the Centers for Disease Control and Prevention (CDC) to address the rising incidence of asthma and to gather and interpret already available asthma data to construct a comprehensive statewide plan.

|

The Pennsylvania Department of Health's Bureau of Health Statistics and Research collects and maintains data to assist in planning, administering and evaluating the health status of Pennsylvania residents and the quality and quantity of health services within Pennsylvania.

### **Asthma strategies in Pennsylvania**

Healthy people 2010 : Focus Area 24 Respiratory Diseases

<http://www.dsf.health.state.pa.us/health/lib/health/HP2010/HP2010-IndicatorsDS.pdf>

[http://www.dsf.health.state.pa.us/health/lib/health/brfss/regional96-00/ever\\_told\\_have\\_asthma\\_1997\\_to\\_2001\\_brfss\\_regional\\_report\\_supplement.pdf](http://www.dsf.health.state.pa.us/health/lib/health/brfss/regional96-00/ever_told_have_asthma_1997_to_2001_brfss_regional_report_supplement.pdf)

<http://www.dsf.health.state.pa.us/health/cwp/view.asp?a=174&q=240411&healthPNavCtr=|4627>

<http://www.dsf.health.state.pa.us/health/lib/health/BRFSS/PA2003/AsthmaBRFSS2003web.pdf>

### **Pennsylvania Department of Environmental Protection , Bureau of Air Quality**

To provide public access to electronic media, this service offers the most comprehensive on-line resource for air quality information in the Commonwealth. <http://www.depweb.state.pa.us/dep/site/default.asp>

[Bureau of Air Quality](#)

[Latest Pollution and Weather Data](#) (updated hourly)

[Weekly DEP Newsletter](#)

[Allegheny County Health Department Air Quality Program](#)

## EpiQMS

EpiQMS is an interactive health statistics web site that can produce numbers, rates, graphs, charts, maps, and county profiles using various demographic variables (age, sex, race, etc.) from birth, death, cancer, and population datasets for the state and counties or regions. Maps, charts and graphs are displayed in EpiQMS using SVG (scalable vector graphics) technology. EpiQMS is a collaborative effort between the Washington State Department of Health and the Pennsylvania Department of Health.

<http://app2.health.state.pa.us/epiqms/default.asp>

Numbers of births, deaths, at the state, county, and municipality : [Birth and Death Statistics](#)

## Pennsylvania Community Health DataBase

Philadelphia Health Management Corporation (PHMC) in Southeastern Pennsylvania collects and analyzes health and social service data through a number of secondary data sets.

- [PHMC's Southeastern Pennsylvania Household Health Survey](#)
- [U.S. Census Data](#)
- [Vital Statistics Data](#)

<http://www.phmc.org/chdb/data.html>

## Asthma Problem Solving Tools

Three brief problem-solving tools for school health care professionals.

[When Should Students with Asthma or Allergies Carry and Self-Administer Emergency Medications at School?](#)

[Is the Asthma Action Plan Working?--A Tool for School Nurse Assessment](#)

[Breathing Difficulties Related to Physical Activity for Students With Asthma: Exercise-Induced Asthma](#)

[Power Plant Air Pollution Locator](#) - An interactive website from [Clear the Air](#) that provides emissions and health effects data by individual power plant, city and state <http://healthandcleanair.org/newsletters/issue8.html>

# ASTHMA RESEARCH IN PENNSYLVANIA

## Asthma Clinical Research Centers

The American Lung Association-Asthma Clinical Research Centers (ACRC) network is a research program that develops large asthma clinical trials. <http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=37101>

## Tobacco Smoke's Link To Chemical Studied

Childhood exposure to secondhand tobacco smoke might promote increased production of interleukin-13, a chemical that has been linked to the development of asthma and allergies, according to research by physicians at Allegheny General Hospital, North Side, Pittsburgh Pa. The physicians presented the research this week at the annual meeting of the American Academy of Allergy, Asthma & Immunology in Miami. The research by Dr. Gentile, who is the director for the pediatric division of Allergy, Asthma and Immunology at AGH, focused on 32 children ages 1 to 6. Half had no exposure to second-hand smoke, and half did. The exposed children had higher levels of specialized immune cells called T helper lymphocytes. These cells produce a chemical called interleukin-13, or IL-13, which has been linked to the development of asthma. **More information**  
Heather Holtschlag, e mail :hholtsch@wpahs.org. 412-359-8604

## Physicians Study Effects Of Stress On Asthmatic Kids

Physicians and researchers at Allegheny General Hospital (AGH) and the University of Pittsburgh are conducting a study that aims to lessen the frequency and severity of asthma attacks experienced by children by teaching them how to better handle the stresses and daily challenges that affect them. "It is known that many different things can trigger asthma attacks or make symptoms of asthma worse in children," said David Skoner, director, AGH Division of Allergy, Asthma and Immunology, Department of Pediatrics. "In addition to physical factors, such as allergies or infections, many children are at higher risk of having an asthma attack or experience worse symptoms at times when they are emotionally upset." Called "**I Can Cope**," the

Pittsburgh study looks at children between the ages of 8 and 12 who have a diagnosis of moderate, persistent asthma. The purpose is to evaluate the effectiveness of a program that aims to enhance coping skills and decrease symptoms of asthma or the likelihood of having an asthma attack. For **more information** (412) 647-2551.

### **Asthma Center at Children's Hospital of Pittsburgh (CHP)**

The use of emergency services by children with asthma in the Greater Pittsburgh area is 400 percent higher than the national average, even though the prevalence of asthma in the region is about the same as national levels. Also, asthma hospitalization rates for Pittsburgh-area children are two to three times higher than national average. The Asthma Center at Children's Hospital of Pittsburgh is a collaborative effort of the hospital's Pulmonary Medicine, Allergy and Immunology programs. Experts on lung function, breathing sensitivities and the immune system team up to provide the highest level of care for their patients. The Asthma Center at Children's Hospital of Pittsburgh is outfitted with state-of-the-art equipment and technology to detect asthmatic conditions in children as young as 2 years old. Until recently, diagnoses could not be made in children younger than 5.

### **Living with Asthma Program : Children's Hospital of Pittsburgh (CHP)**

To increase the importance of education and prevention programs in the Pittsburgh area, and to diagnose and treat children from all socio-economic groups, Children's Hospital of Pittsburgh has teamed up with Pittsburgh Steelers running back Jerome Bettis, Giant Eagle Pharmacies and the American Respiratory Alliance. The program called **Living With Asthma** educates parents, teachers and the public about the importance of testing for asthma, as well as how easily it can be treated. Jay Kolls, MD Chief of Service Pediatric Pulmonary Medicine, Allergy and Immunology in Children's Hospital of Pittsburgh mentioned that the Asthma center has been able to diagnose 70 more patients since the inception of the program in Jan 2006. The center educates the families about a NIH asthma screening questionnaire. The program also provides expert telephone advice through Lung Line. A Van donated by the Ronald McDonald foundation has been fitted for the Care Mobile Program. This outreach program funded by Highmark is being conducted by Dr Jay Kolls. Equipped with diagnostic tools and manned by an expert team of Physician, nurse and a respiratory therapist, the Care Mobile Van makes outreach visits on two Thursdays every month in the suburbs of Greater Pittsburgh. [http://www.chp.edu/clinical/03a\\_asthma\\_living.php](http://www.chp.edu/clinical/03a_asthma_living.php)

[http://www.chp.edu/clinical/03a\\_asthma\\_question.php](http://www.chp.edu/clinical/03a_asthma_question.php)

### **Allegheny General Hospital: Homes Healthy For Kids with Asthma**

Allegheny General Hospital is partnering with the American Respiratory Alliance, the University of Pittsburgh Graduate School of Public Health and Healthy Home Resources in the AT HOME (Asthma Trigger Home Evaluation Program) Program, designed to lessen children's asthma symptoms by reducing triggers in their home. Healthy Home Resources, which designed the program, developed a set of research-based, in-home environmental interventions that will directly and positively influence the health of inner-city underprivileged asthmatic children by lowering in-home trigger levels.

David Skoner, MD, director, Division of Allergy, Asthma and Immunology at AGH and Dr Deborah Gentile supervise the program. At the beginning, children are tested for allergy and breathing tests in AGH. From there, Healthy Home Resources visit the children's homes and test for indoor triggers, give the children breathing tests, and educate the family on asthma and asthma triggers. AT HOME Program, is funded by the Department of Housing and Urban Development, a Heinz Endowment, and the Wean Foundation. AT HOME Program, Healthy Home Resources (412) 431-4558.

### **Study highlight asthma risk, treatment**

The research by Dr. Skoner, who's the director of the hospital's pediatric allergy division, was aimed at a common concern. One reason parents don't follow prescribed treatment programs for their children's asthma is a fear that the most common medication, inhaled corticosteroids, will stunt their children's growth. In Dr. Skoner's study, 661 prepubertal kids were first measured for six months to establish baseline growth rates. They were then randomly assigned to groups that took a 40- or 160-microgram dose of ciclesonide or a placebo, daily for one year. After a year, children in the treatment groups had slightly lower growth rates, but lost less than one-tenth of an inch.

### **Air Pollution and Daily Cardiopulmonary Hospital Admissions: An Analysis of Data from Pittsburgh, PA"**

This study presents the trends over time for PM10 from 1995 to 2000 in Allegheny County. An earlier report by Sussman and Mazumdar had shown a relationship of Total Suspended Particulate (TSP) with mortality in Allegheny County, PA. (1983). The human health effects of air pollution have been extensively discussed in the literature. Many studies are based on time series analyses of daily mortality or hospital admissions. There has been a particular focus on particulate matter of aerodynamic diameter 10 µm or less (PM10). The results from these studies are important in revising the National Ambient Air Quality Standard. Data consist of daily cardiopulmonary hospital admissions (1995-2000) among the elderly and young, and PM10 measures in Allegheny County.

**A Retrospective Investigation of PM10 in Ambient Air and Cardiopulmonary Hospital Admissions in Allegheny County, Pennsylvania: 1995-2000.**

Journal of Occupational & Environmental Medicine. 48(1):38-47, January 2006.

*Arena, Vincent C. PhD; Mazumdar, Sati PhD; Zborowski, Jeanne V. PhD; Talbott, Evelyn O. DrPH; He, Shui PhD;* Air quality in Allegheny County, Pennsylvania, has improved over the last decade, and it was investigated whether the lower concentrations of fine particulate matter (PM10) are still associated with adverse health outcomes. Methods: Daily cardiopulmonary hospital admissions in elderly residents of Allegheny County and countywide average PM10 measures were available from 1995 through 2000. Using generalized additive models (GAM), a Poisson regression model was fit to the number of daily admissions using predictor variables: lags of PM10, daily temperature and humidity, day of the week, and time. Results: Our findings suggest that there is a positive association of PM10 with hospital admissions, and the effect is related to current-day PM10 levels. Conclusions: Even at the lower levels of ambient air pollution as measured by PM10, there is still a suggestion of an adverse health effect in the elderly.

**Regional differences in hospitalizations for asthma in the United States, 1988-1996.**

**Homa DM, Mannino DM, Redd SC.** *J Asthma.* 2002 Aug;39(5):449-55.

Division of Environmental Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control and Prevention, Atlanta, Georgia 30333, USA.

Hospitalization rates for asthma are higher in the Northeast United States than in other regions, despite similar regional prevalence rates. Whether these higher rates reflect differences in asthma presentation or severity or else general differences in hospitalizations is unclear. We examined regional differences in asthma hospitalizations for the United States from 1988 through 1996 using data from the National Hospital Discharge Survey. We classified asthma hospitalizations into those in which asthma was either the primary diagnosis or any listed diagnosis. From 1988 through 1996, the rate of hospitalizations for asthma as the primary diagnosis, per 10,000 population, increased in the Northeast, but declined in other regions. By 1996, these rates were 24.5 in the Northeast, 18.4 in the Midwest, 15.8 in the South, and 14.2 in the West. The Northeast also had the highest absolute rate and the highest rate of increase for asthma as any listed diagnosis during the study period. These higher rates of asthma hospitalizations in the Northeast occurred despite a 9.3% decline in the age-adjusted rate for all hospitalizations in the region. These results indicate a greater rate of hospitalization for asthma in the Northeast than in other regions, suggesting that asthma there may be more severe.

<http://www.post-gazette.com/healthscience/20030506hbuses1.asp>.

**CDC and University Of Pittsburgh To Identify Environmental Causes Of Asthma**

The University of Pittsburgh Graduate School of Public Health (GSPH) has been awarded a five-year grant from the Centers for Disease Control and Prevention (CDC) to establish an academic research center that will assist local and state public health agencies looking for links between exposure to environmental pollutants and chronic diseases. As part of this grant, GSPH will work closely with the Pennsylvania Department of Health, the Allegheny County Health Department and other regional public health agencies to develop a more effective and coordinated surveillance system for detecting and monitoring environmental threats to public health, with an initial emphasis on childhood asthma. <http://newsbureau.upmc.com/Science/TalbottCDCGrant2005.htm>

**Adult Asthma: The Use of Novel Public Health Methods to Investigate the Prevalence of Environmental Risk Factors**

Ramos, Rosemarie

Interest in the host-environment interaction has evolved in response to the greater morbidity observed in adult asthmatics. Surveillance for asthma does not exist at the local or state level. This research addresses the concept of environmental health surveillance by demonstrating the utility of local asthma hospitalization data to estimate the burden of asthma morbidity in hopes of identifying environmental risk factors within 2 geographic settings: 1. a selected urban-rural setting in Pennsylvania and 2. within the 89 zip codes in Allegheny County, Pennsylvania.

<http://etd.library.pitt.edu/ETD/available/etd-12022005-113551/>

**The Allegheny County Short-Term Air Pollution Effects (Shape) Study On The Elderly**

Mujuru, Priscah

Evaluation of admissions of the elderly aged  $\geq 65$  years and the PM10 for the period 1995-2000 was carried out to assess vulnerability of this population. Secondly, a longitudinal study was conducted during the period of May 2003 to May 2004 among adults aged 50 to 79 years who had a cardiopulmonary diagnosis and resided in Allegheny County. Each participant maintained a diary of symptoms, peak expiratory flow rates and daily activities for up to two months. The ecological data showed high rates of admissions among the elderly. Individuals admitted multiple times

often had a diagnosis related to acute conditions compared to the chronic diagnoses among those admitted only one-time. The admission category of whether an individual was admitted multiple times or one-time appeared to be significantly related to the PM10. The results showed an association between PM10 and the cardiopulmonary symptoms suggesting a possible effect of air pollution.

<http://etd.library.pitt.edu/ETD/available/etd-04152005-135220>

### **New EPA-Funded Study Finds Key Elements of Successful Asthma Programs**

EPA and the University of Michigan have released the results of an international study of over 400 asthma programs in one of the most wide-reaching assessments to date. The study, conducted by the University of Michigan School of Public Health with funding from EPA, found that asthma programs that address environmental triggers work best to improve health outcomes such as reduced emergency room visits, improved quality of life, and fewer missed days of school or work when they build strong connections with front-line health care providers and local communities. [Read More...](#) Read the [EPA Press Release](#)

### **Toolkit for Reducing Diesel Emissions**

The New England Asthma Regional Council (ARC) is a coalition of public agencies, private organizations and researchers in New England working to address the environmental contributors to asthma. ARC's members bring together the diverse perspectives and resources of health, housing, education, environment, managed care and advocacy organizations to focus on asthma. ARC designed this online toolkit to help school communities, environmental officials, and others make informed decisions about ways to reduce harmful diesel emissions from school buses. It includes materials created by ARC and resources developed by numerous organizations and agencies around the country. Originally designed to support activities in New England, the resources may benefit any state that seeks to improve the health of America's school children by reducing diesel bus emissions. Questions can be directed to the Asthma Regional Council of New England at (617) 451-0049 (ext. 512) or visit [www.asthmaregionalcouncil.org/about/BusToolkit.htm](http://www.asthmaregionalcouncil.org/about/BusToolkit.htm) [EXIT disclaimer ►](#)

[EPA grant to Temple University will help kids manage asthma \(05/15/06\)](#) | [Asthma Awareness Month](#), EPA traveled to the Tanner Duckrey Elementary School in North Philadelphia to award \$12,500 to Temple University to support its in-school asthma education program. Asthma, the leading cause of long-term illness in children, has reached epidemic proportions in the U.S. – affecting about 20 million people. "Every child deserves to lead a healthy and dynamic life, with fewer trips to the emergency room and fewer days lost from school," said Regional Administrator Donald S. Welsh. "We want to reinforce the understanding that asthma can be managed. We're pleased to support Temple in getting this message out." [Press Release](#)

## Pennsylvania

- [STATE SCHOOL PESTICIDE LAW](#)
- [LOCAL SCHOOL PESTICIDE PROGRAMS](#)
- [CONTACTS FOR LOCAL ORGANIZATIONS](#)

### Copy Of State School Pesticide Law

*[Pesticide Notification Act: Requiring IPM in schools.](#)*

*[Pesticide Notification Act: Requiring prior notification of pesticide applications.](#)*

**[Amendment to the Public School Code, Pennsylvania House Bill 1289 - Act 36](#)**  
**[Updated IPM Policy for Pennsylvania Schools](#)**

### Local School Pesticide Programs

The Pennsylvania Pesticide Notification Act requires all school districts, intermediate units, vocational-technical schools or any of these acting jointly with provisions for private and parochial schools to adopt Integrated Pest Management. Click [here](#) to search the Pennsylvania Department of Education to find contact information for your school.

### Examples of Local School Pest Management Policies:

#### Philadelphia School District

**Date Passed:** 1999

**IPM:** The school's program gives preference to non-chemical methods of pest control where pesticides are used as a last resort.

**Notification:** See state law above.

**Prohibition of Use:** See state law above.

**Other:** Schools must wait a minimum of 24 hours after an application before students and staff may reenter the area.

#### Pittsburgh School District

**Date Passed:** 1999

**IPM:** The school's IPM program gives preference to non-chemical methods of pest control where least-toxic pesticides are used as a last resort.

**Notification:** See state law above.

**Prohibition of Use:** See state law above.

**Other:** Schools must wait a minimum of 24 hours after an application before students and staff may reenter the area.

#### West Perry School District

**Date Passed:** Unknown.

**IPM:** The districts policy requires pesticides to be applied "as needed."

**Posting Notification Signs:** See state law above.

**Prior Written Notification:** The school district has established a registry for parents to receive prior notification (see state law above for more details).

**Prohibition of Use:** See state law above.

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## Pennsylvania- Local Environmental Organizations

### **Pennsylvania Clean Water Action**

<http://www.cleanwateraction.org/pa/>

#### *Philadelphia Office*

33 East Abington Avenue

Philadelphia, PA 19118

Telephone: 215-640-8800

Email: [philly@cleanwater.org](mailto:philly@cleanwater.org)

#### *Pittsburgh Office*

100 5th Ave, Suite 1108

Pittsburgh, PA 15222

Telephone: 412-765-3053

Email: [pittcwa@cleanwater.org](mailto:pittcwa@cleanwater.org)

*Allentown Office*  
1933 Tilghman Street, Suite B  
Allentown, PA 18104  
Telephone: 610-434-9223  
Fax: 610-434-5790  
Email: [allentowncwa@cleanwater.org](mailto:allentowncwa@cleanwater.org)

*Clean Water Action is a national citizens' organization working for clean, safe, and affordable water, prevention of health-threatening pollution, creation of environmentally-safe jobs and businesses, and empowerment of people to make democracy work. Pennsylvania Clean Water Action is a member of the School Pesticide Reform Coalition and the Alliance for Informed Mosquito Management (AIMM).*

#### **Audubon Science**

Carolee Caffrey, PhD  
545 Almshouse Rd  
Ivyland, PA 18974  
Telephone: (215) 355-9588 ext. 23  
Email: [WNV@audubon.org](mailto:WNV@audubon.org)  
<http://www.audubon.org/bird/wnv>  
*Audubon Science is a member of the Alliance for Informed Mosquito Management (AIMM).*

#### **Pennsylvania - Government Contacts**

##### **State Pesticide Agency:**

PA Department of Agriculture  
Bureau of Plant Industry  
Earl Haas, Director  
2301 N. Cameron Street  
Harrisburg, PA 17110  
Telephone: (717) 787-4843  
Email: [ehaas@state.pa.us](mailto:ehaas@state.pa.us)  
Click [here](#) for a copy of Pennsylvania State Pesticide Laws and Regulations.

##### **State Health Agency:**

PA Department of Health  
PO Box 90  
Health and Welfare Building  
Harrisburg, PA 17108  
Telephone: 1-877-PA-HEALTH  
Email: [webmaster@health.state.pa.us](mailto:webmaster@health.state.pa.us)

##### **U.S. Environmental Protection Agency (EPA) Contact:**

EPA Region 3  
1650 Arch Street (3CG00)  
Philadelphia, PA 19103-2029  
Telephone: (215) 814-5000  
Email: [Use the form on the website.](#)

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#### **Research Studies :asthma and pesticides**

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##### **Identifying and managing adverse environmental health effects: Pesticides.**

This article pointed out that the primary routes of exposure for most Canadians are by ingestion of small quantities found in most of the foods we eat, or by skin absorption through direct contact with surfaces that accumulate pesticide particles. Between 1994 and 1998, 1.2% of domestic foods and 2% of imported fresh products had levels exceeding the maximum residue limits established in the Pest Control Products Act. Children are at increased risk because of exposure patterns and biological vulnerability. An analysis of all reported pesticide poisonings in the United States showed that 57% of all cases involved children under the age of 6 years. Occupationally exposed workers such as pesticide applicators and farmers are also at high risk.

<http://www.cmaj.ca/cgi/content/full/166/11/1431>

### **Respiratory diseases and pesticide exposure: a case-control study in Lebanon**

In order to evaluate the odds of being exposed to pesticides in asthmatic adults, a case-control study was performed in Lebanon. This case-control study compares pesticide exposure in cases of asthma with controls without respiratory problems. The study results shows: any exposure to pesticide was associated to asthma (OR=2.11;  $p<10^{-4}$ ). Occupational use presented the highest association (OR=4.98;  $p=0.02$ ), followed by regional exposure (OR3.51;  $p<10^{-4}$ ). Results were confirmed by multivariate analysis, particularly for regional exposure and house exposure. The conclusion from this case-control study is: Pesticides toxicological effects may explain chronic respiratory symptoms and asthma associations found with all exposure types. Pesticide exposure was associated with asthma in Lebanese adults.

<http://jech.bmjournals.com/cgi/content/full/60/3/256>

### **Respiratory symptoms in children and exposure to pesticides**

In order to evaluate whether exposure to pesticides has chronic effects on the respiratory health of Lebanese children, a cross-sectional study was performed on children from a randomly sample of Lebanese public schools. The exposure to pesticides was divided into residential, para-occupational and domestic. Residential exposure was characterized by residing in the proximity of a treated field, in addition to the regions of dwelling. Domestic exposure included domestic use by a household member or treatment of the house and garden by a professional. Para-occupational exposure was due to the occupational use of pesticides by one of the household members. The crude associations between exposure to pesticides and respiratory symptoms and disease show: Residential exposure was associated with respiratory disease ( $p<0.001$ ), especially with asthma ( $p<0.001$ ), as well as domestic exposure ( $p<0.001$  and  $p<0.05$ , respectively). Para-occupational exposure was also associated with respiratory disease ( $p<0.001$ ) and asthma ( $p<0.001$ ). The variable "any exposure" was correlated to the respiratory disease, with an OR=1.82 ( $p<0.001$ ), and to asthma with an OR=1.73 ( $p=0.03$ ).

<http://erj.ersjournals.com/cgi/content/full/22/3/507>

### **Early life Environmental Risk Factors for Asthma: finding from the Children's health Study**

To investigate further whether the timing of such experiences and exposure is associated with occurrence of asthma by 5 years of age. A prevalence case-control study nested within the children's health study, a population-based study of >4000 school-aged children in 12 southern California communities. They hypothesized that environmental exposure in early childhood, especially during the first year of life, are associated with increased occurrence of early transient wheezing and early persistent asthma. They further hypothesized that early-life experiences including infant feeding practices, greater sibship size and day care attendance influence the risk of early childhood asthma. The study results shows that the exposure to wood or oil smoke, soot, or exhaust was significantly associated with early-life asthma. Children ever exposed to wood or oil smoke, soot, or exhausts were at 1.6 fold higher risk of asthma than those who were never exposed (OR 1.61, 1.03-2.51). This association appeared stronger when exposure occurred in the first year of life (OR 1.74, 1.02-1.94). Children ever exposed to cockroaches were also at significantly higher risk for childhood asthma (OR 2.03, 1.03-4.02). Compared with never-exposed children, children exposed to herbicide and pesticide in the first year of life were significantly at higher risk of asthma (OR 4.58, OR 2.39 respectively).



In 1999, the Centers for Disease Control and Prevention (CDC) began developing its National Asthma Control Program with funding of \$1.2 million. With appropriations of \$27.9 million in fiscal year 2001, CDC funded 13 asthma tracking projects, 45 asthma interventions, and 30 asthma partnership projects.

CDC also funded six urban school districts and six national nongovernmental organizations to support and address asthma control within a coordinated school health program.

With appropriations of about \$35 million in fiscal year 2002, CDC increased its support for (1) improving the nation's ability to track asthma, conduct interventions, and build partnerships related to asthma control and (2) improving the ability of the nation's schools to prevent asthma attacks and absences.

With appropriations of \$37.1 million in fiscal year (FY) 2004, CDC funded 37 states, 9 cities, 1 territory (Puerto Rico), and a number of other partners, including other federal agencies, universities, and national organizations.

These grantees and CDC are conducting 7 asthma tracking, 29 intervention, 39 partnership, 2 public health research, and 7 directed source funding projects. CDC also funded seven urban school districts, one state education agency, and six national nongovernmental organizations to support and address asthma control within a coordinated school health program.

More information <http://www.nlm.nih.gov/medlineplus/asthma.html>

**CDC's National Asthma Control Program** The program supports the goals and objectives of *Healthy People 2010* for asthma and is based on the following three public health principles:

- **Tracking:** collecting and analyzing data on an ongoing basis to understand when, where, and in whom asthma occurs
- **Interventions:** information is translated into programs to reduce the burden of asthma
- **Partnerships:** all stakeholders to be involved in developing, implementing, local asthma control programs

In conjunction with the National Center for Health Statistics and the National Center for Chronic Disease Prevention and Health Promotion, the Air Pollution and Respiratory Health Program supports a number of major asthma data collection efforts, including:

1. collection of state-level adult asthma prevalence rates for detailed subgroups in 50 states and 4 territories through the Behavioral Risk Factor Surveillance System Survey;
2. collection of data on days of restricted activity, days in bed, days of work or school lost, physician visits, and hospitalizations due to asthma through the National Health Interview Survey; and
3. collection of in-depth state and local asthma data through development and testing of a National Asthma Survey (currently used in five states).

These data allow CDC and states to plan and evaluate asthma control interventions

### **Other CDC Asthma Activities**

CDC supports the Americans Breathing Easier Program for schools to prevent asthma attacks and related absences. <http://www.cdc.gov/asthma/>.

### **Asthma Control Program Highlights Interventions**

CDC identified potentially effective interventions describing and documenting research-based asthma control interventions that are being implemented in communities (<http://www.cdc.gov/asthma/interventions/default.htm>). For example, CDC funds the Inner City Asthma Intervention, a four-year program implemented at 23 sites in 15 states and based on nearly a decade of research performed by the National Institute of Allergy and Infectious Diseases. In addition, CDC funds the Controlling Asthma in American Cities Project (CAACP) in seven cities. CAACP is a locally developed, multi-component asthma initiative aimed at reducing the burden of asthma in communities

#### ***Controlling asthma in American cities.***

To decrease asthma-related morbidity, CDC is funding grantees in seven states (California, Illinois, Minnesota, Missouri, New York, **Pennsylvania**, and Virginia) to use innovative collaborative approaches to improve overall asthma management among urban children up to 18 years of age.

#### ***Inner-city asthma intervention.***

CDC is funding grantees in 16 states (Alabama, Arizona, California, Florida, Illinois, Massachusetts, Maryland, Minnesota, Missouri, Mississippi, North Carolina, New Jersey, New York, Ohio, Oregon, and Texas) and in Washington, D.C., to provide inner-city families with asthma education and individualized asthma control plans.

#### ***Enabling the nation's schools to prevent asthma attacks and absences.***

CDC is funding six urban school districts (Baltimore, Dallas, Detroit, Houston, Los Angeles, and **Philadelphia**) and

six national nongovernmental organizations (American Lung Association, Asthma and Allergy Foundation of America, STARBRIGHT Foundation, National Association of School Nurses, American Academy of Pediatrics, and American Association of School Administrators) to support and address asthma control within a coordinated school health program.

***Replication and implementation of scientifically proven asthma interventions.***

CDC is funding grantees to implement the following two scientifically proven asthma interventions shown to decrease acute care visits, decrease hospitalizations, and increase compliance with asthma care plans:

1. the Asthma and Allergy Foundation of America's "**Asthma Care Training for Kids**" (ACT; grantees in New York, Pennsylvania, Texas, and Washington) and
2. the American Lung Association's "**Open Airways for Schools**" (OAS; grantees in California, Colorado, Illinois, New Jersey, and New York). The goals for ACT are to increase asthma control compliance behaviors and to decrease emergency room visits and number of days spent in the hospital. The goals for OAS are to increase school performance and selfmanagement behaviors and to decrease the number of asthma episodes.

## **Partnerships**

CDC partners with state health departments in 29 states and the District of Columbia to develop asthma control plans that include disease tracking, intervention. CDC partners with major non-governmental agencies such as the American Lung Association, the Allergy and Asthma Foundation of America, and the Allergy and Asthma Network/Mothers of Asthmatics to support asthma control activities such as adult educational programs and addressing asthma control through school health programs. <http://www.cdc.gov/asthma>

***Addressing asthma from a public health perspective.***

CDC is funding state health departments in California, Colorado, Connecticut, Georgia, Idaho, Illinois, Iowa, Maryland, Maine, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, Rhode Island, Texas, Utah, Virginia, Vermont, West Virginia, Wisconsin, and Washington, D.C., to develop comprehensive, statewide asthma control plans that include disease tracking and intervention components. CDC is also funding Michigan, New York, and Oregon to implement their comprehensive asthma control plans.

***General partnerships.***

- Allergy and Asthma Network/Mothers of Asthmatics
- American Academy of Allergy, Asthma & Immunology
- American Academy of Pediatrics
- American Association of School Administrators
- American Lung Association
- Asthma and Allergy Foundation of America
- National Association of School Nurses
- National Heart, Lung, and Blood Institute
- National Institute of Allergy & Infectious Diseases
- STARBRIGHT Foundation
- U.S. Environmental Protection Agency

## **State Activity Highlights as templates;**

***Oregon***

With support from CDC, the Oregon Asthma Network—a statewide coalition of health care providers, health plans, and community and public health organizations—worked together to develop a comprehensive state asthma plan. Oregon is currently implementing the plan, including instituting key private/public initiatives to improve the quality of health care received by people with asthma, increasing public awareness of asthma, and improving patient education materials and resources for people with asthma. Oregon is also implementing its plan to monitor the burden of asthma in the state and to measure progress in addressing asthma and will focus attention on those areas that are in particular need of asthma interventions.

***Michigan***

With support from CDC, Michigan developed and is implementing its Michigan Asthma Strategic Plan. A diverse advisory committee made up of Michigan asthma professionals, health care plans, local public health agencies, schools, and coalitions is guiding the plan's implementation. The state also provides 11 local asthma coalitions with financial and technical support .

## Future Directions

With continued and increased funding, CDC will (1) work with state and local health departments and other partners to improve asthma tracking, (2) identify and develop population-based and individual solutions for controlling asthma, (3) help more partner organizations implement and evaluate programs to reduce the incidence and severity of asthma, and (4) build capacity of educational agencies and national nongovernmental organizations to address asthma in schools.

### **CDC National Asthma Control Program Grantees**

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#### **Pennsylvania**

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##### **Intervention Activities**

Grantee: Children's Hospital of Philadelphia  
Contact: Galen Laprocido  
Telephone: (215) 590-7845  
E-mail: [laprocido@email.chop.edu](mailto:laprocido@email.chop.edu)  
Address:

Children's Hospital of Philadelphia  
3535 Market St., Suite 1018  
Philadelphia, PA 19104  
Web site: <http://www.chop.edu/consumer/index.jsp>  
Funded Since: September 2001

##### **Intervention Activities**

Grantee: Philadelphia Department of Public Health  
Contact: Susan Robbins, MD  
Telephone: (215) 685-6762  
E-mail: [susan.robbins@phila.gov](mailto:susan.robbins@phila.gov)  
Address:

Philadelphia Department of Public Health  
Pediatric and Adolescent Services  
500 S. Broad St.  
Philadelphia, PA 19146  
Web site: <http://www.phila.gov/health/>  
Funded Since: September 2001

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## **Child- And Adolescent-Related Asthma Control Programs And Activities**

The Centers for Disease Control and Prevention (CDC) conducts a number of child- and adolescent-related asthma control programs

- [School Health](#)
- [Major Asthma Data Tracking Systems](#)
- [Other Organizations Offering Child- and Adolescent-Related Asthma Information](#)

### **School Health**

CDC also has a program that focuses specifically on improving asthma management in schools and increasing the number of asthma-friendly schools nationwide. Three strategies for accomplishing this are:

- **Data collection**
- **Science-based guidance**
- **Support for State and Local Education Agencies and National Non-Governmental Organizations (NGOs)**
  
- **Data Collection:**  
CDC funds the inclusion of school asthma management questions in the National Youth Risk Behavior Survey (YRBS), School Health Education Profiles (SHEP), and the School Health Policies and Programs Study (SHPPS).
  
- **Science-Based Guidance:**  
The CDC document "*Strategies for Addressing Asthma Within a Coordinated School Health Program*" provides a

concise list of strategies with accompanying actions for schools to take to help students manage asthma through a coordinated approach.

- **Support for State and Local Education Agencies and National Non-Governmental Organizations:**  
Since 1999, with funding of \$3.4 million in fiscal year 2003, CDC has funded demonstration school asthma management projects at 13 local school districts and one state education agency, and has funded 11 national non-governmental organizations to develop materials and deliver trainings on school-based asthma management for key target audiences.

CDC is currently funding seven urban school districts and one state education agency: Albuquerque, Baltimore, Charlotte, Detroit, Los Angeles, Memphis, **Philadelphia**, and Oregon to implement strategies to reduce asthma-related illnesses and absences.

CDC is currently funding six national non-governmental organizations: American Academy of Pediatrics, American Association of School Administrators, American Lung Association, Asthma and Allergy Foundation of America, National Association of School Nurses, and STARBRIGHT Foundation to develop materials and deliver trainings on school-based asthma management for target audiences.

### **CDC's Division of Adolescent and School Health (DASH)**

works with schools to help students manage their asthma by making schools "asthma-friendly," by supporting staff and students with asthma, adopting asthma-friendly policies and procedures: <http://www.cdc.gov/nccddphp/dash/asthma.htm>.

### ***Other Organizations Offering Child- and Adolescent-Related Asthma Information***

- **Allergy and Asthma Network, Mothers of Asthmatics**
  - **Breatherville, USA**
- **Alliance of Community Health Plans**
  - **Asthma Intervention for Inner-City Children**
- **American Academy of Allergy, Asthma & Immunology**  
(note: choose and browse the "Just for Kids" section)
- **American Academy of Pediatrics**
- **American Association of School Administrators**
  - **School Governance and Leadership issue on asthma**
- **American Lung Association**
  - **Asthma Home Page**
  - **Asthma in Children**  
(note: also contains information on teens)
  - **Open Airways for Schools**
- **Asthma and Allergy Foundation of America**  
(note: choose "Teens" from the menu on the left side of the page: a page for teens . includes a link to "Online Resources and Activities for Kids.")
- **Improving Childhood Asthma Outcomes in the United States: A Blueprint for Policy Action**
- **National Association of School Nurses**
  - **The School Nurse Asthma Management Program**
- **National Conference of State Legislatures**
  - **Children's Environmental Health Legislation Database**
- **National Education Association Health Information Network**
  - **Asthma and Schools**
- **National Asthma Education and Prevention Program** (note: see in particular the section "School/Child Care")
- **Institute of Allergy and Infectious Diseases**
- **National Library of Medicine**
- **STARBRIGHT Foundation**
  - **Implementation Guide for School Use**
- **U.S. Environmental Protection Agency**
  - **Asthma and Indoor Environments**
  - **Clear Your Home of Asthma Triggers**
  - **EPA Asthma Education Campaign**

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### **ASTHMA DATA RESOURCES**

**CDC's One-Stop Shop for Environmental Public Health Data**

Centralized Web site where people interested in environmental public health can readily access environmental or health data sets on the Internet. This Web site provides a reference list of nationally funded data systems that have a relationship to environmental public health.

## **Public Health Data Tracking :**

### **Public Health Information Network (PHIN)**

PHIN targets the support and integration of systems for disease surveillance, national health status indicators, data analysis, public health decision support. This network of capable information systems will be built from existing initiatives and software systems that are supportive of the PHIN Functional Areas. These PHIN component initiatives are considered national in scope. The EPHT Network is one of these components.

For further information, visit <http://www.cdc.gov/phin/component-initiatives/index.html>.

### **Environmental Public Health Tracking (EPHT) Network**

EPHT is the ongoing collection, integration, analysis, interpretation, and dissemination of data from environmental hazard monitoring, and from human exposure and health effects surveillance. As part of Program efforts, CDC is currently leading the initiative to build a National EPHT Network. The Network will integrate data from these three components into a network of standardized electronic data that will provide valid scientific information on environmental exposures and adverse health conditions as well as the possible spatial and temporal relations between them.

For further information, visit <http://www.cdc.gov/phin/component-initiatives/index.html>

## **Health Data**

### **Centers for Disease Control and Prevention (CDC)**

#### **Behavioral Risk Factor Surveillance System (BRFSS)**

BRFSS is a telephone survey conducted by all state health departments. The BRFSS is the largest continuously conducted telephone health survey in the world. States use standard procedures to collect data through monthly telephone interviews with adults 18 or older: <http://www.cdc.gov/brfss/>

#### **National Ambulatory Medical Care Survey (NAMCS)**

NAMCS is a national survey of ambulatory medical care <http://www.cdc.gov/nchs/about/major/ahcd/namcsdes.htm>

#### **National Hospital Discharge Survey (NHDS)**

information on inpatients discharged from non-Federal short-stay hospitals:  
<http://www.cdc.gov/nchs/about/major/hdasd/nhdsdes.htm>

#### **National Health and Nutrition Examination Survey (NHANES)**

conducted by CDC's National Center for Health Statistics, information about the health and diet of people in the United States. NHANES is unique in that it combines a home interview with health tests that are done in a Mobile Examination Center.

: <http://www.cdc.gov/nchs/nhanes.htm>

Public use data: <http://www.cdc.gov/nchs/about/major/nhanes/datalink.htm>

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## **Environmental Data**

### **Environmental Protection Agency (EPA)**

#### **EPA Air Data**

##### **Air Quality System (AQS)** [external link]

The AQS database contains measurements of "criteria air pollutant" concentrations in the 50 United States updated nearly every day : <http://www.epa.gov/air/data/aqsdb.html> [external link]

##### **National Emission Inventory (NEI) Data** [external link]

EPA prepares a national emission inventory with input from numerous state and local air agencies. These data are used for air dispersion modeling, regional strategy development, regulation setting, air toxics risk assessment, and tracking trends in emissions over time. Criteria pollutant emissions data for 1985 through 1998 are available in the National Emission Trends (NET) database. Hazardous air pollutant emissions data are available for 1993 and 1996 in

the National Toxics Inventory (NTI) database. For 1999, criteria and HAP emissions data are being prepared in a more integrated fashion in the National Emission Inventory, which will take the place of the NET and the NTI.

General information: <http://www.epa.gov/ttn/chief/net/neidata.html#backgrnd>

#### **AirData** [external link]

The AirData Web site gives access to yearly summaries of U.S. air pollution data, taken from EPA's air pollution databases. AirData has information about where air pollution comes from (emissions) and how much pollution is in the air outside our homes and workplaces (monitoring).

<http://www.epa.gov/air/data/info.html> [external link]

#### **Air Information Retrieval System AQS**

The query portion of the [AirData](#) [external link] area gives users the ability to obtain data from the AIRS AQS data tables and descriptive code tables that have been exported into the interim database.

General information: <http://www.epa.gov/aqspubl1/select.html>[external link]

#### **AIRNow** [external link]

EPA has developed the AIRNow Web site to provide the public with easy access to national air-quality information. The Web site offers daily air-quality forecasts as well as real-time air quality for over 275 cities across the United States, and provides links to more detailed state and local air-quality Web sites.

Home page: <http://www.epa.gov/airnow/> [external link]

#### **Envirofacts Data Warehouse** [external link]

Envirofacts is a single point of access to select EPA environmental data. This Web site provides access to several EPA databases to provide information about environmental activities that may affect air, water, and land anywhere in the United States.. Topics include Waste, Water, Toxics, Air, Radiation, Land, Other, and Maps.

[http://www.epa.gov/enviro/html/ef\\_overview.html](http://www.epa.gov/enviro/html/ef_overview.html)[external link]

#### **Enviromapper** [external link]

Enviromapper is a powerful tool used to map various types of environmental information, including air releases, drinking water, toxic releases, hazardous wastes, water discharge permits, and Superfund sites.

Home page: <http://www.epa.gov/enviro/html/em/index.html> [external link]

#### **Search your community** [external link]

Enter your zip code and choose from four databases to retrieve environmental information about your community.

Home page: <http://www.epa.gov/epahome/commsearch.htm> [external link]

#### **TRI Explorer** [external link]

The TRI Explorer provides access to Toxics Release Inventory data to help communities identify facilities and chemical release patterns that warrant further study and analysis. Combined with hazard and exposure information, the TRI Explorer can be a valuable tool for risk identification.

Home page: <http://www.epa.gov/triexplorer/introduction.htm>[external link]

#### **Windows to My Environment (WME)** [external link]

WME is a powerful Web-based tool that provides a wide range of federal, state, and local information about environmental conditions , provided by EPA with federal, state and local government and other organizations. :

<http://www.epa.gov/enviro/wme/>[external link]

### **EPA Toxics Data**

#### **Toxics Release Inventory (TRI)** [external link]

The TRI is a publicly available EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. :

<http://www.epa.gov/tri/>

### **Other Data**

#### **Census Bureau**

The [Census Bureau](#) [external link] current and historical data about population, geography, and economics. :

<http://www.census.gov/> [external link]

### **Query Engines**

#### **Agency for Healthcare Research and Quality (AHRQ)**

#### **Healthcare Cost and Utilization Project (HCUP)** [external link]

The HCUP is a family of healthcare databases and related software tools and products developed through a federal-state-industry partnership and sponsored by AHRQ. HCUP databases bring together the data collection efforts of

state data organizations, hospital associations, private data organizations, and the federal government to create a national information resource of discharge-level health care data.

Home page: <http://www.ahrq.gov/data/hcup/> [external link]

About HCUP: <http://www.ahrq.gov/data/hcup/hcup-pkt.htm> [external link]

Nationwide inpatient sample: <http://www.ahrq.gov/data/hcup/hcupnis.htm> [external link]

State inpatient databases: <http://www.ahrq.gov/data/hcup/hcupsid.htm> [external link]

Kids' inpatient database: <http://www.ahrq.gov/data/hcup/hcupkid.htm>

Medical Expenditure Panel Survey (MEPS) [external link]

The MEPS is a vital resource designed to continually provide policymakers, health care administrators, businesses, and others with timely, comprehensive information about health care use and costs in the United States, and to improve the accuracy of their economic projections. MEPS collects data on the specific health services, how frequently they are used, the cost of these services, and how they are paid for, as well as data on the cost, scope, and breadth of private health insurance held by and available to the U.S. population. :

<http://www.ahrq.gov/data/mepsweb.htm> [external link]

CDC Wonder [external link]

WONDER provides a single point of access to a wide variety of reports and numeric public health data.

- Home page: <http://wonder.cdc.gov/> [external link]

Data FERRET (Federal Electronic Research and Review Extraction Tool)

FERRET allows access to micro-data sets via the Web. Currently, the 1994 Underlying Cause-of-Death File, the 1993 National Health Interview Survey and the third National Health and Nutrition Examination Survey are available via FERRET. : <http://www.cdc.gov/nchs/datawh/ferret/ferret.htm>

TheDataWeb [external link]

TheDataWeb is a network of online data libraries. Topics include census data, economic data, health data, income and unemployment data, population data, labor data, cancer data, crime and transportation data, family dynamics, and vital statistics data. : <http://www.thedataweb.org/> [external link]

Web-Based Injury Statistics Query and Reporting System (WISQARS)

WISQARS is the National Center for Injury Prevention and Control's interactive, online database that provides customized injury-related mortality data and nonfatal injury data useful for research and for making informed public health decisions. Home page: <http://www.cdc.gov/ncipc/wisqars/>

## Scorecard

Scorecard's Data Sources Scorecard integrates over 400 scientific and governmental databases to generate its customized profiles of local environmental quality and toxic chemicals. Since Scorecard draws all its data from authoritative sources and combines them using state-of-the-art informatics. Currently, Scorecard acquires data from the following sources:

### AIR

#### SMOG AND PARTICULATES

The poor air quality that many Americans know as smog and soot is due to what are technically labeled criteria pollutants, like ozone and particulate matter. Scorecard's exposure and emissions information for criteria air pollutants is derived from two U.S. EPA sources: the Air Quality System and the National Emissions Trend database. Scorecard covers criteria air pollutant exposures in 2003 and emissions in 1999. EPA released exposure data for 2004 in April 2005; it is currently being processed for incorporation into Scorecard.

#### HAZARDOUS AIR POLLUTANTS

Scorecard combines exposure data from U.S. EPA's National-Scale Air Toxics Assessment with toxicity data to estimate the health risks posed by chemical pollutants in ambient air. EPA provides estimates of ambient air concentrations based on 1996 emissions data, but these are generally consistent with current state monitoring data (2001-2004). EPA's next comprehensive national-scale assessment will be based on 2002 emissions data.

## EnviroFlash

EnviroFlash is a new program, sponsored by the EPA with State and local air quality agencies. EnviroFlash provides important air quality information such as forecasts and action day notifications via email or pager notification. The email includes the same local, air quality forecast information which is coordinated through the news media, like television and radio.

- **Allergy and Asthma Network Mothers of Asthmatics**  
AANMA, a national nonprofit network of families, offers information about living with allergies and asthma.
- **Alliance of Community Health Plans**
  - Asthma Intervention for Inner-City Children  
This site provides background information about the intervention.
- **Allies Against Asthma**
  - Allies Against Asthma Resource Bank  
This is a centralized system for sharing information about tools and materials that may be useful to coalitions and community programs addressing asthma.
- **American Academy of Allergy, Asthma & Immunology**  
The mission of the American Academy of Allergy, Asthma & Immunology is the advancement of the knowledge and practice of allergy, asthma and immunology for optimal patient care.
- **America's Health Insurance Plans (AHIP)** (formerly American Association of Health Plans or AAHP)
  - Taking on Asthma  
This site provides information about an initiative to reduce the negative health consequences associated with asthma.
- **American Lung Association's Asthma Site**  
ALA provides information about asthma and older people, teens and asthma, asthma medicines and attacks, peak flow meters, and home control of allergies and asthma.
- **Asthma and Allergy Foundation of America**  
AAFA provides information about asthma and allergy education, advocacy, and research.
- **Center for Health Care Strategies (CHCS)**  
CHCS directs national programs on behalf of two major health care philanthropies: The Robert Wood Johnson Foundation and The Annie E. Casey Foundation.
  - Improving Asthma Care for Children Program
- **Institute of Medicine**
  - Clearing the Air: Asthma and Indoor Air Exposure  
This book provides information about the role that indoor air pollution plays in asthma causation, prevalence, triggering, and severity.
- **National Association of State Boards of Education**
  - State-Level School Health Policies  
This site includes information on state legal codes, rules, standards, administrative orders, mandates, and resolutions, and links to additional resources.
- **National Conference of State Legislatures (NCSL)**  
NCSL is a bipartisan, national forum for state lawmakers to communicate with one another and to share ideas on various topics, including asthma.
  - Asthma Web Resources  
This site includes links to policy briefs on asthma, analyses of state legislation, and a searchable database of state legislation and statutes.
  - Asthma: A Growing Epidemic (Environmental Health Series, 2000)
  - State Policies Regarding Student Rights to Possess & Self-Administer Prescribed Medications for Asthma & Anaphylaxis
- **National Heart, Lung, and Blood Institute**
  - National Asthma Education and Prevention Program  
This site provides information about the program and about asthma according to target audience.
  - Guidelines for the Diagnosis and Management of Asthma
- **National Institute of Allergy and Infectious Diseases**  
NIAID provides support for scientists conducting research aimed at developing better ways to diagnose, treat, and prevent asthma.
- **National Institute for Occupational Safety and Health (NIOSH)'s Asthma and Allergies Web site**  
NIOSH is the arm of CDC that conducts research and makes recommendations for the prevention of work-related disease and injury. This site provides information on occupational asthma and allergies.



- **National Library of Medicine (NLM)**  
NLM, the largest online medical library, provides health information, library services, research programs, and general information related to topics such as asthma.
- **PBS Kid's Asthma Tips**  
This site helps children learn what asthma is, what can trigger asthma attacks, and how to stay active and healthy if they have asthma.
- **Quest for the Code: An Adventure Game About Managing Asthma for Children**  
This site provides information on a free CD-ROM created to help children ages 7 to 15 learn how to manage their asthma.

## Indoor Air

### CDC

- **Agency for Toxic Substances and Disease Registry (ATSDR)**  
Taking An Exposure History  
Procedures and form for measuring toxicants in the home and environment.
- Indoor Air Quality Information by State  
This page offers links to offices or programs identified by each state as dealing with indoor air-related health inquiries and general air quality programs.

### Non-CDC

- **U.S. Environmental Protection Agency (EPA)**  
Frequently Asked Questions about Indoor Air Quality
- **National Institute of Environmental Health Sciences (NIEHS)**  
Listing of Common Indoor Air Pollutants
- **National Library of Medicine Specialized Information Services (NLM SIS)**
- Indoor Air Pollution  
Links to information resources on the many sources of indoor air pollution found in homes and other buildings, including cleaning and maintenance products, building materials, tobacco smoke, mold, and poor ventilation.

## U.S. Consumer Product Safety Commission

Listing of Indoor Air Quality Publications

## Outdoor Air

### CDC

#### **National Association of Local Boards of Health (NALBOH)**

Environmental Health Primer (PDF)

This publication addresses the provision of adequate public health services in communities, including protecting a community from environmental health risks.

#### **National Center for Health Statistics (NCHS)**

Statistical data on air quality and environmental health

FastStats A to Z offers statistical data by state and by subject.

### Non-CDC

- **National Library of Medicine Specialized Information Services (NLM SIS)**
  - Outdoor Air Pollution  
Links to information resources on outdoor air pollution and its possible effects on health.
- **U.S. Environmental Protection Agency (EPA)**
  - **National Center for Environmental Research (NCER)**  
Abstract: Morbidity and Mortality from Air Pollution in the United States

## References

1. A Practical Guide for Public Health Care Professionals – The Global Strategy for Asthma Management and Prevention – National Institutes of Health's National Heart, Lung, and Blood Institute and the World Health Organization – [www.ginasthma.com/practical/prac.html](http://www.ginasthma.com/practical/prac.html)
2. Agency for Toxic Substances and Disease Registry. Case studies in environmental medicine: environmental triggers of asthma. Atlanta: US Department of Health and Human Services; 2002.
3. Allergic Conditions: Peak Flow Meter [www.aaaai.org/patients/allergic\\_conditions/peak\\_flow\\_meter.stm](http://www.aaaai.org/patients/allergic_conditions/peak_flow_meter.stm)
4. Allergy and Asthma Network\*Mothers of Asthmatics Inc: [www.aanma.org](http://www.aanma.org)
5. American Academy of Allergy Asthma and Immunology (AAAAI) [www.aaaai.org](http://www.aaaai.org)
6. American Academy of Pediatrics (AAP)
7. American Lung Association Headquarters [www.lungusa.org](http://www.lungusa.org)
8. Apter, A.J., Reisine, S.T., Kennedy, D.G., Cromley, E.K., Keener, J., and ZuWallack, R.L. Demographic Predictors of Asthma Treatment Site: Outpatient, Inpatient, or Emergency Department. *Ann. Allergy Asthma Immunol.* (1997), **79**: 353–361.
9. Asthma and Allergy Foundation of America (AAFA) [www.aafa.org](http://www.aafa.org)
10. Asthma Information on Asthma.Miningco.com™ [asthma.miningco.com/](http://asthma.miningco.com/)
11. Asthma Regional Council of New England [www.asthmaregionalcouncil.org/about/\\_BusToolkit.htm](http://www.asthmaregionalcouncil.org/about/_BusToolkit.htm)
12. Asthma Research at the National Institute of Environmental Health Sciences (NIEHS) [www.niehs.nih.gov/airborne/home.htm](http://www.niehs.nih.gov/airborne/home.htm)
13. Barbee RA, Dodge R, Lebowitz ML, Burrows B. The epidemiology of asthma. *Chest* 1985;87:21S--25S.
14. Bascom, R. Environmental Factors and Respiratory Hypersensitivity: The Americas. [Review]. *Toxicol. Lett.* (1996), **86**: 115–130.
15. CDC, National Center for Health Statistics. Asthma prevalence, health care use and mortality, 2000-2001. Available at <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/asthma/asthma.htm>.
16. CDC. 2000 BRFSS summary data quality report. National Center for Chronic Disease Prevention and Health Promotion, Division of Adult and Community Health, Behavioral Surveillance Branch. Available at <http://www.cdc.gov/brfss/ti-quality-req2000.htm>.
17. CDC. 2002. Public Health Information Network Functions and Specifications. Version 1.2. Atlanta, GA: Centers for Disease Control and Prevention. Available: <http://www.cdc.gov/phinfrastructure/index.htm> [accessed 24 February 2004].
18. CDC. Behavioral Risk Factor Surveillance System Survey. Atlanta, Georgia: U.S. Department of Health and Human Services, CDC, 2001.
19. CDC's Indoor Air Quality Information by State [www.cdc.gov/nceh/airpollution/indoor\\_air.htm](http://www.cdc.gov/nceh/airpollution/indoor_air.htm)
20. Centers for Disease Control and Prevention (CDC) – Air Pollution and Respiratory Health Branch – [www.cdc.gov/nceh/airpollution/default.htm](http://www.cdc.gov/nceh/airpollution/default.htm)
21. Doctor's Guide Personal Edition™ – Asthma Information and Resources [www.pslgroup.com/asthma.htm](http://www.pslgroup.com/asthma.htm)
22. Environmental Management of Pediatric Asthma: Guidelines for Health Care Providers [www.neetf.org/Health/asthma.htm](http://www.neetf.org/Health/asthma.htm)
23. EPHTN (Environmental Public Health Tracking Network). 2004. Environmental Public Health Tracking Program:Atlanta, GA:Centers for Disease Control and Prevention. Available: <http://www.cdc.gov/nceh/tracking/program.htm> [accessed 24 February 2004].
24. Etzel RA. The "fatal four" indoor air pollutants. *Pediatr Ann* 2000;29(6):344-50.
25. Expert Panel Report 2, NIH Publication No. 97-4051, July 1997, 153 pages [www.nhlbi.nih.gov/guidelines/asthma/asthgdln.pdf](http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.pdf)
26. Fiore BJ, Hanrahan LP, Anderson HA. 1990. State health department response to disease cluster reports: a protocol for investigation. *Am J Epidemiol* 132:S14-S22.
27. First Gov for Consumers Gateway – [www.consumer.gov/health.htm](http://www.consumer.gov/health.htm)
28. Goodman, D.C., Stukel, T.A., and Chang, C.H. Trends in Pediatric Asthma Hospitalization Rates: Regional and Socioeconomic Differences. *Pediatrics* (1998), **101**: 208–213.
29. <http://www.aafa.org/display.cfm?id=9&sub=103&cont=455>
30. Jalaludin, B., Chey, T., Holmwood, M., Chipps, J., Hanson, R., Corbett, S., and Leeder, S. Admission Rates as an Indicator of the Prevalence of Severe Asthma in the Community. *Aust. N. Z. J. Public Health* (1998), **22**: 214–219.
31. Johnston, S.L., Pattermore, P.K., Sanderson, G., Smith, S., Campbell, M.J., Josephs, L.K., Cunningham, A., Robinson, B.S., Myint, S.H., Ward, M.E., Tyrrell, D.A., and Holgate, S.T. The Relationship Between Upper Respiratory Infections and Hospital Admissions for Asthma: a Time-Trend Analysis. *Am. J. Respir. Crit. Care Med.* (1996), **154**: 654–660.
32. Klinek MM. Pediatric asthma. York (PA): Family Center for Allergy and Asthma. Available from URL: [www.allergyasthma.org/pedasthma.htm](http://www.allergyasthma.org/pedasthma.htm).
33. Landrigan PJ, Schechter CB, Lipton JM, Fahs MC, Schwartz J. 2002. Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities. *Environ Health Perspect* 110:721-728.
34. Mannino DM, Homa DM, Akinbami LJ, et al. Surveillance for asthma---United States, 1980--1999. In: CDC surveillance summaries (March 29). *MMWR* 2002;51(No. SS-1).

35. Mannino, D.M., Homa, D.M., Pertowski, C.A., Ashizawa, A., Nixon, L.L., Johnson, C.A., Ball, L.B., Jack, E., and Kang, D.S. Surveillance for Asthma—United States, 1960–1995. *Mor. Mortal Wkly. Rep. CDC Surveill. Summ.* (1998), **47**(SS-01): 1–27.
36. Meurer, J.R., George, V., Subichin, S., Yauck, J., and Layde, P. Asthma Severity Among Children Hospitalized in 1990 and 1995. *Arch. Pediatr. Adolesc. Med.* (2000), **154**: 143–149.
37. Mid-Atlantic Regional Asthma Initiative [www.epa.gov/reg3artd/asthma/asthma.htm](http://www.epa.gov/reg3artd/asthma/asthma.htm)
38. National Center for Environmental Health (NCEH), Air Pollution and Respiratory Health Branch. Asthma. Atlanta: US Department of Health and Human Services; 2001. Available from URL: [www.cdc.gov/nceh/airpollution/asthma/default.htm](http://www.cdc.gov/nceh/airpollution/asthma/default.htm).
39. National Center for Health Statistics (NCHS). New asthma estimates: tracking prevalence, health care, and mortality. Hyattsville (MD): US Department of Health and Human Services; 2001. Available from URL: [www.cdc.gov/nchs/products/pubs/pubd/hestats/asthma/asthma.htm](http://www.cdc.gov/nchs/products/pubs/pubd/hestats/asthma/asthma.htm).
40. National Environmental Education & Training Foundation [www.neef.org](http://www.neef.org)
41. National Health, Lung and Blood Institute National Asthma Education and Prevention Program – [www.nhlbi.nih.gov/about/naepp/index.htm](http://www.nhlbi.nih.gov/about/naepp/index.htm)
42. National Heart, Lung, and Blood Institute. National Asthma Education and Prevention Program expert panel report 2: guidelines for the diagnosis and management of asthma. Rockville (MD): National Institutes of Health; 1997. NIH Publication No. 97-4051. Available from URL: [www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm](http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm).
43. National Institute of Environmental Health Sciences, National Institutes of Health, U.S. Department of Health and Human Services – Asthma-related pages [www.niehs.nih.gov/external/faq/alpha-a.htm](http://www.niehs.nih.gov/external/faq/alpha-a.htm)
44. National Institutes of Health, National Institute of Allergy and Infectious Diseases [www.niaid.nih.gov/default.htm](http://www.niaid.nih.gov/default.htm)
45. National Institutes of Health's National Heart, Lung and Blood Institute – Guidelines for the Diagnosis and Management of Asthma,
46. NEDSS. 2001. National Electronic Disease Surveillance System (NEDSS): a standards-based approach to connect public health and clinical medicine. *J Public Health Manag Pract* 7:43-50.
47. New York Online Access to Health (NOAH). Ask NOAH about asthma. Available from URL: [www.noahhealth.org/english/illness/asthma/asthma.html](http://www.noahhealth.org/english/illness/asthma/asthma.html).
48. President's Task Force on Environmental Health Risks and Safety Risks to Children. Asthma in the environment: a strategy to protect children. Washington (DC): President's Task Force on Environmental Health Risks and Safety Risks to Children. Available from URL: [yosemite.epa.gov/ochp/ochpweb.nsf/content/Whatwe\\_fedtask.htm](http://yosemite.epa.gov/ochp/ochpweb.nsf/content/Whatwe_fedtask.htm).
49. PubMed. 2004. Digital Archive of Medical and Life Sciences Journal Literature. Bethesda, MD: National Library of Medicine. Available: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi> [accessed 24 February 2004].
50. Reynolds P, Von Behren J, Gunier RB, Goldberg DE, Hertz A, Harnly ME. 2002. Childhood cancer and agricultural pesticide use: an ecologic study in California. *Environ Health Perspect* 110:319-324.
51. Reynolds P, Von Behren J, Gunier RB, Goldberg DE, Hertz A, Smith DF. 2003. Childhood cancer incidence rates and hazardous air pollutants in California: an exploratory analysis. *Environ Health Perspect* 111: 663-668.
52. Rothman KJ, Greenland S. 1998. *Modern Epidemiology*. Philadelphia: Lippincott-Raven.
53. Simmons, W.R., and Schnack, G.A. Development and Design of the NCHS Hospital Discharge Survey. *Vital Health Stat.* (1977), **2**(39):
54. Technology Transfer Network. 2002. National Air Toxics Assessment. Baltimore, MD: U.S. Environmental Protection Agency. Available: <http://www.epa.gov/ttn/atw/nata/index.html> [accessed 24 February 2004].
55. The Robert Wood Johnson Foundation – [www.rwjf.org/index.jsp](http://www.rwjf.org/index.jsp)
56. Toren K, Brisman J, Jarvholm B. Asthma and asthma-like symptoms in adults assessed by questionnaires: a literature review. *Chest* 1993;104:600--8.
57. U.S. Census Bureau. 2004. Census 2004. Bridged-Race Intercensal Population Estimates for July 1, 1990-July 1, 1999, by Year, County, Single-Year of Age, Hispanic Origin, and Sex. Washington, DC: U.S. Census Bureau. Available: <http://www.cdc.gov/nchs/about/major/dvs/popbridge/datadoc.htm#inter5> [accessed 24 February 2004].
58. U.S. EPA. 1993. The Plain English Guide to the Clean Air Act. Washington, DC: U.S. Environmental Protection Agency. Available: [http://www.epa.gov/air/oaqps/peg\\_caa/pegcaain.html](http://www.epa.gov/air/oaqps/peg_caa/pegcaain.html) [accessed 11 August 2004].
59. U.S. National Library of Medicine's and the National Institutes of Health MEDLINE plus – Asthma Resources: [medlineplus.nlm.nih.gov/medlineplus/asthma.html](http://medlineplus.nlm.nih.gov/medlineplus/asthma.html)
60. Walters, S., Phupinyokul, M., and Ayres, J. Hospital Admission Rates for Asthma and Respiratory Disease in the West Midlands: Their Relationship to Air Pollution Levels. *Thorax* (1995), **50**: 948–954.
61. Weiss KB, Gergen PJ, Wagener DK. Breathing better or wheezing worse? The changing epidemiology of asthma morbidity and mortality. *Annu Rev Public Health* 1993;14:491--513.
62. Weiss, K.B. Seasonal Trends in U.S. Asthma Hospitalizations and Mortality. *JAMA* (1990), **263**: 2323–2328.
63. What's Asthma All About: A Video – created by Neomedicus, and was funded through an unrestricted educational grant from Merck [www.whatsasthma.org/](http://www.whatsasthma.org/)
64. Wissow, L.S., Gittelsohn, A.M., Szklo, M., Starfield, B., and Mussman, M. Poverty, Race, and Hospitalization for Childhood Asthma. *Am. J. Public Health* (1988), **78**: 777–782.
65. Yasnoff WA. 2001. The promise of public health informatics. *J Public Health Manag Pract* 7:iv-v.