

Appendix

INVENTORY OF FEDERAL ASTHMA ACTIVITIES

2001

## **PREFACE**

The Inventory of Federal Asthma Activities was prepared by the Federal Liaison Group on Asthma with coordination by the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health. The agencies of the Department of Health and Human Services support a wide range of asthma research, education, information dissemination, and service-related activities. Other federal agencies with a commitment to asthma include the Environmental Protection Agency, the Department of Education, and the Department of Housing and Urban Development, all of which participate in the Federal Liaison Group on Asthma. The Federal Liaison Group on Asthma is a subcommittee of the NHLBI National Asthma Education and Prevention Program Coordinating Committee.

The Inventory is organized first by the major federal departments with an interest in asthma, and then alphabetically by the agencies within each department. Each agency section begins with a mission statement and continues with activity summaries that are categorized by four focus, i.e., priority, areas – public health practice/intervention, reducing disparities, research, and surveillance. Healthy People 2010 objectives are indicated, where appropriate, following each activity description.

This comprehensive inventory of current federal asthma efforts reflects the strength and breadth of the federal commitment to reducing the asthma epidemic.

# INVENTORY OF FEDERAL ASTHMA ACTIVITIES

## TABLE OF CONTENTS

DEPARTMENT OF EDUCATION .....	1
DEPARTMENT OF HEALTH AND HUMAN SERVICES .....	2
Administration for Children and Families .....	2
Agency for Healthcare Research and Quality .....	3
Agency for Toxic Substances and Disease Registry .....	5
Centers for Disease Control and Prevention .....	7
National Center for Chronic Disease Prevention and Health Promotion .....	7
National Center for Environmental Health .....	8
National Center For Health Statistics .....	12
National Institute for Occupational Safety and Health .....	14
Centers for Medicare and Medicaid Services .....	16
Health Resources and Services Administration .....	19
National Institutes of Health .....	24
National Heart, Lung and Blood Institute .....	24
National Institute of Allergy and Infectious Diseases .....	32
National Institute of Environmental Health Sciences .....	35
National Institute of Mental Health .....	40
National Institute of Nursing Research .....	40
National Library of Medicine .....	42
Office of Public Health and Science .....	43
Office of Disease Prevention and Health Promotion .....	43
Office of Minority Health .....	44
Office on Women's Health .....	46
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT .....	47
ENVIRONMENTAL PROTECTION AGENCY .....	51
INDEX .....	59

# DEPARTMENT OF EDUCATION

---

*The mission of the Department of Education (ED) is to ensure equal access to education and to promote educational excellence for all Americans. ED carries out its mission in two major ways. First, it plays a leadership role in the ongoing national dialogue over how to improve the results of our education system for all students. Second, ED pursues its twin goals of access and excellence by administering programs that range from preschool education through postdoctoral research.*

**Title:** ED Asthma Activities

**Focus:** Public health practice/intervention

**Contact:** Debra Little, M.S., and Doris Sligh, Ph.D.

The interest of the Office of Educational Research and Improvement (OERI) of the Department of Education (ED) in asthma management in the schools stems from a belief that all children in the United States should start school “ready to learn.” Part of being ready to learn means being physically able to take advantage of learning opportunities. Students who are not well enough to attend school, or who do not receive school support to control their illness, cannot learn effectively. Students with asthma must also feel safe in the knowledge that adults at home and at school can help them properly manage asthma episodes and emergencies. Safety also includes knowing that school personnel understand the feelings that accompany asthma and the treatment side effects. Safety, like health, is a basic need that must be satisfied before learning can begin.

ED has long been aware of the impact that asthma and its exacerbations can have on the well-being and performance of students. In the early 1990s, the OERI worked with the National Asthma Education and Prevention Program (NAEPP) of the National Heart, Lung, and Blood Institute to develop a handbook on *Managing Asthma: A Guide for Schools*. The *Guide* provided school personnel with practical ways to help students with asthma participate fully in all school activities.

Recently, the NAEPP invited ED to become a member of the Federal Liaison Group on Asthma (FLGA), a subcommittee of the NAEPP Coordinating Committee. ED has now appointed a representative to the FLGA and looks forward to future close collaboration and cooperation with other federal agencies in activities that will help improve school environments across the country for students with asthma.

# DEPARTMENT OF HEALTH AND HUMAN SERVICES

---

*The mission of the Department of Health and Human Services (DHHS) is to enhance the health and well-being of Americans by providing for effective health and human services and by fostering strong, sustained advances in the sciences underlying medicine, public health, and social services. As part of its efforts to promote health and prevent disease, the DHHS carries out and supports a wide range of activities related to prevention and treatment of asthma. In recognition of the importance of asthma in the nation and the need to coordinate related activities across its agencies, the DHHS convened an interagency working group to explore the best approaches to combat the asthma epidemic. As a result of its work, In May 2000 the DHHS published the 5-year strategic plan Action Against Asthma.*

## **ADMINISTRATION FOR CHILDREN AND FAMILIES**

*The Administration for Children and Families (ACF) is responsible for federal programs that promote the economic and social well-being of families, children, individuals, and communities. Through its Federal leadership, the ACF seeks to achieve families and individuals empowered to increase their own economic independence and productivity; strong, healthy, supportive communities having a positive impact on the quality of life and the development of children; partnerships with individuals, front-line service providers, communities, American Indian tribes, Native communities, states, and the Congress that enable solutions which transcend traditional agency boundaries; services planned, reformed, and integrated to improve needed access; and a strong commitment to working with people with developmental disabilities, refugees, and migrants to address their needs, strengths and abilities.*

### **HEAD START BUREAU**

*The Head Start Bureau, located within the Administration on Children, Youth, and Families under the ACF, provides support to local Head Start programs to implement Head Start Program Performance Standards related to health (broadly defined to include medical, dental, mental health, and nutrition), promotes preventive health practices, and strives to improve health services delivery to Head Start children and families. Goals are accomplished through coordination and collaboration with other federal programs serving low-income children and families.*

**Title:** Public Health Practice, Public Health Education

**Focus:** Public health practice/intervention

**Contact:** Robin Brocato

#### **Summary:**

The Head Start Program offers comprehensive early childhood education, nutrition, health and social services to low-income children nationwide. The overall goal of the program is to bring about a greater degree of social competence in preschool children from low-income families. The recently funded Early Head Start initiative extends services to families with pregnant women, infants and toddlers. Asthma is included as part of this comprehensive program through educational practices and guides.

Two ACF training guides intended for use by Head Start front line staff, management teams, and Head Start parents address asthma. The first, *Sustaining a Healthy Environment*, includes a general discussion of asthma and a discussion of the impact of second hand smoke and air pollution on young children. The second guide, *Caring for Children with Chronic Diseases*, builds on staff capacity to make Head Start a safe, welcoming place to learn and play for children with chronic illness and their families, and offers

skill building activities to help meet the special health needs of children with chronic conditions, including asthma.

In 2000, the Head Start Bureau examined health data sent from grantee and delegate agencies. Of the 175,504 children enrolled in Head Start who have received or are receiving treatment for a health condition, 40,125 (23 percent) are being or have been treated for asthma.

**Healthy People 2010 Objectives:**

23-10 Continuing education and training by public health agencies.

---

**AGENCY FOR HEALTHCARE RESEARCH AND QUALITY**

*The Agency for Healthcare Research and Quality (AHRQ) supports research to improve the quality of health care, reduce its cost, and broaden access to essential services. The broad AHRQ research programs bring practical, science-based information to medical practitioners and to consumers and other health care purchasers. Several asthma-related projects supported by the agency are highlighted below.*

**Title:** Health Care

**Focus:** Research

**Contact:** Denise Dougherty

**Summary:**

The AHRQ supports research and disseminates research findings on health care for asthma: its outcomes, quality, costs, use, and access. It evaluates the effectiveness and cost effectiveness of asthma management and quality improvement programs, and monitors the use health care and costs of patients with asthma. AHRQ also supports development of outcome measures to monitor the quality of asthma care delivered, quality of life, and patient satisfaction with the health care received.

The AHRQ's principal efforts in asthma research are grants to study and improve the quality of care delivered to patients with asthma. For example, the "Pediatric Asthma Patient Outcome Research Team (PORT) II" clinical trial is testing the cost-effectiveness of the National Heart, Lung, and Blood Institute's *Guidelines for the Diagnosis and Management of Asthma*, which are designed to reduce asthma morbidity among children. Other AHRQ-sponsored research projects are:

- Assessing whether specific quality improvement approaches being implemented in real-world clinical settings are effective in helping clinicians, families, and others better manage childhood and adult asthma in accordance with the *Guidelines*.
- Comparing the effects of an opinion leader training program with an organizational change intervention in managed care plans.
- Comparing a continuous quality improvement approach in office-based care to routine care; looking at guideline implementation in emergency care.
- Studying disease management strategies for adult asthmatics in Medicaid HMOs.

Cost-effectiveness is being examined in several of the studies, which are also testing health outcome measures, such as number of symptom-free days, to determine how treatments affect children's daily

lives. An AHRQ-supported Evidence-based Practice Center is examining recent research in five *Guidelines* areas and several studies are investigating how variations in managed care policies and practices affect quality and outcomes for children with asthma. Still other studies are examining the impact of insurance coverage policies and experiences (e.g., gaps in coverage) on asthma clinical outcomes.

Research on asthma supported by the AHRQ in the recent past has resulted in the following published findings:

#### Asthma Hospitalizations:

- Asthma is among the conditions that account for more hospitalizations of children over 5 years of age than any other conditions.
- Hospitalization of children for asthma varies according to the child's age and sex and several other factors, including regional variation in the severity of asthma.
- An inverse relationship exists between the availability of local primary care providers and both local asthma admissions and the rate of children going outside their local areas for treatment. An inverse relationship also exists between children's asthma admissions and HMO enrollment.

#### Asthma Costs and Expenditures

- Despite similar average lengths of stay across hospitals, average charges for childhood asthma varied significantly by hospital ownership, location, and teaching status. Additional clinical and outpatient data are needed to study variations in quality of care for asthma by hospital characteristics.

#### Effectiveness of Alternative Care Delivery Strategies for Patients with Asthma

- An Emergency Department Observation Unit was more effective, at lower cost, than inpatient care for adults with asthma.
- Studies of enhanced roles for pharmacists in asthma care show mixed results. One intervention that encouraged pharmacists to improve asthma care for adults by providing information and counseling did not result in better provision of information or superior patient satisfaction. However, another study found that patients base their satisfaction with pharmacy care on the social skills of the pharmacist. Pharmacists who are helpful, courteous, and friendly increase patients' beliefs that the pharmacist can help them manage their condition.

#### Development of Outcomes Measures for Asthma

- A reliable and valid 8-item scale was developed to measure control of asthma symptoms in Spanish-speaking populations of low literacy.

#### Guideline Implementation

- Primary care physicians tend to disagree with some aspects of the NHLBI/NAEPP guidelines for asthma care.

**Healthy People 2010 Objectives:**

24-2 Hospitalizations for asthma

24-7 Appropriate asthma care

24-11 Medical evaluation and follow-up

---

**AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY**

*The mission of the Agency for Toxic Substances and Disease Registry (ATSDR) is to prevent exposure and the adverse human health effects and diminished quality of life associated with exposure to hazardous substances from waste sites, unplanned releases, and other sources of pollution present in the environment. The Agency does on-site investigations of communities where exposures that are known or suspected of contributing to asthma morbidity have occurred; it also conducts epidemiological studies to increase understanding of the effects of these toxic substances and provides education and outreach to communities and health care providers.*

**1. Title:** Research on Asthma and Exposure to Hazardous Substances

**Focus:** Research

**Contact:** Mary White

**Summary:**

The ATSDR supports two broad asthma research program areas. The first involves investigation of human health effects in communities where citizens have been exposed to hazardous substances released from hazardous waste sites or other environmental sources. Atmospheric releases of hazardous pollutants often include substances that are known or hypothesized contributors to asthma morbidity. One ATSDR study showed that ambient emissions from a large municipal landfill were associated with increased respiratory symptoms and decreased respiratory function in persons with asthma who lived nearby. Another investigation examined asthma in children exposed to airborne emissions of toluene diisocyanate from a foam manufacturing facility. Enhanced ambient air monitoring in another community with multiple sources of high hydrogen sulfide emissions enabled the ATSDR to examine the relationship between hydrogen sulfide and hospital visits for asthma and other respiratory conditions.

The second broad program area focuses on epidemiologic studies to address important gaps in understanding the relationship between hazardous substances and seven priority health conditions. Lung and respiratory diseases, including asthma, are among the priority conditions. Two recently initiated projects, one with the Utah Department of Health and the other with the Massachusetts Department of Health, are using available data sources, such as school health records and hospitalization records, to examine the relationship between childhood asthma and exposure to hazardous substances. The ATSDR also supports two projects with the New York State Department of Health to examine the relationship between asthma and toxic air pollution; one is specifically focused on asthma among children.

ATSDR-supported health investigations typically involve a close partnership between the ATSDR and local and state health departments, state and Federal environmental agencies, and community groups and citizens. Through cooperative agreements with 23 state health departments, the ATSDR is working to build the capacity of state health departments to address concerns related to specific Superfund sites. Often community health concerns include asthma. For several health investigations, local Community Assistance Panels have been established as a mechanism to establish open and ongoing communications with residents of the community.



**Healthy People 2010 Objectives:**

- 8-27 Monitoring environmentally related diseases
- 8-26 Information systems used for environmental health
- 23-17 Population-based prevention research

- 2. **Title:** Education Activities Related to Environmental Asthma  
**Focus:** Public health practice/intervention  
**Contact:** Chris Rosheim

**Summary:**

Many Agency for Toxic Substances and Disease Registry (ATSDR) products and services contribute to professional and public education regarding hazardous substances that have been associated with asthma. Two ATSDR toxicologic profiles have assessed the current knowledge and emerging science of substances recognized as respiratory irritants, including sulfur dioxide and hydrogen sulfide.

The ATSDR and its partners have educated more than 4,000 primary care providers at 108 Superfund sites to diagnose, treat, and counsel people who may have been exposed to hazardous substances. Health education and promotion activities have included continuing medical education for physicians on the relationship between asthma and the environment. Many of the nine ATSDR units supported under the Pediatric Environmental Health Specialty Unit Program are responding to asthma-related calls and requests, as well as providing presentations and publications on environmental aspects of asthma. Recent efforts have focused on development of guidelines for clinical evaluation of children who may have been exposed to hazardous substances. Asthma is one of several health endpoints of interest. In addition, a case study in environmental medicine is being developed that will focus specifically on environmental asthma. Other agency activities contribute to reduced human exposure to hazardous substances and thus potentially to the primary or secondary prevention of asthma.

**Healthy People 2010 Objectives:**

- 7-11 Culturally appropriate and linguistically competent community health promotion programs
- 24-6 Patient education
- 8-4 Airborne toxins

- 3. **Title:** Preventing Environmental Asthma Among Hispanics  
**Focus:** Reducing disparities  
**Contact:** Juan Reyes

**Summary:**

The Agency for Toxic Substances and Disease Registry (ATSDR) is working with other federal agencies, including the Centers for Disease Control and Prevention, the Environmental Protection Agency, and the Health Resources and Services Administration, and with state and local agencies, institutions, and community groups to develop and implement a strategy to address asthma among Hispanics in Region 2 (an area that includes both Puerto Rico and New York City). The ATSDR contribution to this effort would include assistance and support for educational activities related to hazardous substances and asthma, and the design and establishment of tracking systems for asthma morbidity and environmental exposures. As part of this effort, the ATSDR has been assisting the Asthma Coalition of Puerto Rico in its strategic planning efforts.

**Healthy People 2010 Objectives:**

24-8 Surveillance systems

7-11 Culturally appropriate and linguistically competent community health promotion programs

8-27 Monitoring environmentally related diseases

---

**CENTERS FOR DISEASE CONTROL AND PREVENTION**

*The Centers for Disease Control and Prevention (CDC) is responsible for promoting health and quality of life by preventing and controlling disease, injury, and disability. In its half-century of successes in working with partners across the nation and the world, the CDC has been a leader and pioneer in detecting and investigating health problems, conducting research to enhance prevention, developing and advocating sound health policies, implementing prevention strategies, promoting healthy behaviors, fostering safe and healthy environments, and providing leadership and training in public health.*

**NATIONAL CENTER FOR CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION,  
DIVISION OF ADOLESCENT AND SCHOOL HEALTH**

*The mission of the National Center for Chronic Disease Prevention and Health Promotion is to prevent death and disability from chronic disease; to promote maternal, infant, and adolescent health; to promote healthy personal behaviors; and to accomplish these goals in partnership with health and education agencies, major voluntary associations, the private sector, and other federal agencies.*

**Title:** Enabling the Nation's Schools to Prevent Asthma Attacks and Absences**Focus:** Public health practice/intervention**Contact:** Mary Vernon-Smilely**Summary:**

The Division of Adolescent and School Health (DASH) of the National Center for Chronic Disease Prevention and Health Promotion has an existing framework of approximately 55 state and territorial departments of education and partnerships with 40 national non-governmental organizations (NGOs) and their constituents which have the capacity to help schools implement effective school health programs.

In 2000, the DASH developed a Memorandum of Understanding with the CDC National Center for Environmental Health (NCEH) to receive funds through the Americans Breathing Easier Program, to enable the nation's schools to prevent asthma attacks and related absences. The resulting initiative builds on work already begun by NCEH and the National Heart, Lung, and Blood Institute's National Asthma Education and Prevention Program, and engages the previously established DASH partnerships with state and local education agencies and NGOs. The major objectives are to:

- Build partnerships among relevant governmental and non-governmental organizations at the national, state, and local levels.
- Enable the nation's schools to implement effective interventions.
- Focus on large urban school districts where at least 75 percent of the students belong to a racial or ethnic minority group.
- Reduce school absences due to asthma.

- Reduce the growing burden of asthma.

In October 2000, the DASH provided funds to four large urban school districts (Baltimore, Detroit, Los Angeles, and Philadelphia) and four national NGOs (National Assembly on School-Based Health Care, National Association of Community Health Centers, National Education Association-Health Information Network, and National School Boards Association). The funds will be used to develop programs, training activities, policies, and resources that inform parents, school staff, administrators, health care providers, and other school health personnel about asthma, and to promote coordinated school health programs as a means of preventing major health and social problems that affect school-aged children and youth.

The DASH also recently contracted with a private research and development organization to develop a comprehensive resource manual for asthma management in schools. The resource manual will provide concrete guidance for school administrators and school health teams on specific courses of action, including best practices and policies, that will help to reduce asthma episodes and asthma-related absences.

**Healthy People 2010 Objectives:**

24-5 School or work days lost

24-6 Patient education

24-2 Hospitalizations for asthma

**NATIONAL CENTER FOR ENVIRONMENTAL HEALTH**

*The mission of the National Center for Environmental Health (NCEH) is to provide national leadership, through science and service, to promote health and quality of life by preventing and controlling disease, birth defects, disability, and death resulting from interactions between people and their environment. Program highlights include efforts to improve surveillance for asthma at state and national levels, implementation of scientifically proven community-based interventions in sites across the country, intervention research, assistance and collaboration with state and local health departments and other partners in developing asthma control programs.*

1. **Title:** Asthma Surveillance  
**Focus:** Surveillance  
**Contact:** Stephen Redd

**Summary:**

Surveillance data are essential for planning and evaluating programs and for educating decision makers about changes in diseases in populations over time. Since most disease intervention programs are local, disease surveillance must occur locally as well. Development of state-based asthma surveillance is being supported through grants to 12 state health agencies across the country (California, Colorado, Illinois, Iowa, Maine, Michigan, Minnesota, New Jersey, New Mexico, Oregon, Rhode Island, and Vermont). Within state health agencies, existing data are being analyzed; new data are being collected and analyzed. Data support is being provided to state and local asthma coalitions and others and data are being disseminated through reports, publications, and presentations.

Prior to the late 1990s, interpretation of death, hospitalization, and emergency room data at the state level was hindered by the lack of state level asthma prevalence data. In 1998, a proposal to include asthma prevalence measures in the Behavioral Risk Factor Surveillance System (BRFSS) was prepared, accepted, and funded for the 1999 data collection year. A two question adult asthma optional module was available in 1999 and used by 17 states and Washington D. C. In 2000, the two adult prevalence questions were

included in the BRFSS and included in every state's questions. Data for the 50 states, D.C, Guam, Puerto Rico, and the Virgin Islands will be available in summer 2001. Also in 2001 an 11-question asthma history optional module was approved for use. The module includes questions intended to capture work loss, asthma severity, and asthma management for adults, as well as questions on prevalence in children.

New methods for surveillance are being evaluated. In particular, surveillance and intervention activities are being evaluated in emergency departments in Michigan and South Carolina. Additional innovative methods will be tested in coming years, including systems for notification of deaths due to asthma and methods to identify incident cases of asthma.

The Air Pollution and Respiratory Health Branch of the National Center for Environmental Health (NCEH) works with the National Center for Health Statistics to assure timely analysis and dissemination of national asthma data. In 1998, a surveillance summary published in the *Morbidity and Mortality Weekly Report* surveillance series summarized national asthma data on prevalence, mortality, hospitalizations, emergency department visits, and outpatient visits. A similar publication planned for 2001 will include, in addition, data on school and work days missed because of asthma.

### **Healthy People 2010 Objectives:**

#### 24-8 Surveillance systems

2. **Title:** Facilitating Implementation of Public Health Interventions  
**Focus:** Public health practice/intervention  
**Contact:** Leslie Boss

#### **Summary:**

Planning, coordination, and evaluation of asthma control activities at the state level will increase the likelihood of consistent high quality in comprehensive asthma management. State health agencies are responsible for the health of state residents and are, therefore, important players in asthma control. Through multiple training opportunities, technical assistance, and provision of grants to these agencies, the National Center for Environmental Health (NCEH) is helping to develop asthma programs.

“Asthma contacts” have been identified in all 50 state health agencies. Grants have been provided to 12 state health agencies to develop asthma surveillance systems, partner with appropriate organizations and individuals across the state, create a statewide plan for asthma control, address policy needs around asthma management, and evaluate the statewide efforts. Monthly training teleconferences feature expert speakers from across the nation, and allow health department personnel and their invited customers to exchange information on various health topics. The CDC has completed a directed review of the scientific literature to identify interventions that have been published in the peer reviewed literature and subsequently translated into public health programs. Programs with a basis in the scientific literature that have been implemented and evaluated as public health programs will be described in a case studies format and will be available on the CDC asthma website. As an initial step, case studies of each of three qualifying interventions has been produced.

The CDC hosted national asthma conferences in 1999 and 2000. On September 29, 2000, CDC and the University of North Carolina co-hosted a national videoconference on asthma as part of a series of “Public Health Grand Rounds.” A second live satellite broadcast targeting a wide audience of state health agency officials, care providers, school administrators, managed care organizations, federal agencies, non-profit organizations, and others with an interest in asthma management was held on May 17, 2001.

**Healthy People 2010 Objectives:**

24-6 Patient education

24-7 Appropriate asthma care

24-8 Surveillance systems

**3. Title:** Research and Interventions Focused on Reducing Disparities**Focus:** Reducing disparities**Contact:** Stephen Redd**Summary:**

New York City (NYC) has an extremely high asthma mortality rate compared with other cities and the United States as a whole. One National Center for Environmental Health (NCEH) study, an examination of the descriptive epidemiology of asthma deaths in NYC, will examine detailed autopsy information to increase understanding of the circumstances contributing to fatal asthma cases. Death certificate data will be categorized by common demographic variables (age, sex, race, and ethnicity), availability of autopsy information, underlying cause of death, multiple cause of death, and place of death (home, hospital, etc.). Death certificate data for the medical examiner cases will be compared with that for non-medical examiner cases. In addition, data will be abstracted from the medical examiner autopsy and investigation files for each medical examiner case identified. Details not available from standard death certificates will be examined to clarify and categorize the specific circumstances surrounding those asthma deaths.

The large increase in asthma mortality between 1979 and 1989 was primarily due to a disparately large increase in mortality in women of all races age 35 and older. In 1996, women still had a markedly higher asthma mortality rate (26.5 per million) than did men (16 per million). A newly commissioned study and intervention to examine factors contributing to the higher mortality in women will include: 1) an analysis of existing data in an asthma registry system to identify differences between men and women, 2) a survey of a sample of asthma patients to further identify difference by gender, and the design, implementation, and evaluation of an intervention to reduce the differences (if found) in asthma management between men and women.

The Inner-City Asthma Intervention (ICAI) is a translation and implementation into practice of methods developed by the National Cooperative Inner-City Asthma Study (NCICAS), a five-year study conducted by the National Institute of Allergy and Infectious Diseases of NIH. The goal of the intervention is to reduce the number of days with symptoms due to asthma as well as acute care and emergency room visits for asthma by inner-city children, the group most affected by high rates of asthma hospitalizations and deaths. Inner-city children who speak English or Spanish are receiving intensive counseling and education through group classes and twelve months of individual sessions with a masters level social worker.

**Healthy People 2010 Objectives:**

24-1 Reduce asthma deaths

24-3 Reduce hospital emergency department visits for asthma

24-6 Patient education

4. **Title:** Applied Research  
**Focus:** Research  
**Contact:** Stephen Redd

**Summary:**

Research related to environmental exposures and asthma uses existing National surveys, such as National Health and Nutrition Examination Survey (NHANES), to determine how exposures to environmental factors such as tobacco smoke or allergens can affect respiratory symptoms and lung function in children. A manuscript on the relation between tobacco smoke exposure and respiratory symptoms and asthma in children has been published. In addition, manuscripts are being prepared on the relation between tobacco smoke exposure and asthma severity, allergen sensitivity and sociodemographic factors, and body mass and asthma in children.

Asthma detection programs target impoverished preschool and elementary school-aged populations, such as Head Start programs, or economically similar school-age populations in an attempt to detect and follow children with both diagnosed and undiagnosed asthma. The programs include respiratory screening questionnaires and some include clinical evaluation. The projects will determine the sensitivity, specificity, and predictive values of the screening instruments. Prevention Research Centers funded for this activity include Columbia University, University of Texas, and University of Michigan. Screening has started at all Head Start sites, and some sites have gathered sufficient data to derive estimates of their asthma based on screening prevalence. All sites have reported success so far in obtaining follow-up care for children identified with asthma who were not previously receiving care.

**Healthy People 2010 Objective:**

- 24-3 Hospital emergency department for asthma  
24-4 Activity limitations  
24-6 Patient education

**NATIONAL CENTER FOR HEALTH STATISTICS**

*The mission of National Center for Health Statistics (NCHS) is to provide statistical information that will guide actions and policies to improve the health of the American people. As the Nation's principal health statistics agency, the NCHS provides accurate, relevant, and timely data. The NCHS contributes to the body of asthma research through various national surveys of the American population.*

1. **Title:** Asthma surveillance  
**Focus:** Surveillance  
**Contact:** Lara Akinbami

**Summary:**

The National Center for Health Statistics (NCHS) operates a number of health information systems that provide data to evaluate the impact of asthma on the United States population. Although the purpose of these systems is to monitor a wide variety of health issues, specific information on asthma prevalence, morbidity, health care utilization, and mortality is obtained. Descriptions of the major data systems follow.

The National Health Interview Survey collects information via household interviews on a broad range of health topics, including asthma. Information about demographic and socioeconomic characteristics, basic indicators of health status, and use of health care services is also collected. In a 1997 redesign of the

survey, the quality of the information collected about asthma was improved. The redesigned survey contains a basic module, asked of one sample adult and one sample child per household, that contains questions on asthma prevalence and emergency room visits. Periodic topical modules will collect information about asthma medication use, lost school and work days, hospitalizations, and patient education. Asthma prevalence estimates are published in *Vital and Health Statistics Reports*, including *Series 10: Current Estimates of the National Health Interview Survey*.

The goals of the National Health and Nutrition Examination Survey (NHANES) program are to estimate the number and percent of persons in the U.S. population and designated subgroups who have selected diseases or risk factors for selected diseases; to study the relationship between diet, nutrition and health; and to explore emerging public health issues. Information on respiratory and allergic symptoms, previous diagnoses of asthma, and family history of asthma are included in the sample person questionnaire. Lung function was assessed through spirometric testing during sample person examinations in the 1988-1994 periodic survey. Additional data on exercise, diet, occupation, tobacco use, and medication use are collected. In some survey years, allergic responses and exposure to tobacco smoke have also been assessed.

A family of surveys known as the National Health Care Survey provides health care utilization data. The National Hospital Discharge Survey, which collects information about inpatient utilization of hospitals, has been used to monitor asthma hospitalizations over time for the U.S. population and for age and racial subgroups. The National Ambulatory Medical Care Survey (NAMCS) collects data about office visits to private physician offices. The National Hospital Ambulatory Medical Care Survey (NHAMCS) collects information on health care provided in hospital outpatient and emergency departments. Both the NAMCS and the NHAMCS also collect data on patient demographic characteristics, patient complaints, medication therapy, and types of health care professionals seen. The components of the National Health Care Survey have provided information on trends in overall asthma health care utilization. Data on asthma health care utilization is published annually in *Health, United States*, and in *Advance Data from Vital and Health Statistics Reports*.

The National Vital Statistics System (NVSS), coordinated by the Division of Vital Statistics, compiles and disseminates national data from vital records on births, deaths, and fetal deaths, original copies of which are filed in the states. The Mortality Component of the NVSS provides data on asthma mortality available from death certificates, including information about age, race, Hispanic origin, sex, occupation, and educational attainment. Effective with deaths occurring in 1999, a new standard population is being implemented for age-adjusting death rates, and the Tenth Revision of the International Classification of Diseases (ICD-10) will replace the ICD-9 used between 1979 and 1998. Mortality data are the most widely used data sets for analyzing and depicting variations in asthma risk because of the uniform availability and comparability of these data at the national, state, and local levels. Monitoring the trend in asthma mortality among various age, racial and ethnic groups, and genders has been important in alerting the public health community to the increasing problem of asthma in the American population. Annual asthma mortality data is published in the National Vital Statistics Report and is available through the internet on CDC Wonder (<http://wonder.cdc.gov/>).

The NCHS works closely with the Air Pollution and Respiratory Health Branch of the National Center for Environmental Health, CDC, to disseminate national asthma data, including an asthma surveillance summary planned for publication in the Morbidity and Mortality Weekly Reports in 2001. The data collection systems described above are also used to monitor progress on the Healthy People 2010 asthma objectives. DATA2010, an interactive database system developed by the NCHS Division of Health

Promotion Statistics, contains the most recent monitoring data for tracking Healthy People 2010. Internet access to DATA2010 is available through CDC Wonder (<http://wonder.cdc.gov/data2010/>).

**Healthy People 2010 Objectives:**

- 24-8 Surveillance systems
- 23-6 National tracking of Healthy People 2010 objectives
- 23-7 Timely release of data on objectives

- 2. **Title:** Research  
**Focus:** Research  
**Contact:** Lara Akinbami

The National Center for Health Statistics (NCHS) evaluates data available from its multiple data systems to determine relationships and trends that demonstrate the scope of issues related to asthma and to suggest approaches to address the increasing asthma burden. Published studies include analyses of changing patterns of asthma morbidity and mortality and ambulatory health care use for asthma, and trends in medication prescription. Studies in progress include analyzing racial and income disparities in childhood asthma prevalence and morbidity, examining the association between childhood asthma and outdoor air pollution (in collaboration with the Environmental Protection Agency), and analyzing general trends in childhood asthma.

**Healthy People 2010 Objectives:**

- 8-27 Monitoring environmentally related diseases
- 24-4 Activity limitations
- 24-3 Hospital emergency department visits for asthma

**NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH**

*The National Institute for Occupational Safety and Health (NIOSH) is responsible for conducting research and making recommendations for the prevention of work-related illnesses and injuries. Asthma that is either initiated or significantly worsened by job environments is a major focus of the NIOSH research and surveillance program. NIOSH has a broad mandate; its responsibility to the U.S. workforce includes research, surveillance, public health practice/intervention, and reducing disparities.*

- 1. **Title:** NIOSH Asthma Activities  
**Focus:** Research  
**Contact:** Edward Petsonk

**Summary:**

The National Occupational Research Agenda (NORA) has identified research on work-related asthma as a top priority over the next decade. Many of the workplace agents implicated in asthma are also common in the home and other settings, although exposure-response relationships in the workplace may be more easily investigated due to the larger range of exposures and the more accurate classification of exposure levels. Multiple reports in the occupational literature document that timely and adequate control of exposures in individuals with work-related asthma may result in complete cessation of asthma symptoms.

The National Institute for Occupational Safety and Health (NIOSH) is funding epidemiologic studies to identify risk factors and to better estimate current incidence and prevalence rates for work-related asthma. NIOSH also supports investigation of the patho-biological mechanisms and markers of responses for



work-related asthma, including markers of responses, using in vitro preparations, animal models of asthma, and observational studies among exposed workers.

A major new research focus has been the investigation of environmental conditions in schools, offices, and other non-industrial environments in relation to the onset and worsening of asthma. The Institute is supporting development of methods for characterizing exposures and health outcomes in these settings. Additional studies are evaluating the incidence, risk factors (including exposures), and natural history of asthma among groups of workers in work settings with potential exposures to a previously recognized asthma hazards (e.g., auto body shops, electronics and metals industries). To further delineate the conditions required for asthma onset and cessation, NIOSH supports ongoing investigations addressing improved methods for characterizing and quantifying occupational exposures to chemical sensitizers (e.g., isocyanates and certain metals), protein antigens (e.g., natural rubber latex, egg, insect and crab proteins), and microbial products (e.g., mycotoxins and endotoxins). The roles in asthma of dermal and inhalation exposures to natural rubber latex and isocyanates are under investigation in the laboratory, in conjunction with observational studies in exposed workers. Epidemiologic studies are also underway to better define the potential for work environments to trigger exacerbations of pre-existing asthma, to determine the frequency and implications of such workplace exacerbation of existing asthma, and to evaluate the combined work impacts of asthma.

**Healthy People 2010 Objectives:**

8-17 Office building air quality

24-8 Surveillance systems

24-5 School or work days lost

2. **Title:** NIOSH Asthma Activities  
**Focus:** Public health practice/intervention  
**Contact:** Edward Petsonk

**Summary:**

The National Institute for Occupational Safety and Health (NIOSH) Health Hazard Evaluation Program responds to requests from workers and managers for workplace investigations. In recent years, multiple complaints related to asthma symptoms have been investigated and reported. NIOSH publications offer guidance for recognition, management, and prevention of asthma in relation to specific workplace exposures, including natural rubber latex, isocyanates, and laboratory animals. Institute representatives continue to be actively involved with the National Asthma Education and Prevention Program and the American Thoracic Society in the development of professional guidelines for evaluation and management of asthma, with emphasis on recognition and management of occupational and environmental factors.

Recently completed projects have assessed primary prevention of asthma in various industrial settings through implementation and evaluation of methods to control exposure. A five-year prospective comprehensive intervention trial among health care workers is currently evaluating primary asthma prevention among workers in health care facilities, in relation to skin and airborne natural latex antigen exposures. Secondary prevention methods are also being investigated, including medical screening for early detection of allergic sensitization and asthma among groups of workers with potential asthma-inducing exposures. The NIOSH supports several state health departments in the investigation, follow-up, and preventive intervention for adults with work-related asthma. Support for clinicians managing asthma patients includes an Internet listing of agents reported to cause asthma, as well as guidance for recognition and management of work-related asthma.

**Healthy People 2010 Objectives:**

24-5 School or work days lost

3. **Title:** NIOSH Asthma Activities  
**Focus:** Surveillance  
**Contact:** Edward Petsonk

**Summary:**

Several ongoing National Institute of Occupational Safety and Health (NIOSH) activities involve asthma surveillance, supplementing national surveillance data with information from in-depth, case-based investigations of selected diseases. The Sentinel Event Notification System for Occupational Risks (SENSOR) Program supports state-based surveillance, investigation, and preventive intervention for specific occupational conditions including work-related asthma. Data collection from these programs is ongoing and assists in identification of high-risk exposures and recognition of new environmental causes of asthma. The NIOSH Surveillance Strategic Plan, published in 2001, specifically proposes to identify and evaluate current employer-based approaches to medical screening and surveillance of occupational asthma, and to evaluate and make recommendations for surveillance systems that can be used by companies, unions, and industries.

Currently the NIOSH funds multiple projects addressing population-based asthma surveillance and evaluating the role of occupational environments and other exposures in asthma incidence, prevalence, and severity. The *Morbidity and Mortality Weekly (MMWR)* and *Work Related Lung Disease (WoRLD)* surveillance reports are published periodically and include certain exposure, morbidity, and mortality data on occupationally-related asthma, including byssinosis (brown lung disease).

**Healthy People 2010 Objectives:**

24-8 Surveillance systems

---

**CENTERS FOR MEDICARE AND MEDICAID SERVICES**

*The mission of the Centers for Medicare and Medicaid Services (CMS), formerly the Health Care Financing Administration, is to assure health care security for program beneficiaries. Selected agency goals and program objectives are to:*

- *Improve access to services for the underserved and vulnerable beneficiary populations.*
- *Increase the usefulness of communications with beneficiaries (such as, health education).*
- *Ensure that programs and services respond to the health care needs of beneficiaries.*
- *Protect and improve beneficiary health and health outcomes.*
- *Protect beneficiaries from substandard care.*

1. **Title:** Asthma Activities  
**Focus:** Research  
**Contact:** Beth Benedict

**Summary:**

Centers for Medicare and Medicaid Services (CMS) asthma-related research focuses on populations enrolled in Medicare, Medicaid, or both. The Agency investigates population characteristics, personal and environmental risk factors, program eligibility and coverage, expenditures, access to care, use of

services, and quality and outcomes of care. When feasible, the CMS uses the *Guidelines for the Diagnosis and Management of Asthma* (NHLBI, NIH Expert Panel Report 2, Pub. No. 97-4051) as a framework for its research studies; in other instances, the Guidelines are used as criteria for quality of care measurement. When feasible, CMS analyses include comparisons with other populations.

Asthma across the age spectrum is a priority for the CMS Women's Health research agenda. Current research on beneficiaries enrolled in both Medicare and Medicaid focuses on gender, racial, and ethnic differences. Its purpose is to expand knowledge and understanding of the impact of asthma on Medicare and Medicaid beneficiaries.

**Healthy People 2010 Objectives:**

24-2 Hospitalizations for asthma

8-1 Harmful air pollutants

8-27 Monitoring environmentally related diseases

2. **Title:** Asthma Activities  
**Focus:** Public health practice/intervention  
**Contact:** Beth Benedict

**Summary:**

Quality and Outcomes of Care

The ongoing CMS intramural research program on Medicaid children with asthma includes analyses of demographics, access, use and quality of health services, and expenditure data. The program is based on the theory that if Medicaid children have appropriate and timely access, then the severity and repetition of acute asthma episodes may decrease and the outcomes of their care may improve. Current work includes inpatient, outpatient, and emergency room data analyses.

Various approaches have been used to disseminate CMS research results, including publication in peer-reviewed journals and presentations at national professional meetings. Selected highlights from CMS-supported work on asthma are shown below.

- A 1998 CMS *Report to Congress on the Medicaid Quality of Care Medical Records Study* included samples of Medicaid and privately insured medical records from California, Georgia, and Michigan for children, aged 2 to 18 years of age with a primary diagnosis of asthma. Measures of the appropriateness of hospital admission for asthma were developed and tested, including a severity of condition index. The study also assessed the processes and outcomes of care, including an intensity of inpatient service use index.
- The RAND Corporation recently released a five-volume series of Quality of Care Tools to help assess care received by Medicaid and privately insured populations in managed care settings. Volume Five includes asthma diagnosis, treatment, and follow-up for children and adolescents.
- A University of Alabama study examined the correspondence between medical records and Medicaid claims in Alabama to determine whether claims are a valid source of data for monitoring quality of asthma care. A total of 460 Medicaid claims were matched to medical records. While most of the diagnoses and procedures recorded on the claims were documented in the medical records, claims failed to identify 295 of the events with asthma diagnoses and 45 percent of the nebulization procedures administered during asthma events. About 30 percent of the documented asthma

prescriptions were not associated with filed claims, and about 30 percent of filed claims for asthma medication were not documented in the medical record.

#### Management Guidelines

For the Medicaid program, the State Medicaid Agencies cover medically necessary asthma hospitalizations, provider visits, prescriptions, treatments, and, equipment and medical supplies. The Centers for Medicare and Medicaid Services (CMS) strongly encourages the States to follow the National Heart, Lung and Blood Institute(NHLBI) updated *Guidelines for the Diagnosis and Management of Asthma* (1997).

#### Patient Services and Education

The Medicaid program encourages patient services and education, particularly parental education to help children receive timely and appropriate care. Core Medicaid program benefits, required of each State Medicaid Agency, include Medicaid's Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) benefit that entitles eligible children, including those with asthma, to regular health screenings, medically necessary specialty care, and health education for children and their families.

In January 2001, the CMS Center for State Medicaid Operations issued a letter to State Medicaid Directors to clarify program requirements to improve access to asthma-related items and services. The letter also encouraged use of disease management and other programs to improve outcomes, reduce costs, and maximize an efficient delivery of care. The letter strongly encouraged States to follow the NHLBI asthma guidelines.

The CMS funds a number of demonstration waiver or grant programs in Medicaid. Generally, these programs focus on alternative methods of organizing the health care delivery system, rather than on diagnoses. One noteworthy exception is the Asthma Champion Initiative, a program of the Cook County, Illinois Bureau of Health, for which the Congress authorized FY 2001 appropriations. The project aims to reduce morbidity and mortality of asthma in high prevalence areas such as Cook County by educating community providers, consumers, and the community on best practices for treatment of asthma patients. The CMS Center for State Medicaid Operations has primary responsibility for administering this initiative.

#### Quality of Delivery Systems

In the late 1990s, the CMS and the Agency for Health Research and Quality funded the National Committee on Quality Assurance (NCQA) Pediatric Health Plan Assessment Task Force, that developed and tested the current Health Plan Employer Data and Information Set (HEDIS) quality performance measures. The HEDIS asthma quality measure asks about use of appropriate medications for people with asthma in selected age groups ranging from five to fifty-six years of age. This measure was pilot tested in managed care organizations that provided services to Medicaid beneficiaries.

In 1998, the CMS, the Health Resources and Services Administration, and the Centers for Disease Control and Prevention signed a data sharing agreement to allow States to link data sets from various sources. The goal was to provide a basis for the three agencies to coordinate and direct various activities that support improvement in Medicaid and public health program design and outcomes.

In August 2000, the CMS contracted with the Institute for Health Care Improvement (IHI) to conduct a learning collaborative on childhood asthma for seven state Medicaid agencies that had volunteered to participate. The purpose was to provide expert assistance for improving asthma care for Medicaid children. Based on Dr. Ed Wagner's Chronic Care Model, the IHI supplied expert faculty to instruct

states on the most effective asthma care protocols and organizational systems that support successful implementation of the protocols. Each state teamed with a clinical partner to identify and test changes to improve the system of care for their asthma patients. The collaborative will end in October 2001.

**Healthy People 2010 Objectives:**

- 24-2 Hospitalizations for asthma
- 24-7 Appropriate asthma care
- 23-17 Population-based prevention research

---

**HEALTH RESOURCES AND SERVICES ADMINISTRATION**

*The Health Resources and Services Administration (HRSA) directs national health programs that improve the health of the Nation by assuring quality health care to underserved, vulnerable, and special-need populations and by promoting appropriate health professions workforce capacity and practice, particularly in primary care and public health. HRSA programs are designed to promote comprehensive primary care education and practice, and to support the Nation's public health infrastructure. Management of asthma is addressed through several programs that provide resources and services for broad health improvement, especially in vulnerable groups.*

**BUREAU OF PRIMARY HEALTH CARE**

*The mission of the Bureau of Primary Health Care (BPHC) is to increase access to comprehensive primary and preventive health care and to improve the health status of underserved and vulnerable populations. The goal is improving and expanding access to health care for all Americans nationwide.*

- 1. **Title:** Health Center Asthma Quality Improvement Initiative: Asthma Collaborative
- Focus:** Reducing disparities
- Contact:** David Stevens

**Summary:**

Bureau of Primary Health Care (BPHC) funded health centers provide community-based primary care services to 2.7 million children ages under age 12 and 1.1 million children ages 13 through 19. These programs provide access to quality care for children who live in localities that have a high prevalence of asthma and who lack access to health care. Primary care settings provide a positive benefit in treating children with asthma. According to the BPHC Uniform Data System (UDS) for CY 2000 for the United States, section 330 grantees (community and migrant, homeless, and public housing) currently report asthma as the fourth most common selected chronic illness (behind hypertension, mental health, and diabetes): 602,418 asthma diagnoses involving 287,635 patients.

In addition to the ongoing role of the health centers in treating asthma, BPHC has taken further action and is currently implementing an Asthma Collaborative – a system-wide model of care that is population-based and ensures that evidence-based care is provided in patient-centered interactions.

Beginning in February 2000, the Bureau of Primary Health Care (BPHC), in collaboration with the Environmental Protection Agency (EPA), supported 23 community health centers (including 5 school-based centers) in a 13-month quality improvement initiative on asthma. Interdisciplinary teams from each of the 23 centers attended three two-day sessions in which they learned the elements of chronic care and a method for testing and implementing changes. Between the learning sessions, teams tested and implemented the changes in their health centers and collected data to measure the impact of the changes.

They submitted monthly progress reports and participated in conference calls, site visits, and an Internet-based electronic ListServ that allowed them to share information and learn from national experts and other health centers across the United States.

All teams in the Asthma Collaborative used the Improving Chronic Illness Care (ICIC) Chronic Care Model, an organizational approach to caring for people with chronic disease in a primary care setting. The Chronic Care Model identifies essential system elements that encourage high-quality chronic disease management and foster productive interactions between patients who take an active part in their care and providers who are backed by resources and expertise. Each team tracked and reported a variety of individualized measures. Results are available on the Institute for Healthcare Improvement Extranet, which is readily accessible to all teams and their senior leadership. Phase 2 of the Asthma Collaborative process will standardize some of the measures to provide an opportunity for aggregate reporting and comparative data for the BPHC Health Disparity Collaboratives and the participating teams. Major accomplishments include:

- Overall Asthma Collaborative Results. The weighted average of data from the participating teams showed that the number of patients with persistent asthma who received appropriate treatment with maintenance anti-inflammatory medications increased from 10 percent at the beginning of the Collaborative to 70 percent 10 months later.
- Chinatown Health Clinic, New York. Symptom-free days for 207 patients increased from 3 days per week to an average of 6 days per week with development of an asthma pathway, an asthma action plan prepared in agreement with the patient, asthma group sessions for self-management support, and asthma educational materials translated into Chinese.
- Hill Health Center in New Haven, Connecticut. The number of patients reporting an emergency department visit for asthma symptoms within the last 2 weeks decreased from 14 percent to less than 1 percent due to partnerships with a Community Action Agency that focuses on environmental reduction of asthma triggers and with the Community Health Network (Medicaid Managed Care Company), which provides mattress and pillow dust mite covers for needy asthmatic patients.
- GA Carmichael Family Health Care, Canton, Mississippi. One hundred ninety-nine asthmatic students completed written asthma action plans (previously none had written plans) when all providers were trained on asthma plan development, use of asthma devices, and partnerships with the public schools.
- Ben Archer Health Center, New Mexico. Use of community outreach workers with training on asthma triggers in the home, as well as involvement of local school nurses and athletic trainers, pharmacists, and the local hospital, has helped decrease the number of school days missed by students with asthma from 66 days per 100 patients to less than 4 per 100 patients over a two-week period.

In addition to the Health Resources and Services Administration (HRSA), other groups participating in the Asthma Collaborative included the EPA, the Rand Corporation, and the American College of Chest Physicians (with support from Glaxo Wellcome, Inc., Merck and Co., and AstraZeneca). The EPA co-funded five sites with the BPHC and worked with the faculty to put indoor environmental asthma issues (mostly environmental tobacco smoke exposure to children) into the change package. EPA staff participated in the second learning session and were very supportive of the teams, health centers, and Collaborative. Rand Corporation served as the evaluation unit. It recruited teams, helped them work through IRB approval at their sites, and kept the faculty informed about emerging issues with the teams.

In addition, Rand Corporation directly helped some teams with advice on data collection, purchase of computers, and payment for staff time to input data for teams that needed help in order to participate in the evaluation. The American College of Chest Physicians attended the learning sessions and provided advice to the faculty and teams.

In collaboration with the EPA and other partners, the Asthma Collaborative is being repeated (Asthma II) beginning in August 2001 with 21 participating health centers, nine of which are school-based. All teams submit progress reports monthly on a small set of common measures, including the number of symptom-free days among patients with asthma and the number of patients with persistent asthma who receive appropriate treatment with maintenance anti-inflammatory medications. As in Asthma I, the collaborative teams will employ the Chronic Care Model, with 12 months of intensive learning from experts and one another. Strategic partnerships with private corporations, community organizations, and government agencies provide invaluable support.

**Healthy People 2010 Objectives:**

24-2 Hospitalizations for asthma

24-3 Hospital emergency department visits for asthma

24-7 Appropriate asthma care

2. **Title:** Community-based Outreach Programs in Maternal and Child Health  
**Focus:** Public health practice/intervention  
**Contact:** Laura Kavanagh

**Summary:**

The Maternal and Child Health Bureau provides block grants to the states and administers discretionary grants to support the Nation's maternal and child health infrastructure. Two programs are of special relevance to management of asthma patients. One program supports development of systems of care and services for children with special health care needs, including those at risk for or suffering from chronic illness and disabilities. Over the past several years, a number of projects have addressed asthma specifically. The East Harlem Pediatric Asthma Working Group at Mount Sinai Department of Community Medicine is conducting a Healthy Tomorrows Partnership for Children Project to (1) improve the health of children with asthma by intervening to eliminate or control asthma allergens in the home environment, (2) help children and their parents understand the appropriate use and management of asthma medications, and (3) ensure that children with asthma have access to ongoing quality medical care. The target population is pediatric asthma patients in East Harlem, where pediatric asthma hospitalization rates and emergency room visits are the highest in the New York region and three times higher than those of New York City as a whole.

The second program addresses interdisciplinary training of professional health personnel and includes work through the Pediatric Pulmonary Centers (PPCs) to improve community-based care for children with chronic respiratory diseases and their families. It includes program support, continuing education, and services, as well as community outreach and consultative support to local communities. Each of the seven PPCs has established individual asthma initiatives. In addition, a special asthma priority has been established that will include a focus on disparities of care for children with asthma.

As of Spring 2000, a total of 62 families have been enrolled in the program and have received 226 nursing and 425 environmental assessment visits. An extensive database has been developed on the families, which have demonstrated significant progress over time in disease management, decreased emergency room visits, and days lost from school and improvement in home environment.

In June 2000, HRSA's New York Field Office was the main sponsor of the DHHS Region II Asthma Summit that brought together federal, state, and local leaders to share ideas and begin to develop state plans for asthma care. Plans have been made to follow up with regional meetings during the year. The PPCs continue to participate in research on quality of care and delivery of care for various conditions, including asthma, through provision of core faculty and an established infrastructure. The PCC at the University of Alabama at Birmingham (in DHHS Region IV) recently completed a Continuing Education and Development project to improve the clinical competency and leadership skills of health care providers caring for children with special health needs, specifically those with chronic respiratory conditions.

**Healthy People 2010 Objectives:**

- 24-2 Hospitalizations for asthma
- 24-7 Appropriate asthma care
- 24-11 Medical evaluation and follow-up

**OFFICE OF FIELD OPERATIONS**

*HRSA's Office of Field Operations provides oversight and leadership for the HRSA program representatives located in the ten DHHS regional field offices. Since 1998, the Office of Field Operations has encouraged the development of local asthma activities by the HRSA field offices. In particular, the New York, Boston, and Philadelphia field offices (Region I, II, and III) have supported the establishment of community and state partnerships for action against asthma.*

**Title:** Asthma Activities  
**Focus:** Public Health Practice/Intervention  
**Contact:** Margaret Lee, M.D., New York Field Office

**SUMMARY:**

HRSA's New York Field Office was the main sponsor of the Region II Asthma Summit held in New York City in June 2000. The other co-sponsors were the U.S. Environmental Protection Agency and the Pediatric Pulmonary Center of Mt. Sinai School of Medicine. The Robert Wood Johnson Foundation also provided generous support. Federal, state, and local government agencies participated in the conference, as well as foundations, managed care organizations, hospitals and non-profit organizations. The objectives of the two day conference were to:

- Address the high prevalence of asthma morbidity and mortality in states and jurisdictions of Region II.
- Support state and local community health initiatives to effectively address the disproportionate burden of asthma for minority populations.
- Support the development of state and regional asthma consortia.
- Update current knowledge on best practice models for asthma outreach, education, and clinical and environmental intervention programs.
- Provide information on state managed care and local HMO initiatives on asthma in Region II



A panel of Region II state health commissioners from New Jersey, New York, Puerto Rico and the U.S. Virgin Islands presented the scope of the problem in their jurisdictions, identified their current activities to combat asthma and their asthma plans, and made recommendations for enhancing federal and state partnership.

To support and broaden the federal-state partnership with Region II states and jurisdictions in joint efforts against asthma, state-specific workshops were organized on the second day of the summit. Workshop participants included the invited state team members which had, at a minimum, a parent and representatives from the Maternal and Child Health Program, the Children with Special Health Needs Program (CSHCN), the State Medicaid Agency, the State SCHIP Program, the State Chronic Disease Program, the Environmental Health Agency, and the State Centers for Disease Control Asthma Coordinator. New Jersey, New York, and Puerto Rico also included representatives from their local Asthma Coalitions, the local chapter of the American Lung Association, and other key stakeholders as well. Prior to the Summit, the state teams compiled a listing of current and future state data and educational asthma-targeted activities and programs, to share with the other workshop participants during the Summit. Additional groundwork was laid during the development by states of their Maternal and Child Health Block Grant Performance Measures for 1999, which had targeted a reduction in the number of children who are hospitalized for asthma as one of their measures.

During the state-specific workshops, the state asthma team leaders were asked to present their draft state asthma action plans to the participants from their states and to solicit input, suggestions, and recommendations. There were also federal resource persons from the Health Resources and Services Administration (HRSA), the Environmental Protection Agency (EPA), the Centers for Medicare and Medicaid Services, and other federal agencies.

Next steps were discussed in detail, including a follow-up plan for the states and jurisdictions of Region II to receive technical assistance from the EPA, HRSA, and other federal agencies. The effort will be coordinated by HRSA's New York Field Office. A commitment was also made by the conference sponsors to hold the 2<sup>nd</sup> Annual Asthma Summit in a year's time. The goal will be to evaluate the work that was accomplished over the course of a year and determine what efforts need to be increased and/or improved upon. Achievements since the Summit include:

- Expansion of the U.S. Virgin Islands Data System to enable tracking of the children with asthma and linking of their clinical services data to the Immunization and WIC Registry.
- Finalization of the Puerto Rico Asthma Coalition work plan, which was developed at the summit. The local asthma initiative called *The Colors of Asthma*, currently focused mainly on children living in the service area of the University Pediatric Hospital, has been expanded to other areas of the island. The Puerto Rico Department of Health held an Island-wide Asthma Summit in October 2000 with HRSA support. There is a need to develop a profile of the asthmatic population in the island. They have been able to identify number of children with special health care needs, including those with asthma, who are enrolled in their Health Care Plan.
- Establishment of goals by New York's Governor Pataki to reduce asthma-related emergency room visits by 50 percent in New York State over the next five years. A bill was passed by the state legislature to require data reporting by hospital emergency rooms. Such reports would include asthma visits and medication administered. The state has received technical assistance from HRSA consultants to began planning model demonstration projects on asthma case management and education intervention programs for their school-based clinics.

- Provision of support by the New Jersey Department of Health to their Statewide Asthma Coalition and the subcommittees. In particular, the HRSA and the EPA have provided assistance to their work with the Managed Care Plans to develop asthma management plans that include care coordination for enrollees. The state is considering requiring Managed Care to register children and to have a procedure code for asthma teaching. Insurers to require providers to have a written asthma plan – tie to payment. We are also providing support for asthma training for all school nurses, which will be videotaped and distributed to the schools. With DHHS-Region 2 funding, New Jersey has developed and distributed a Resource Directory for Asthma which will also be accessible through the internet.

**Healthy People 2010 Objectives:**

- 24-2 Hospitalizations for asthma
- 24-6 Public education
- 24-7 Appropriate asthma care
- 24-11 Medical Evaluation and follow-up
- 7-10 Community health promotion programs

**NATIONAL INSTITUTES OF HEALTH**

*The mission of the National Institutes of Health (NIH) is to uncover new knowledge that will lead to better health for everyone. The NIH works toward that mission by conducting research in its own laboratories; supporting the research of non-Federal scientists in universities, medical schools, hospitals, and research institutions throughout the country and abroad; helping in the training of research investigators; and fostering communication of biomedical information.*

**NATIONAL HEART, LUNG AND BLOOD INSTITUTE**

*The National Heart, Lung, and Blood Institute (NHLBI) conducts and sponsors extensive asthma research to understand all aspects of the disease, including mechanisms, genetics, environmental and other factors, and drug therapy. There is also a strong emphasis on demonstration and education. The National Asthma Education and Prevention Program, coordinated by the NHLBI, has published the widely distributed "Guidelines for the Diagnosis and Management of Asthma" and undertakes extensive education and outreach efforts to help translate the latest scientific understanding of asthma into practice.*

1. **Title:** NHLBI Research  
**Focus:** Research  
**Contact:** Virginia Taggart

**Summary:**

The National Heart, Lung, and Blood Institute (NHLBI) asthma research program encompasses a broad spectrum of support for basic research, epidemiologic studies, clinical research to develop and evaluate new and improved therapies, demonstration and education research to promote translation of scientific findings into patient care, and research on the prevention of asthma.

Natural History of the Disease

NHLBI epidemiological studies include longitudinal studies to identify risk factors associated with development of asthma and asthma-like symptoms during childhood and young adulthood. Recent studies of young children, for example, raise questions about the role of respiratory infection in the onset of asthma. Current data suggest that, rather than causing asthma as previously thought, some respiratory

viruses may protect some young children, i.e., asthma may result from an altered developmental pattern of both the lungs and the immune system. In FY 1998, the NHLBI began two major research initiatives to explore the role of respiratory infections in asthma and the mechanisms underlying risk factors for the onset of asthma in early life (see Pathogenesis and Mechanisms section below). Other NHLBI epidemiologic studies are identifying factors that influence the rate of decline in pulmonary function and increased hyperresponsiveness in older adults; assessing the separate and interactive effects of asthma severity, job characteristics, psychosocial, and other factors on asthma disability; and seeking to identify factors associated with the risk of severe asthma and asthma-related death.

African-Americans have a disproportionately high risk of asthma-related hospitalizations and deaths. Similar risks are experienced by Puerto Rican Hispanics. Socioeconomic factors and access to health care are likely involved, but research on how genetic, immunologic, and environmental factors contribute – either independently or together – to asthma onset and severity will elucidate other risk factors for these populations.

#### Pathogenesis and Mechanisms

A significant portion of NHLBI-supported asthma research is devoted to identifying and examining the underlying pathogenesis and basic mechanisms of the disease. A major research focus is dissection of cellular and molecular events that appear to initiate, direct, and perpetuate airway inflammation in response to both immunologic and non-immunologic stimuli. Research is also directed at establishing the mechanisms of neural control of bronchoconstriction and airways hyperresponsiveness in asthma, as well as mechanism involved in the integrated regulation of airway and blood vessels in the lung by neural reflex control. Other studies are (1) determining the sequence of biochemical events that generate and regulate mucus hypersecretion in inflamed airways, a common feature of asthma and (2) investigating cellular and molecular mechanisms that regulate the function of receptors found in the walls of the airways (e.g., beta-adrenergic receptors) and other receptors (muscarinic, tachykinin, and IgE receptors). Evidence suggests that a defect in beta-adrenergic receptors could contribute to development of asthma and may lead to a more severe clinical course for the disease.

Genetically engineered murine models are being developed and used to explore immune and inflammatory responses in the lung relevant to asthma. This research exploits the findings that a number of proteins including cytokines, adhesion products, growth factors, and membrane ion channels act as pivotal elements in asthma. Since we have only limited ability to address questions and to manipulate the system in humans, many asthma studies are performed with mammalian models in tandem with clinical work.

Research into the mechanisms contributing to the persistence, or chronicity, of asthma is focused on the nature of the repair process in the airway wall and remodeling of the airway epithelium and airway smooth muscle. In 2000, the NHLBI initiated a novel program on airway remodeling and repair in asthma to better understand the pathogenesis, regulation and consequences of these airway responses. Neuroregulation of the airway is another mechanism that influences the nature and severity of asthma. Immunological and neural factors have been investigated independently, but now research indicates that these two processes are interrelated. Intriguing early studies suggest that interdisciplinary research in the psycho-immuno-neurological aspects of asthma may reveal new insights into its underlying mechanisms. Studies in both epidemiologic and basic research are now assessing the importance of stress in timing of disease onset, potential interactions with allergens, interaction with other factors that may influence the onset of the disease, and how it is expressed. An initiative released in 1999 stimulated investigation into the role of neural and immunologic factors in the chronobiology of asthma. The NHLBI has initiated a program to help elucidate the mechanisms that underlie nocturnal asthma and airway inflammation,

including their relationships with sleep, sleep disturbances, and circadian rhythms. Nocturnal asthma is associated with increased inflammation and obstruction at night or during sleep.

The NHLBI supports six Specialized Centers of Research in the Cellular and Molecular Mechanisms of Asthma. Through multidisciplinary basic and clinical investigations, the centers are poised to provide major scientific advances in the interaction and integration of various inflammatory, immunologic, and neural processes and how they cause the clinical syndrome of asthma.

#### Genetics of Asthma

The NHLBI has sponsored a genome-wide search to identify all genes that confer susceptibility to asthma. Early findings confirm that multiple genes may be involved in asthma and that they may vary between ethnic and racial groups. Examination of known candidate genes support the concept that the pathophysiology of asthma may involve genetically determined changes in inflammatory pathways and T cell signaling. In other work, NHLBI-supported researchers have identified individual genes that affect airway hyperresponsiveness in in-bred mouse strains. In addition, studies of human pedigrees using a candidate gene approach have reported evidence that specific genes influence asthma or atopy. An FY 2000 NHLBI initiative supports the fine mapping of the regions in the human genome that have been found to influence asthma. The goal is to delineate the genes and mutations involved in development of allergy and asthma and to explore specific gene-environment interactions that lead to asthma and different clinical manifestations of the disease.

An exciting new area of research is pharmacogenetics research, in which genetically determined factors influence individual response to pharmacologic therapy. NHLBI-supported studies are exploring the role of beta-adrenergic polymorphisms in explaining why one group of patients in a study did not respond well to beta-agonist medication. Another NHLBI study (part of the trans-NIH Pharmacogenetics Research Network) is exploring the genetic basis for differences in response to inhaled beta-agonists, inhaled corticosteroids, and leukotriene modifiers. Understanding the genetic basis of variable responses should enable optimal drug therapy based on each individual's unique genetic characteristics and provide valuable leads for design of new drugs. In addition, an investigation – supported as part of an NHLBI effort to advance genomic research related to heart, lung, and blood disorders – seeks to identify the genes that participate in innate immune responses that are most likely to influence asthma and other common conditions such as chronic obstructive pulmonary disease, myocardial infarction, and deep venous thrombosis.

#### Primary Prevention

In FY 1998, the NHLBI launched two large research initiatives that focused on studies to identify the most promising targets for future interventions to prevent the onset of asthma. One is addressing the role of respiratory infections in the development of childhood asthma. The other focuses on the origins of asthma in early life. The research is investigating the point in the cellular events at which the chain of inflammatory events can be interrupted; using animal models to explore the interaction of viruses and antigen sensitization; and helping to determine if there is a "pre-asthma" state in early childhood during which exposure to respiratory infection or environmental allergens brings about asthma in genetically predisposed, at-risk individuals.

Secondary prevention – i.e., prevention of acute exacerbations and symptoms of asthma – is included in the asthma management section below.

## Asthma Management and Secondary Prevention

*Environmental control.* The NHLBI supports several studies that assess the effectiveness of reducing exposure to known allergens and environmental tobacco smoke on reducing asthma symptoms, emergency department visits, and hospitalizations. Current studies focus on reducing exposures among children with asthma, especially children in low income urban areas since such exposures have been associated with disproportionately more severe disease in these areas.

*Pharmacotherapy.* The NHLBI supports several large clinical research programs that are studying the long-term effects of asthma medications and examining the potential effectiveness of novel new treatments. The Childhood Asthma Management Program, a multi center clinical trial with over 1,000 children, has studied long-term effects and safety of three key therapies in childhood asthma. Recent findings showed that taking inhaled corticosteroids daily provided better long- term asthma control than taking either non-steroid anti-inflammatory medication daily or taking medication only when symptoms occurred. The study provided reassuring evidence that inhaled corticosteroids are safe for use in children.

The Asthma Clinical Research Network and the new Childhood Asthma Research and Education Network (established in Fall 1999) provide an infrastructure for rapid completion of multiple therapeutic trials in well-characterized patient populations and for timely communication of results to the medical community. The research of the Networks is expected to resolve current clinical controversies in asthma management. For example, one study is identifying the best possible dose of inhaled steroids to give in moderately severe asthma. Another innovative study is examining whether giving asthma medication to young children at the earliest sign of wheezing might prevent development of persistent asthma.

In FY 2001, the NHLBI launched an initiative to stimulate research into the mechanisms of severe asthma (which often does not respond to standard therapy) and identify novel targets for therapeutic intervention. In partnership with other NIH Institutes, the NHLBI also supports clinical trials in women with asthma to identify treatments that will lead to effective management of asthma during pregnancy and healthy pregnancy outcomes. Several clinical studies are building on the results from research on the basic mechanisms of asthma. The recent development of anti-leukotriene medications, the first new class of medication to become available in over 10 years, is based on basic research that identified the critical role of leukotrienes in the inflammatory process of asthma.

*Monitoring.* Investigations supported by the NHLBI are examining the relative merits of peak flow monitoring or symptom monitoring for guiding day-to-day therapeutic decisions. Some evidence exists that a subgroup of people with asthma may be at greater risk of severe, even life-threatening, asthma exacerbations because they are unable to perceive symptoms of increasing airflow obstruction. Ongoing studies are attempting to define factors that contribute to poor symptom perception and determine which factors may be amenable to intervention.

*Education and Outreach.* NHLBI demonstration and education research evaluates educational and behavioral approaches and environmental and organization strategies that may improve asthma prevention or management. Such studies have demonstrated the effectiveness of teaching self-management strategies to patients of all ages. Current research focuses on identifying what educational elements are most essential and what methods or combination of methods will promote the most efficient use of patient and clinician efforts. Research is also underway to determine more effective ways to promote partnerships between health care professionals and patients, especially in the managed care environment. A related issue is research to find ways for improving clinician communication skills with

patients, clinician use of computer tools for patient visits, and clinician use of quality improvement programs to integrate quality asthma care into all aspects of the medical care routine. An FY 2001 program announcement co-sponsored by multiple federal agencies, including five NIH institutes, encourages research to improve the quality of emergency medical services for children includes asthma as a high priority area.

A major research focus is to identify appropriate strategies for extending the benefits of asthma management to diverse populations and to reduce disparities in asthma care experienced by minorities and economically disadvantaged individuals. Outreach educational programs using non-medical settings – schools, community neighborhood centers, and peer education home visitors are testing the use of culturally sensitive behavior change strategies for children with asthma and their families. Other studies are evaluating specific asthma management interventions, e.g., programs to reduce smoking among parents of children with asthma and programs to promote continuous, comprehensive management of asthma rather than episodic emergency care.

Because children under 18 years of age have experienced a dramatic increase in asthma prevalence and children with asthma miss twice as much school as the national average, the NHLBI launched a research program in schools in three different cities to evaluate ways to ensure optimal management of asthma in school. Findings from the study, expected in 2001, will provide three different models for helping schools be "asthma friendly."

Two new NHLBI-wide initiatives in 2000 and 2001 will encourage research to develop and evaluate innovative strategies for improving patient adherence in chronic illness. One of the initiatives specifically focuses on overcoming socio-cultural and economic barriers to adherence among minority populations and people living in poverty.

**Healthy People 2010 Objectives:**

24-3 Hospital emergency department visits for asthma

24-4 Activity limitations

24-7 Appropriate asthma care

2. **Title:** NHLBI Research  
**Focus:** Reducing disparities  
**Contact:** Virginia Taggart

**Summary:**

A 2001 workshop supported by the National Heart, Lung, and Blood Institute (NHLBI) reviewed current research aimed at:

- Understanding risk factors for the disparities in asthma health outcomes experienced by minority populations and persons living in poverty.
- Describing key barriers to improving asthma outcomes.
- Discussing key barriers to conducting research on this topic.
- Identifying promising opportunities for research and research translation to overcome barriers and reduce disparities in asthma outcomes.

It is expected that several significant research initiatives will derive from this workshop over the next three years. An NIH-wide research initiative was released in 2000 to develop and evaluate innovative strategies to overcome barriers to adherence to therapy among minority populations and people living in poverty. Asthma is one of its priority areas. It is expected that research under this initiative will generate program models that will enable clinicians and patients work together effectively for improved asthma care and health outcomes.

**Healthy People 2010 Objectives:**

24-7 Appropriate asthma care

24-3 Hospital emergency department visits for asthma

24-4 Activity limitations

3. **Title:** NHLBI Asthma Education and Information Dissemination  
**Focus:** Public health practice/intervention  
**Contact:** Diana Schmidt

**Summary:**

Public Health Practice

The National Asthma Education and Prevention Program (NAEPP), coordinated by the National Heart, Lung, and Blood Institute (NHLBI), is responsible for translating research on asthma into practical health education materials and tools for use by health professional, patients, and the public. The NAEPP works with a wide range of organizations to conduct asthma educational interventions. A group of 38 professional, voluntary health, lay, and governmental organizations involved with asthma form the NAEPP Coordinating Committee, which advises the program and assists in activities to achieve its goals. Organizations belonging to the Coordinating Committee help communicate to their members the key messages the NAEPP is trying to convey.

The NAEPP has designed a model web-based system to improve the diagnosis and management of asthma. The site provides access to virtually all the scientific literature on chronic asthma that has ever been published, as well as practical information for clinicians, patients, and public health professionals. See <http://www.nhlbisupport.com/asthma/index.html>.

Physician/Clinician Education

The NAEPP developed the *Guidelines for the Diagnosis and Management of Asthma* in 1991. Since 1991, the NAEPP and its partners have worked to implement the guideline recommendations and to disseminate education materials and programs based on the *Guidelines* to health care professionals and asthma patients. The *Guidelines* were updated in 1997 with the *Expert Panel Report 2: Guidelines for the Diagnosis and Management of Asthma (EPR-2)*. The updated Guidelines are now being promoted in many settings, including managed care organizations. Most recently, the NAEPP has been working with the Agency for Healthcare Research and Quality to complete an evidence report and tables on selected priority topics that could impact EPR-2 recommendations for asthma care. The report is being submitted to the NAEPP Science Base Committee to determine if updates are needed and, if so, to develop position statements for the relevant sections of the EPR-2.

The NAEPP Coordinating Committee has organized a series of partnership activities to facilitate implementation of the new guideline recommendations in various clinical settings. The NAEPP has enlisted its members to actively disseminate the new treatment guidelines and encourage clinicians to adopt and use the guideline recommendations in caring for their patients. For example, the NAEPP, in partnership with the American Academy of Allergy, Asthma, and Immunology (AAAAI), has developed

a Guide for Managing Asthma in Children to help clinicians who care for children with asthma learn about and adopt the recommendations. A *Practical Guide for the Diagnosis and Management of Asthma* offers a summary of the EPR-2 tailored to the needs of primary care physicians. It is being sent to pediatricians, family physicians, and nurse practitioners around the country. The *Practical Guide* is the centerpiece of numerous continuing education programs.

The NAEPP and the American College of Chest Physicians organized a conference on asthma management for managed care organizations, especially those receiving Medicaid funding. As a result, a number of organizations have agreed to participate in a year-long process to improve asthma outcomes using the guidelines and to document their results. Further examples of partnership activities include projects with the National Medical Association to develop pocket guides for resident trainees, a nurses' guide for managing asthma, a guide on the role of pharmacists in asthma care, and a resource manual for respiratory care providers on asthma disease management programs. Future plans include an initiative to identify and develop emergency department-initiated approaches to improving asthma care.

#### Family/Patient/School Education

The NAEPP has produced an extensive array of patient and public education materials in both English and Spanish to help patients and their families increase their asthma self-management skills. A follow-up to publication of the *Guide for Managing Asthma in Children* is development by the NHLBI and the AAAAI of a collection of single concept handout materials on a variety of topics that health care providers can use to educate patients and their families.

The NHLBI continues to implement a strong public education campaign to increase awareness of warning signs and symptoms of undiagnosed asthma. The campaign's key message focuses on encouraging those who experience signs and symptoms of asthma to see their doctor or health care provider for treatment. Future campaigns will emphasize the expectations patients with asthma should have that their asthma be well controlled. Public health education efforts are accentuated by far-reaching partnerships with the private sector, advertising media, radio networks, and local governments to disseminate critical and life-saving messages of the NAEPP mass media campaign.

In addition, the NAEPP has developed comprehensive materials to promote appropriate management of asthma in the school setting. A guide for school personnel delineates activities for each member of the school team to help students with asthma follow their management plans and participate fully in school activities. A video and accompanying pamphlet provides guidance for teachers and physical education instructors on how to enable and encourage children with asthma to be physically active. A slide set presents an overview of information important for good school-based asthma management. Policy statements, prepared in partnership with the American Association of School Board Administrators and the American Association of School Health, outline measures to assure student access to medications and a school environment that is "asthma friendly" --i.e., supportive of the students with asthma.

#### Community-Based Partnership/Outreach

The NAEPP is collaborating with local community-based asthma coalitions to disseminate the messages of the revised *Guidelines* and encourage their use at the local public health level. The NHLBI supported development of several community-based coalitions on asthma, and is currently working with a variety of community groups around the country that deal directly with asthma problems at the local level. In this work, the NAEPP provides technical assistance and a vital network for exchanging information and advice on organizing and maintaining community asthma coalitions. The coalitions are composed of members from local public health departments, local hospital/medical centers, schools, community recreation centers, concerned parents groups, lung associations, and local media. Such efforts provide



synergy and increase the penetration of important asthma education messages to communities at high risk of asthma morbidity and mortality.

#### Quality of Delivery Systems

The NAEPP, in partnership with the National Commission on Quality Assurance and the American College of Chest Physicians, provides conferences and training programs in development of quality improvement disease management programs. Based on the work of the NAEPP Cost Effectiveness Task Force, partnership efforts are developing performance measures for health care purchasers to use in evaluating asthma care services. The NAEPP is also working in collaboration with the Centers for Disease Control and Prevention to extract a list of key clinical activities from the four major components of care recommended in the Guidelines. The list will be used by public health planners to define key activities that should be provided in the delivery of quality asthma care.

#### **Healthy People 2010 Objectives:**

24-7 Appropriate asthma care

24-6 Patient education

24-3 Hospital emergency department visits for asthma

#### **NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES**

*The National Institute of Allergy and Infectious Diseases (NIAID) supports research to improve the diagnosis, treatment, and prevention of infectious, immunologic, and allergic diseases that afflict people worldwide. A broad-based research program is aimed at understanding the pathobiology of asthma and developing improved methods for preventing and treating it. NIAID research emphasizes the key role of immune mechanisms and infectious agents in asthma onset and pathogenesis. The NIAID network of asthma research centers includes demonstration and outreach components and has provided long-term support for a multicenter program on pediatric asthma in urban areas, the goal of which is to reduce asthma morbidity among inner-city children.*

- Title:** NIAID Asthma Research  
**Focus:** Research  
**Contact:** Ken Adams

#### **Summary:**

The National Institute of Allergy and Infectious Diseases (NIAID) supports a vigorous asthma research program through investigator-initiated projects and a national network of research centers, cooperative clinical studies, and demonstration and education research projects. Scientific advances over the past several decades have revolutionized our understanding of the human immune system and have contributed significantly to extraordinary improvements in the treatment of many immune-mediated diseases. NIAID-supported research has begun to elucidate the role of immune dysfunction in the pathogenesis of asthma. A major goal of the NIAID asthma research program is to translate this knowledge into novel therapies and strategies to prevent disease onset.

#### Natural History of Asthma

An important long-range goal of the NIAID asthma research program is to characterize more fully the development of the immune system in fetal and neonatal life and in early childhood, and to identify genetic and environmental influences on immune function that set the stage for development of asthma. Research efforts, including longitudinal epidemiological studies, have focused on gaining a better understanding of the developmental processes and critical factors involved in disease susceptibility and

onset, followed by application of this new knowledge to the design and evaluation of clinical interventions to reverse or prevent disease.

Since 1991, the NIAID has supported national, multi-center programs to study the natural history of asthma in inner-city children and to identify risk factors that contribute to asthma onset and morbidity in that population. The first of these programs, the National Cooperative Inner City Asthma Study (NCICAS), demonstrated a strong association between asthma severity and exposure to indoor aeroallergens, including cockroach allergen, in children who were allergic to those allergens. Another longitudinal study supported by the NIAID showed that exposure of genetically susceptible infants to cockroach allergen within the first three months is a predictor of repeated episodes of wheezing in the first year of life, which is often an early sign of asthma. In another phase of this study, children exposed to high levels of cockroach allergen were found to have altered T lymphocyte responsiveness. Since T cell activation is thought to play a critical role in allergic asthma, the data suggest a possible cellular mechanism linking early life aeroallergen exposure to subsequent development of asthma.

The NIAID and the the National Heart, Lung, and Blood Institute have co-funded a program to study the role of respiratory infections in development of childhood asthma. The NIAID portion of the program focuses on epidemiology and genetic susceptibility to asthma in relation to early respiratory syncytial virus (RSV) infections, the molecular basis of immune responses induced by RSV and rhinoviruses, and effects of viral infections on modifying the balance between allergen sensitization and immune tolerance. A related NIAID program is exploring the mechanisms by which viruses induce inflammation and exacerbate asthma, including RSV infections in young children and rhinovirus infections in older children and adults. These studies investigate interactions of viruses with epithelial cells, endothelial cells, and inflammatory cells and the induction of cytokines and adhesion molecules, as well as synergistic actions of viruses and allergens.

#### Pathobiology

The NIAID Asthma and Allergic Diseases Research Centers program is the foundation of the NIAID portfolio on the pathobiology of asthma. The program includes a network 12 extramural centers, two of which are co-funded by the National Institute of Environmental Health Sciences (NIEHS), and one intramural center. Three of the Centers focus on environmental aspects of asthma and allergy, including the role of indoor allergens and mechanisms by which polyaromatic hydrocarbons from diesel exhaust particulates induce IgE responses. Other Centers are studying the role of indoor allergens and RSV in inducing asthma in children, methods of altering the responses to allergen by combinations of reduced exposure and attenuated immune responses, mechanisms involved in the modulation of airway inflammation, and the role of viruses in conjunction with allergens in both human disease and rodent models of asthma.

A major portion of the NIAID asthma research portfolio is devoted to study of basic cellular and molecular mechanisms underlying the pathobiological features of asthma, including IgE antibody production, acute and late phase bronchospasm, pulmonary inflammation, mucus hypersecretion, and remodeling of lung tissue. Specific studies address the role of T lymphocytes in asthma and differences in signaling pathways between T and B lymphocytes, cell surface receptors and intracellular signaling pathways in T and B cells that regulate IgE production, and the functions and migration of eosinophils and other cells that participate in the pulmonary inflammatory response associated with asthma. Other studies focus on the structure of allergens relevant to asthma. Both molecular and cellular approaches are used to identify regions of the allergen molecule that are critical to T and B cell recognition. The long-term goal of the research is to identify cellular and molecular mechanisms that may be targeted in development of novel asthma therapies or strategies for primary asthma prevention.

During the past decade, a number of key discoveries resulting from NIAID-supported research have begun to establish the central role of immune system dysfunction in the pathogenesis of asthma and have provided the rationale for novel interventions targeting cells and molecules of the immune system. For example, the production of IgE antibody to environmental allergens has been recognized as a hallmark of atopy and allergic diseases for many decades, and IgE antibody to a subset of allergens, including house dust mite, cockroach and other indoor allergens, is a consistent finding in asthma patients, particularly in inner-city residents. Recent studies in young children have linked abnormalities in lung function and alterations in immune responses to neonatal exposure to these allergens.

It is now thought that the clinical expression of asthma results from complex interactions involving genes, allergens and other environmental factors such as tobacco smoke, infectious agents, and diesel exhaust particulates. Key research advances have established a sequence of genetic, environmental, cellular, and molecular links between the immune system and the onset and progression of asthma. Although asthma is complex and heterogeneous, the scientific foundation is now sufficient to support development of novel immune-based interventions. In FY 2001 and FY 2002, the NIAID will launch several new initiatives to capitalize on this emerging knowledge, including clinical trials of immune tolerance induction to treat asthma through the Immune Tolerance Network; a renewal of the Asthma and Allergic Diseases Research Centers program to accelerate application of genomics and bioinformatics technologies to the study of asthma in humans; and an Inner-City Asthma Consortium to conduct clinical trials and mechanistic studies of immune-based therapies in inner-city children). Results from these initiatives will improve understanding of asthma pathobiology and establish the scientific base required to design effective primary prevention strategies.

#### Patient, Provider, and Community Education

The NIAID supports a demonstration and education research program directed toward medically underserved, predominantly inner-city Hispanic and African American populations. Many of the program components are funded as part of the Asthma and Allergic Diseases Research Centers program. Several projects are employing a combination of allergen avoidance and school-based asthma counseling to reduce asthma severity. Related studies include early intervention in very young children with asthma in a Head Start program; evaluation of the impact of home visits by a nurse for self-management training and environmental intervention in high risk infants with wheezing; evaluation of approaches for reducing cockroach allergen exposure and determination of whether such approaches will decrease asthma morbidity; and development of a unique computer-based medical and self-management training program for families of children with asthma.

#### **Healthy People 2010 Objectives:**

8-16 Indoor allergens

24-6 Asthma patient education

8-1 Harmful air pollutants

2. **Title:** NIAID Asthma Research  
**Focus:** Reducing disparities  
**Contact:** Marshall Plaut

#### **Summary:**

To directly address the disproportionate impact of asthma on inner-city children, the National Institute of Allergy and Infectious Diseases (NIAID) supports a comprehensive research program involving a nationwide network of inner-city pediatric asthma research centers. From its inception, the major

objectives of the program have been to identify factors that contribute to the prevalence and severity of asthma in inner-city children and to translate that new knowledge into interventions that will reduce morbidity and, eventually, achieve prevention.

#### NIAID Inner-City Asthma Studies

In 1991, the NIAID established the National Cooperative Inner City Asthma Study (NCICAS). The initial phase of this five-year study identified several important risk factors associated with asthma severity, especially among African American and Hispanic children, i.e., poverty, poor access to health care, and passive smoke exposure. In addition, the NCICAS demonstrated that allergy to cockroach allergen coupled with high exposure levels is a major risk factor for severe asthma and its exacerbations (e.g., frequent hospitalizations, unscheduled medical visits, lost sleep, and missed school days) in this population. Based on this information, the NCICAS developed and implemented a comprehensive educational, behavioral, and environmental intervention that could be tailored to the risk profile of each child. In a clinical trial involving more than 1,000 children, the NCICAS intervention was effective in giving the children an additional 2 to 6 weeks of symptom-free days and reducing asthma-related hospitalizations during the year of the intervention. The improvements were maintained during the post-intervention follow-up year, even though the asthma counselor was no longer involved with the families.

Recently, the NIAID entered into a collaboration with the Centers for Disease Control and Prevention to disseminate and implement a modified version of the NCICAS intervention in a program involving 23 inner-city sites throughout the United States. This initiative will benefit more than 6,000 inner-city children with asthma during the next four years.

The current Inner City Asthma Study (ICAS), funded jointly by the NIAID and the National Institute of Environmental Health Sciences (NIEHS), was launched in FY 1996. Seven inner-city centers are evaluating an intervention that includes aggressive environmental controls and a novel physician feedback module. Through support from the Environmental Protection Agency, another arm of the study will evaluate the effects of indoor and outdoor air pollution on asthma morbidity. In addition, the ICAS infrastructure will be used to carry out a phase IV clinical trial of a humanized monoclonal anti-IgE, a promising new asthma medicine that blocks allergic responses and has been shown in previous trials to be safe and effective in reducing asthma symptoms and corticosteroid utilization. In FY 2002, the NIAID plans to launch an Inner City Asthma Consortium, a clinical trials network that will focus on accelerating development of immune-based asthma medications and making them available to inner-city children with asthma.

#### **Healthy People 2010 Objectives:**

24-6 Asthma patient education

8-16 Indoor allergens

7-11 Culturally appropriate and linguistically competent community health promotion programs

#### NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

*Human health and human disease result from three interactive elements: environmental factors, individual susceptibility and age. The mission of National Institute of Environmental Health Sciences (NIEHS) is to reduce the burden of human illness and dysfunction from environmental causes by understanding each of these elements and how they interrelate.*

- Title:** Five-Cities Study  
**Focus:** Research

**Contact:** Jerry Phelps

**Summary:**

Inner-city disadvantaged and minority children appear to be at greater risk of respiratory illness, especially asthma. Previous National Institute of Environmental Health Sciences (NIEHS)-supported studies (the Six- and Twenty-Four Cities Studies) have demonstrated increased respiratory illness and lower lung function associated with air pollution among children suburban and rural communities. The Five-Cities Study is assessing the degree to which minority and/or economically-disadvantaged children are at increased risk for adverse respiratory health effects of ozone, acid aerosols, and particulate air pollution.

Preliminary data from the Five-Cities Study indicate that there are differences in sensitivity among the specific groups examined. Children living in the inner-city demonstrated a greater response to the same exposure than children in the suburbs. Black children showed a greater response than whites; girls more than boys; and children with hay fever more than those without allergies. These differences suggest that genetic, socioeconomic, or housing characteristics may contribute to increased sensitivity to air pollution.

In 1997, the Environmental Protection Agency proposed, then initiated changes in the National Ambient Air Quality Standards for particulate matter and ozone. The Harvard School of Public Health studies supported by the NIEHS were the most significant among many that showed the association between particulate air pollution and adverse human health effects (e.g., mortality) and aggravation of asthma and other chronic breathing disorders. While these studies are not without controversy, independent scientists from many different institutions have compiled a large body of epidemiological data showing increased mortality and morbidity associated with particulate air pollution in cities around the world, confirming the effects seen in the Harvard studies and justifying the more stringent air quality standards.

**Healthy People 2010 Objectives:**

- 8-1 Harmful Pollutants
- 8-4 Airborne toxins
- 24-3 Hospital emergency department visits for asthma

- 2. **Title:** Developing a Geographic Framework for Studying Respiratory Health in Harlem
- Focus:** Research
- Contact:** Patrick Mastin

**Summary:**

This study geographically is characterizing the Harlem and Washington Heights communities with respect to potential environmental exposures such as diesel exhaust particles and manufacturing facilities, while also linking available respiratory health outcome data and socio-demographic characteristics with environmental exposure data. Other study objectives are to target monitoring sites for collecting ambient air pollution exposure data (e.g., particulate matter), to perform preliminary monitoring at indicated sites, and to develop Geographic Information System (GIS) research capabilities and expertise at the Harlem Center for Health Promotion and Disease Prevention and the Center for Environmental Health in Harlem.

This study was designed to investigate variations in diesel bus and truck traffic in West and Central Harlem and to assess whether the amount of soot in the air that people breathe correlates with diesel pollution sources. This project will serve as the underpinnings of a program to assess air quality and provide a framework for geographic analyses of other diseases and exposures in northern Manhattan.

**Healthy People 2010 Objectives:**

- 8-1 Harmful Pollutants
- 8-4 Airborne Toxins
- 24-8 Surveillance Systems

3. **Title:** Inner-City Asthma Study  
**Focus:** Public Health Practice/Intervention  
**Contact:** Patrick Mastin

**Summary:**

The National Institute of Environmental Health Sciences (NIEHS) and National Institute of Allergy and Infectious Diseases collaborate on the Inner-City Asthma Study (ICAS). This cooperative, multicenter study seeks to reduce the disproportionate burden of asthma morbidity among underserved, inner-city children and adolescents from 4 to 12 years of age. The goal is to design and evaluate an asthma intervention to reduce asthma morbidity in a cost-effective manner based in health care delivery settings. This study evaluates a culturally-appropriate, comprehensive, and cost-effective intervention program to reduce asthma morbidity by modifying potentially reversible factors shown to contribute to asthma morbidity, such as allergens and environmental tobacco smoke.

**Healthy People 2010 Objectives:**

- 24-3 Hospital emergency department visits for asthma
- 7-11 Culturally appropriate and linguistically competent community health promotion programs
- 27-10 Exposure to environmental tobacco smoke

4. **Title:** Asthma-Related Projects of the Community-Based Prevention/Intervention Research (CBPIR) Program  
**Focus:** Reducing Disparities  
**Contact:** Liam O'Fallon

**Summary:**

The NIEHS CBPIR program funds a number of asthma studies in urban, socioeconomically-disadvantaged populations. One study will evaluate whether nurse management and peer counseling help reduce severe episodes of asthma. Another study focuses on methods to help control and prevent asthma with interventions such as a case management and environmental control of asthma and community-based asthma interventions in pregnant women. A third community-based intervention project will evaluate the relationship between cockroach and dust allergens on asthma. These studies will develop and implement culturally-appropriate methods and materials for communicating study findings to the communities involved.

**Healthy People 2010 Objectives:**

24-7 Appropriate Asthma Care

7-11 Culturally appropriate and linguistically competent community health promotion programs.

8-16 Indoor allergens

5. **Title:** The National Allergen Survey  
**Focus:** Public Health Practice/Intervention  
**Contact:** Darryl Zeldin

**Summary:**

The National Institute of Environmental Health Sciences (NIEHS), in conjunction with the Office of Lead Hazard Control in the Department of Housing and Urban Development (HUD), is sponsoring the *National Allergen Survey* because of recent studies that suggest cumulative exposure to indoor allergens can increase a person's risk for developing allergic disease and asthma. The *Survey* was conducted from July 1998 to August 1999. *Survey* results were presented in a scientific poster session at the 97th International Conference of the American Thoracic Society in San Francisco, May 22, 2001, and highlighted at a press briefing sponsored by the American Thoracic Society.

Data from the study will provide important information that will enable HUD and NIEHS scientists to assess the magnitude of the American public's exposure to indoor allergens. The NIEHS will use allergen data from the National Allergen Survey to:

- Estimate indoor allergen exposures of the general population.
- Assess the magnitude of levels of indoor allergens in the United States housing stock .
- Evaluate differences in population exposure to allergen based on factors such as region/geography, ethnicity, socioeconomic status, and housing type.

**Healthy People 2010 Objectives:**

8-16 Indoor allergens

8-23 Substandard housing

23-17 Population-based prevention research

6. **Title:** Environmental Intervention in Primary Prevention of Asthma in Children  
**Focus:** Public Health Practice/Intervention  
**Contact:** Darryl Zeldin

The National Institute of Environmental Health Sciences (NIEHS) is undertaking a study, *Environmental Intervention in the Primary Prevention of Asthma in Children (EIPPAC)*, to identify environmental factors that contribute to development of asthma and to develop strategies for asthma prevention. The study is a two-phase clinical trial aimed at primary prevention of asthma in low-income, at-risk children. It is based on recent studies that have shown that:

- Sensitization to dust mite and cockroach allergens correlates strongly with asthma.
- Dust mite avoidance measures are effective at reducing asthma symptoms and bronchial hyperreactivity in sensitized, asthmatic children and adults.

The goal of the study is to develop primary prevention strategies for asthma based on the hypothesis that reducing exposure to common indoor environmental allergens (including those from dust mites and

cockroaches) during infancy and early childhood will prevent sensitization to allergens and will reduce asthma prevalence.

The EIPPAC study has begun with a pilot phase to assess indoor allergen reduction and control strategies in the homes of inner-city residents and is being conducted in conjunction with the NIEHS-National Institute of Allergy and Infectious Diseases Inner City Asthma Study (ICAS), a large, secondary asthma prevention initiative. The study's main phase is projected to begin some time next year and will be a six-year, randomized, controlled clinical trial. The trial will assess the effectiveness of allergen avoidance programs developed in the pilot phase in preventing allergen sensitization and in reducing asthma prevalence in low-income children that have a family history of asthma and/or allergies. The study will ultimately yield important information about the efficacy of environmental intervention in primary prevention of asthma in low-income children and about the efficacy of various indoor allergen control tactics.

It is anticipated that information obtained from the EIPPAC study will lead to asthma prevention and indoor allergen reduction and avoidance approaches that will improve the respiratory health of Americans, particularly children in low income, inner-city households.

7.     **Title:**     Genetic and Environmental Factors in Respiratory Illness  
       **Focus:**     Research  
       **Contact:** Stephanie London

This project includes studies of genetic and environmental factors in respiratory illness in school-aged children from three populations with different prevalences of asthma – Wuhan, China (low), Mexico City (intermediate), and Southern California (high). The Wuhan project is a school-based study of over 5,000 seventh graders at 22 schools who were enrolled in 1999. Researchers collected environmental exposure and respiratory outcome data, pulmonary function, and DNA from buccal cells. They are currently following the students for the third year. This population is unique in its very high exposure to environmental tobacco smoke in the home with accompanying common exposure to indoor coal burning.

The Mexico City study is using the case-parent triad design. The researchers are enrolling children with asthma aged 7 to 17 at an inner-city hospital, along with their parents, who will serve as controls. The case-parent triad design allows discernment of fetal versus maternal genetic effects. This Mexico City population experiences the highest ozone levels in North America; ambient endotoxin is also elevated. The study is examining candidate genes involved in respiratory responses to ozone, based on human and animal evidence.

The Southern California project is a school-based air pollution cohort study that includes collection of genetic material on the cohort to examine candidate genes for asthma and impaired growth in pulmonary function. The study offers a range of well-characterized exposures to air pollution.

**NATIONAL INSTITUTE OF MENTAL HEALTH**



*The National Institute of Mental Health (NIMH) supports research on co-morbid mental and medical disorders, for example, depression and asthma. The NIMH continues to encourage new applications on co-morbidity, including those with a focus on co-morbid mental disorders and asthma.*

**Title:** NIMH Asthma-Related Research

**Focus:** Research

**Contact:** Peter Muehrer

**Summary:**

The National Institute of Mental Health (NIMH) supports and encourages research on the biological, behavioral, and psychosocial processes and mechanisms underlying co-morbid mental disorders (e.g., depression, anxiety disorders, panic disorder) and asthma. Also encouraged is research to develop and conduct preliminary tests of preventive, therapeutic, and rehabilitative interventions for co-morbid mental disorders and asthma – the interventions may be pharmacologic, behavioral, or psychosocial. Of interest are studies of basic behavioral processes – e.g. motivation, decision-making, emotion, cognition, and social interactions – within the context of interventions for mental disorders/symptoms/related disability. Currently funded studies examine treatment for co-morbid asthma and panic disorder; the effect of depressive emotions on airways in pediatric asthma, and the role of psychophysiology and family influences in pediatric asthma. Available research and research training grant mechanisms support new investigators beginning their research careers on this topic, as well as established, senior investigators.

**Healthy People 2010 Objectives:**

24-11 Medical evaluation and follow-up

**NATIONAL INSTITUTE OF NURSING RESEARCH**

*The National Institute of Nursing Research (NINR) supports clinical and basic research to establish a scientific basis for the care of individuals across the life span – from management of patients during illness and recovery to reduction of risks for disease and disability and promotion of healthy lifestyles. According to its broad mandate, the Institute seeks to understand and ease the symptoms of acute and chronic illness such as asthma through interventions at various levels, and to improve the clinical settings in which care is provided.*

**Title:** Asthma Research Initiatives at the National Institute of Nursing Research

**Focus:** Research

**Contact:** Hilary Sigmon

**Summary:**

National Institute of Nursing Research (NINR) research in asthma targets interventions that help patients and their caregivers take personal responsibility for improving disease symptoms through lifestyle changes, environmental changes, and adherence to treatment. In addition, interventions are designed to assist patients and their families in distinguishing dangerous, acute symptoms from less severe episodes of asthma so that they will know when to seek immediate professional help. NINR-funded research programs to test valid ways for people with asthma and their caregivers to prevent asthma attacks and manage their symptoms are designed to be ethnically, culturally, and age appropriate. The NINR is:

- Co-sponsoring an initiative on *Overcoming Barriers to Treatment Adherence in Minorities and Persons Living in Poverty* with three other NIH institutes to encourage evaluation of interventions to improve adherence to medically prescribed lifestyle and medical regimens used to treat chronic

condition, including asthma, in clinical care settings. A key goal is to encourage evaluation of innovative yet practical methods that overcome patient, provider, and medical systems barriers that impede or erode treatment adherence among racial and ethnic minorities and persons living in poverty in the United States.

- Sponsoring an initiative on *Clinical Trials: Collaborations for Nursing Research II* to link supplemental studies posed by nurse researchers to currently funded clinical research studies, including asthma.
- Co-sponsoring a multi-agency initiative on *Research on Emergency Medical Services for Children* with numerous NIH institutes and centers, as well as other Public Health Service agencies. The announcement seeks to improve the quality and quantity of research related to emergency medical services for children. The NINR is targeting asthma in children as a scientific area of research interest.
- Co-sponsoring an initiative with the National Library of Medicine on NLM on *Telehealth Interventions to Improve Clinical Nursing Care* to investigate innovative and creative telehealth interventions that are used in clinical nursing care and that are designed to contribute to high-quality, cost-effective, patient-oriented care for patients at a distant location. Of particular interest are proposals to investigate telehealth interventions for asthma resulting from recent technological advances, including the Internet and telemetric interfaces. Applications to test new telehealth interventions for minority or underserved patient populations, diverse clinical situations, and/or diverse clinical settings are particularly encouraged.
- Sponsoring an initiative with seven other NIH institutes on *Self-Management Strategies Across Chronic Diseases* to expand research on established self-management interventions to multiple chronic diseases across the life-course. Interventions aimed at self-management of chronic diseases such as asthma coupled with other chronic diseases, including osteoarthritis or obesity, are encouraged.

Inaccurate perceptions of symptom severity are believed to be a major reason for delays in asthma treatment, and contribute to morbidity and mortality. NINR funded investigators are testing symptom-monitoring interventions coupled with physiological parameters in clinical studies involving children with asthma and their parents and adult patients with asthma.

Examples of research findings include:

- Analysis of the effect of one 30-minute asthma education session on clinical markers (spirometry, peak flow, symptoms, and biological markers of inflammation in sputum) to determine if biological markers reflect the efficacy of educational interventions showed that the effects of an adult patient education intervention could be detected by both clinical and biological outcomes.
- A study of symptom assessment and perception of childhood asthma indicated that adolescents were more accurate than school-aged children in describing their symptoms; that the more accurate children had better morbidity outcomes; and that African-American parents were more accurate than Caucasian parents in assessing symptoms. Socioeconomic status did not affect accuracy. Both children and parents missed early symptoms and waited too long prior to intervening in an exacerbation.

- Investigation of word descriptors used by African-American and Caucasian asthma patients to describe breathlessness during airflow obstruction revealed significant ethnic differences in the words used to describe the sensation of breathlessness. Study results emphasize that effective symptom monitoring requires asking the correct questions and that ethnic differences may exist in words used to describe breathlessness.

**Healthy People 2010 Objectives:**

- 24-3 Hospital emergency department visits for asthma
- 24-6 Patient education
- 24-7 Appropriate asthma care

**NATIONAL LIBRARY OF MEDICINE**

*The National Library of Medicine (NLM), on the campus of the National Institutes of Health in Bethesda, Maryland, is the world's largest medical library. It collects materials in all areas of biomedicine and health care, as well as works on biomedical aspects of technology; the humanities; and the physical, life, and social sciences. The collections stand at 6.0 million items – books, journals, technical reports, manuscripts, microfilms, photographs, and images. Housed within the Library is one of the world's finest medical history collections of old and rare medical texts and manuscripts.*

**Title:** NLM Asthma Activities  
**Focus:** Public health practice/intervention  
**Contact:** Kathy Cravedi

**Summary:**

Working closely with the National Heart, Lung, and Blood Institute (NHLBI); the National Institute of Environmental Health Sciences; and the National Institute of Allergy and Infectious Diseases, the National Library of Medicine (NLM) created a comprehensive exhibition about asthma, *A Breath of Life*, that opened in 1999. Housed at the NLM, *A Breath of Life* examined the history of asthma, the experiences of people with asthma, and contemporary efforts to understand and manage the disease. Although the original exhibit closed in March 2001, *A Breath of Life* can now be viewed through an exciting interactive digital videodisc (DVD) version devised in 2000. This virtual tour contains more than two hours of full-motion animated video, graphic images, and narration, as well as open captioning for the hearing-impaired. The NLM has developed a special environment for the DVD that includes two freestanding kiosks with touch screens that allow visitors to explore the many aspects of *A Breath of Life* in self-directed tours, as well as a larger projection system that can be used when the DVD is shown to groups. The individual kiosks, the larger viewing environment (with the projection system), and the whole grouping can travel either separately or together.

The NLM is currently coordinating with the NHLBI and other interested parties to develop a plan for distributing copies of *A Breath of Life* to schools, libraries, doctors' offices, clinics, and other settings. In addition, the Library's larger vision is to send the whole DVD grouping (complete with stereophonic Dolby sound) on a national tour to be planned in conjunction with NHLBI.

**Healthy People 2010 Objectives:**

23-2 Public access to information and surveillance data

26-4 Patient education

---

## OFFICE OF PUBLIC HEALTH AND SCIENCE

*The Office of Public Health and Science (OPHS) serves as the focal point for leadership and coordination in the Department of Health and Human Services (DHHS) for public health and science; provides direction to program offices within OPHS; and provides advice and counsel on public health and science issues to the Secretary, DHHS.*

### OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION

**Title:** Asthma Activities  
**Focus:** Public health practice/intervention  
**Contact:** Woodie Kessel

**Summary:**

The President's Task Force on Environmental Health Risks and Safety Risks to Children, co-chaired by the Secretary, DHHS, and the Administrator of the Environmental Protection Agency (EPA), prepared a report entitled, *Asthma and the Environment: A Strategy to Protect Children*. The report identifies joint federal efforts by multiple Federal departments to reduce asthma onset, attacks, and severity, as well as asthma health disparities. The Task Force is exploring new options for combating the asthma epidemic in collaboration with other Federal partners such as the National Aeronautical and Space Administration (NASA) and private sector partners such as the Pew Commission on Environmental Health. Task Force efforts target development of a surveillance system that may serve as an early warning system for triggers of asthma and perhaps provide knowledge that can help prevent this chronic disease.

The Task Force has also been promoting state and community-based efforts to address asthma through local partnerships and coalitions. As a member of the Task Force committed to helping it achieve its goals, the Office of Disease Prevention and Health Promotion (ODPHP) was instrumental in establishing the Mid Atlantic Regional Asthma Initiative, the purpose of which is to promote community partnerships for action against asthma. Stakeholders include health care providers, managed care organizations, hospitals, state and local health departments, community groups, universities, private industry, and many others. The Office of Public Health and Science (OPHS), Region III of the DHHS, and the Environmental Protection Agency (EPA) catalyzed successful educational and communication programs such as the Asthma Bus, which travels around Philadelphia to educate children, parents, and teachers in local middle schools. A similar program in Baltimore boasts the Breathmobile education and treatment program. Community actions supported by Region III include several other successes, such as NASA's Baltimore Asthma Monitoring, Measuring, and Modeling initiative and a number of health care provider initiatives to work with community members in treating and preventing asthma.

The ODPHP is located within the OPHS. Since 1979, it has provided leadership in stimulating, coordinating, and unifying national disease prevention and health promotion strategies among federal, state, and local agencies and major private and voluntary organizations. The ODPHP serves as the focal point for leadership and coordination across the Department for the:

Healthy People Initiative. As the prevention agenda for the Nation, the Healthy People Initiative guides efforts to promote health and prevent disease by establishing and monitoring health improvement objectives with 10-year targets. The Healthy People 2010 framework, based on science and consensus, has two goals: (1) to increase quality and years of healthy life and (2) to eliminate health disparities. It is organized into 28 focus areas covering diseases, disabilities, and determinants of health, with 467 measurable objectives and 10 leading indicators of health that address improving access to quality health

care, strengthening public health services, and improving health-related behaviors through community-based partnerships. Chapter 24 - Respiratory Diseases – specifically focuses on asthma and includes eight asthma-specific objectives and 49 related objectives.

Healthfinder7. Healthfinder7 is an award-winning internet gateway that links consumers and professionals to health and human services information from the federal government and its many partners. Healthfinder7 contains almost 6,000 resources on 1,000 topics, including links to a wide variety of internet-accessible resources on asthma and its management for patients, families, communities, and professionals. The site also includes internet links to federal agencies and to both professional and voluntary non-federal organizations with a strong interest in asthma.

**Healthy People 2010 Objectives:**

24-7 Appropriate asthma care

7-10 Community health promotion programs

23-6 National tracking of HP 2010 Objectives

**OFFICE OF MINORITY HEALTH**

*The Office of Minority Health (OMH) was established in 1985. It advises the Secretary, DHHS, and the Office of Public Health and Science on public health program activities affecting American Indian and Alaska Native, African American, Asian American and Pacific Islander, and Hispanic populations. Its goal is to promote improved health among these racial and ethnic minority populations.*

- Title:** Coalition for Minority Health and Community Coalition for Minority Children’s Health  
**Focus:** Public Health practice/intervention  
**Contact:** Olivia Carter-Pokras

**Summary:**

The OMH supports two grants that are directed toward public health practice and intervention as noted below.

Coalition for Minority Health

The goals of this OMH grant to the Black on Black Task Force in Gainesville, Florida, are to encourage health promotion and risk reduction and to reduce negative effects of chronic health problems (asthma, diabetes/obesity and HIV/AIDS) among the target population. The grant-supported “Coalition for Minority Health” coordinates efforts by health providers, the school board, churches, and members of the minority community to develop a community-based system as a teaching model for middle and elementary school-age youth. Program components include (1) the Asthma Partners Program (a culturally sensitive curriculum that includes basic information about asthma, warning signs and what starts attacks, medication and the use of inhalers, personal action plans for self-help and emergency plans), (2) the After School Diabetes/Obesity Program (nutrition groups, group sessions, and exercise classes), and (3) the Celebrate Life Program (HIV/AIDS education and prevention).

Community Coalition for Minority Children’s Health

The OMH grant awarded to Giving of Self Partnership, Inc. of Philadelphia, Pennsylvania, supports the “Community Coalition for Minority Children’s Health.” The Coalition seeks to improve the health of infants and school age children in Logan County. Its goals are to (1) help women achieve healthy pregnancies and take an active role in their babies’ health during the first year of life in order to decrease

infant mortality, and (2) assist families affected by pediatric asthma to partner effectively with primary care providers in asthma management in order to increase the quality of life for children with asthma. Activities include community-based assessment (of insurance, immunization, and nutritional status; use of primary care; and barriers to health maintenance); education; outreach services; and linkage for the target population to socially and culturally appropriate health care interventions (e.g., referral, individual and group educational sessions, home visits, and case management).

**Healthy People 2010 Objectives:**

24-6 Public education

24-7 Appropriate asthma care

7-10 Community health promotion programs

2. **Title:** Asthma Attack Avoidance Education and Asthma Education  
**Focus:** Public health practice/intervention  
**Contact:** Olivia Carter-Pokras

**Summary:**

The OMH supports two grants that are directed toward public education as noted below.

Asthma Attack Avoidance Education Program

The OMH Asthma Attack Avoidance Education Program is supported through a grant to the Research Foundation of the City University of New York/Health Force (CUNY). Its purpose is to establish a community-based, parent-child focused program to (1) increase identification of potential asthma attack triggers among minority urban children and (2) to ensure appropriate referral for medical care. The program provides training classes for 35 adult and teenage peer educators, as well as about 50 parents of asthmatic children. During the summer, the program identifies teenagers who receive training in the control of their own asthma. Throughout the year, home visits are held to educate families in ways to reduce indoor pollutants and triggers. The program also arranges presentations to health care providers on asthma attack triggers and prevention.

Community-Based Asthma Education Program

The OMH Community Based Asthma Education Program is supported through a grant to the Children's Hospital of Philadelphia, Philadelphia, Pennsylvania. Its goal is to increase the level of knowledge and understanding of both parents and children about asthma and to prevent asthma attacks by educating the community. The program includes training classes for the 165 families enrolled in the program. The participants are trained to manage asthma and, thereby, reduce hospitalizations and emergency room visits. Home intervention activities include assistance in reducing indoor asthma triggers for low income families. The community is educated about asthma management, pollutants, and triggers at health fairs and community events.

**Healthy People 2010 Objectives:**

24-6 Public education

**OFFICE ON WOMEN'S HEALTH**

*The mission of the Office of Women's Health (OWH) is to improve the health of women across the life-span by directing, developing, stimulating, and coordinating women's health research, health care services, and public and health professional education and training across the agencies and offices of the DHHS; and with other government agencies, public and private organizations, and consumer and health care professional groups. The Office also*

*advises the Secretary and Assistant Secretary for Health on scientific, medical, ethical, and policy issues related to the advancement of women's health in the United States and internationally.*

**Title:** Office on Women's Health Asthma Research

**Focus:** Research

**Contact:** Jonelle Rowe

Some populations, including women, are particularly affected by asthma. Many reports have agreed that, while males are treated for asthma more than twice as often as females up to the age of 10, after this age the trend reverses. Factors such as pregnancy, differences in hormones, and intake of aspirin and other anti-inflammatory drugs can complicate asthma in women. Another concern is adult onset of asthma, especially in women at the start of menopause. The OWH recognizes that asthma is an extremely important issue for women and is currently exploring opportunities to better integrate asthma into the full spectrum of program activities.

The OWH coordinates, collaborates, develops partnerships, and convenes appropriate people to address issues related to women's health. The OWH often focuses on diseases for which severity, incidence, diagnosis, and treatment may be different because of gender and tries to ensure that those differences are addressed in approaches used by health care practitioners, researchers, patients, and others.

**Healthy People 2010 Objectives:**

24-1 Deaths from asthma

24-6 Patient education

24-7 Appropriate asthma care



# DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

---

*The Department of Housing and Urban Development (HUD) is responsible for national policy and programs that address America's housing needs, that improve and develop the Nation's communities, and enforce fair housing laws. HUD's business is helping create a decent home and suitable living environment for all Americans. The HUD Healthy Homes Initiative includes activities relevant to reduction of asthma morbidity.*

- Title:** Healthy Homes Initiative Activities  
**Focus:** Public health practice/intervention  
**Contact:** Ellen R. Taylor

## **Summary:**

### Residential Interventions to Reduce Asthma Morbidity

In FY 1999 and FY 2000 HUD competitively awarded 15 grants or cooperative agreements through its Healthy Homes Initiative (HHI); nine were for demonstration projects. In addition, HUD collaborates with the U.S. Department of Agriculture (USDA), the National Institute of Standards and Technology (NIST), the Centers for Disease Control and Prevention (CDC), and the National Institute for Occupational Safety and Health (NIOSH) to develop and disseminate information about housing-based hazards. The objective is to develop and evaluate promising, cost-effective measures that can be used to correct multiple health and safety hazards in the home environment. The target audiences are generally high-risk, low-income populations, residing in neighborhoods where substandard housing is commonplace; the health and safety of children are emphasized. A number of HHI demonstration projects incorporate housing-based interventions to reduce childhood asthma morbidity through the reduction in levels of common household asthma triggers (e.g., fungi, dust mite, cockroach). Low-cost interventions include eliminating moisture problems to reduce levels of bio-aerosols, cockroach and rodent eradication, and treatments to reduce exposure to dust mites.

In FY 2000, HUD awarded six additional HHI demonstration and education grants (three demonstration and three education) and continued work through the Interagency agreements with USDA, NIST, CDC, and NIOSH. Each award involves collaborative activities between the primary grantee and organizations that include medical/wellness centers and their programs, health departments, urban renewal authorities, departments of social services, and child care providers.

HHI grantees have developed systems for mitigating hazards in homes and for educating their target populations. Some grantees have developed a site-specific approach to interventions; others are offering residents enrolled in the project either a standard, or an enhanced, intervention package. Grantees have recruited participants, developed protocols (that include visual assessment, survey questionnaires, environmental sampling and analysis methods) and have developed outreach, education, and evaluation materials. Curricula for training about home hazards and low-cost remediation/maintenance strategies and safe work practices have been developed and these curricula have been used to train project staff. One grantee has assessed homes, is collecting bids for interventions, and is poised to facilitate the interventions in the summer of 2001.

A Grantee Electronic Exchange has been developed to allow all HHI project teams – including residential intervention, outreach, and research project teams – to exchange information on issues such as visual assessment and survey instruments, sampling protocols, intervention strategies, and education/outreach methods. This will facilitate adoption of common practices between projects, where appropriate, and will help HUD to identify and highlight “best practices” in areas such as cost-effective moisture control and

effective education tools. Grant recipients will also be provided with technical assistance to help them strengthen aspects of their projects such as survey design and evaluation of intervention effectiveness.

#### Education/outreach

Through its Healthy Homes Initiative, HUD has funded three education grants to provide outreach/education to high-risk populations on children's environmental health hazards. The projects include a self-evaluation component and reach targeted groups through in-home educators, family counseling centers, head start teachers, web-based interactive sites and print media. The projects offer instruction on ways to reduce asthma triggers and exposures to environmental contaminants in the home. The HUD-USDA Interagency Agreement also focuses on healthy homes outreach by distributing funds through the USDA's Cooperative State Research, Education, and Extension Service (CSREES). HUD is interested in promoting methods to reach high-risk groups and communities, vulnerable populations and persons traditionally underserved.

#### **Healthy People 2010 Objectives**

24-2 Hospitalizations for asthma

24-4 Activity limitations

24-7 Appropriate asthma care

2. **Title:** Healthy Homes Initiative Activities  
**Focus:** Research  
**Contact:** Ellen R. Taylor

#### **Summary:**

Through the Healthy Homes Initiative (HHI), HUD supports research to assess the effectiveness of housing interventions in reducing levels of important allergens (e.g., cockroach, dust mite, fungi), to improve methods for detection and control of environmental health and safety hazards (EHS) in the home, and to increase the efficacy and cost-effectiveness of EHS hazard reduction interventions. The focus is on interventions (e.g., moisture control) that will mitigate multiple health hazards. After each intervention, its effectiveness and longevity is evaluated at various intervals post-intervention through environmental sampling, visual assessment, and measurement of its effects on asthma severity.

HUD has funded three healthy homes research grants (or cooperative agreements) and is collaborating with National Institute of Standards and Technology (NIST), the Centers for Disease Control and Prevention (CDC), and the National Institute for Occupational Safety and Health (NIOSH) to address issues that include modeling contaminants in a residence, moisture detection, fire safety, carbon monoxide detection, microbial volatile organic measurement, and building code revisions. HUD also funds contract work for HHI research projects that provides technical assistance to HHI grantees (e.g., sampling design), develops performance evaluation samples for allergens, and prepares quality control guidelines for research programs.

In FY 2000, HUD awarded two additional HHI research grants and is continuing its research projects through the interagency agreements with the NIST, the CDC, and the NIOSH. Each grant involves collaborative activities between the primary grantee and organizations that include universities, medical/wellness centers and their programs, health departments, public housing authorities, and day care centers. Additional awards will be made in FY 2001.

HHI grantees are recruiting participants, developing survey instruments, protocols, and outreach materials (such as the *Cockroach Control Guide*). One grantee has developed a method for measuring cockroach

allergen, and is using this method to evaluate the effectiveness of cleaning methods for allergens. Findings from current research will be disseminated through peer-reviewed articles, conference presentations, HUD reports, and postings on HUD web site. Cost-effective housing-based interventions will be highlighted. In the future, research in specific topic areas will be solicited as needs become apparent.

As noted in Title 1 above, research project teams have access to the Healthy Homes Grantee Electronic Exchange and will be provided with technical assistance to help them strengthen aspects of their projects such as survey design and evaluation of intervention effectiveness.

**Healthy People 2010 Objectives:**

24-2 Hospitalizations from asthma

24-4 Activity limitations

24-5 School or work days lost

3. **Title:** Healthy Homes Initiative Activities  
**Focus:** Reducing disparities  
**Contact:** Ellen R. Taylor

**Summary:**

The objectives of the HUD Healthy Homes Initiative (HHI) are to mobilize public and private resources, involving cooperation among all levels of government, the private sector, and community-based organizations to develop promising, cost-effective methods for identifying and controlling housing-based hazards. The HHI builds local capacity to operate sustainable programs that minimize and prevent housing-based hazards, to affirmatively further fair housing and environmental justice, and, to the greatest extent feasible, to promote job training, employment, and other economic opportunities for low-income and minority residents and businesses. The HHI program funds demonstration, education, and research projects to reduce environmental health hazards in high risk housing, which is generally occupied by low-income populations. As part of their intervention strategies, most projects include measures to reduce levels of household allergens and include resident education on actions they can take to reduce exposure.

As cost-effective intervention protocols are identified, HUD will provide this information to the large network of state and local housing agencies and health departments that are currently conducting lead hazard control interventions in low income housing. The goal is for more “housing intervention” programs to adopt approaches that simultaneously address multiple residential hazards, including reduction of residential asthma triggers.

In FY 2000, HUD awarded eight additional HHI grants and is continuing its research projects through its interagency agreements with the National Institute of Standards and Technology, the Centers for Disease Control and Prevention, and the National Institute for Occupational Safety and Health. Each of the HHI grants involves collaborative activities between the primary grantee and organizations that include universities, medical/wellness centers and their programs, health departments, public housing authorities, and day care centers. Additional HHI grants will be awarded in FY 2001. Findings from current research will be disseminated through peer-reviewed articles, conference presentations, HUD reports, and postings on the HUD web site. Cost-effective housing-based interventions will be highlighted. In the future, research in specific topic areas will be solicited as needs become apparent.

**Healthy People 2010 Objectives**

- 24-2 Hospitalizations from asthma
- 24-4 Activity limitations
- 24-7 Appropriate asthma care

# ENVIRONMENTAL PROTECTION AGENCY

---

*The mission of the U.S. Environmental Protection Agency (EPA) is to protect human health and to safeguard the natural environment – air, water, and land – upon which life depends. The EPA collaborates with many federal and state agencies, as well as professional and public organizations, to meet its goals.*

- 1. Title:** Public Outreach and Education  
**Focus:** Public health practice/intervention  
**Contact:** Mary Smith

## **Summary:**

The Environmental Protection Agency (EPA) is launching a national public education and prevention program in response to the asthma epidemic in the United States. The goal of the outreach program is to raise public awareness of environmental asthma triggers (e.g., secondhand smoke, dust mites, mold, pet dander, cockroaches, ozone, and particulate matter) and actions that can be taken to reduce children's exposure to them in homes, schools and child care settings. The EPA plans to conduct a survey to assess public awareness and action on environmental triggers.

## Asthma & Environmental Tobacco Smoke Public Service Announcements

In 2001, the EPA, in collaboration with the Advertising Council, released a childhood asthma media campaign aimed at preventing asthma attacks in children. The national campaign includes public service announcements (PSAs) in English and Spanish for television, radio, newsprint and transit. The Ad Council will also target high population inner-city markets, and display the ads on transit and bus shelters and outdoor buildings. The campaign encourages people to call 1-866-NOATTACKS or visit the website [www.NOATTACKS.org](http://www.NOATTACKS.org). Callers will be able to speak to an asthma consultant through a companion hotline operated by the Allergy and Asthma Network/Mothers of Asthmatics, Inc.

The EPA also released the second wave of its environmental tobacco smoke media campaign, designed to protect children from the health effects of exposure to secondhand smoke by encouraging parents to make their homes smoke-free. It is the result of collaborative efforts between the EPA, the Consumer Federation of America Foundation, and the American Medical Association. In addition, the EPA collaborated extensively with the Centers for Disease Control and Prevention to increase use of the television, radio, and print elements of the campaign.

In the first year of the environmental tobacco smoke public service campaign entitled "Devil & Angel," the Neilson Company ranked the television public service announcement (PSA) as the 2nd most aired PSA in the country. Since May 1999, the campaign has aired nearly 70,000 times on over 700 TV and cable stations that reach 80 percent of U.S. households. In addition, the campaign's radio and print components have appeared on 625 radio stations and have been run in 281 newspapers nationally.

The EPA is also partnering with the United States Department of Agriculture to create a National "Asthma Trigger Awareness" Campaign for kids and to conduct clinical outreach targeting respiratory therapists, family practices, pediatric clinics, and school nurses. The project focuses more on asthma during Indoor Air Quality (IAQ) month in October.

## Child Health Champion Pilot Project

The EPA provided funds to 11 diverse communities to help them address children's environmental health issues such as asthma trigger management and lead poisoning prevention. Nine of the eleven

communities are focusing on asthma and are engaged in a variety of activities including home visitation/assessment, programs to reduce asthma triggers in schools and day care centers, and community education. An evaluation of the pilot is anticipated later this year to determine what works best in different communities.

#### Smoke-Free Home Pledge Campaign

In Summer 2001, the EPA released a pledge campaign to encourage parents to Take the Smoke-Free Home Pledge. The EPA is partnering with non-profit organizations to promote the campaign, which will increase the number of Smoke-Free Homes, especially those with children under six who have asthma. Educational materials and a reinforcement piece have been developed to assist in gaining parental commitments. A National Smoke-Free Home Pledge Hotline is available at 1-800-513-1157 so that parents can make their pledges by telephone. In collaboration with the EPA, the National Council of La Raza has educated more than 2,000 Hispanic families on secondhand smoke and asthma through their national smoke-free home campaign.

#### State Secondhand Smoke and Asthma Grants

The EPA and the Centers for Disease Control and Prevention (CDC) have teamed up to make funds available for competitive secondhand smoke and asthma grants. To make optimal use of EPA resources and the CDC's network and existing grant structure, the EPA and the CDC designed the project as a supplement to the existing CDC Comprehensive State-Based Tobacco Use Prevention and Control Programs. Over 25 states submitted proposals; eleven were selected and have received funding (Minnesota, Ohio, Alabama, North Carolina, Wisconsin, Colorado, Tennessee, Arizona, Vermont, West Virginia, and Nebraska). The states are implementing their specific projects designed to reduce the proportion of households where children are regularly exposed to secondhand smoke.

#### State Children's Environmental Health

The EPA supports Environmental Council of the States (ECOS) and Association of State and Territorial Health Officials (ASTHO) efforts to develop state profiles of children's environmental health. Thirty-eight states have submitted information to ECOS and ASTHO, and they have started to analyze state information related to asthma, lead poisoning, childhood cancer, and fish consumption advisories. When the analysis is complete, the ECOS Children's Health Protection Work Group and the ASTHO Environmental Policy Subcommittee will meet to develop a menu of options - a tool box - for state health and environment departments to address the high rate of asthma in the states. ECOS and ASTHO, with support from the EPA, will hold a conference for leaders of state environmental and health agencies in August 2001 to identify strategies to reduce environmental factors that impact asthma in children.

#### **Healthy People 2010 Objectives:**

24-3 Hospital emergency department visits for asthma

24-6 Patient education

24-7 Appropriate asthma care

2. **Title:** Family/Patient Care and Education  
**Focus:** Public health practice/intervention  
**Contact:** Mary Smith

#### **Summary:**

The Environmental Protection Agency (EPA) is working with many professional health care provider associations, as noted below, to enhance the ability of health care practitioners to address environmental components of pediatric asthma as part of a comprehensive asthma management plan.

### American Respiratory Care Foundation

Asthma accounts for one-third of all pediatric emergency room visits and is the fourth most common cause for physician office visits. The EPA is working with the American Respiratory Care Foundation (ARCF) to educate pediatric emergency room/hospital asthma patients and their families about environmental triggers of asthma and appropriate interventions to reduce exposure to indoor asthma triggers. The goal is to help reduce asthma episodes and prevent future emergency room visits. In the first year of the project, respiratory therapists educated over 150 care givers on indoor environmental asthma trigger identification and management. The ARCF is also educating respiratory therapists and other health care professionals about daily asthma prevention and the impact of indoor environmental pollutants.

### American Academy of Pediatrics

Under a cooperative agreement with the EPA, the American Academy of Pediatrics (AAP) is developing an asthma management video that incorporates environmental asthma triggers. The video will be used to educate pediatricians and allergy and asthma specialists, while a supplement will be used to educate families and children on asthma management. The EPA also supports AAP-sponsored pediatric environmental health workshops for Chief Pediatric Residents at the AAP annual meeting. Evaluations from the initial workshop were outstanding and prompted implementation of a multi-year training program focusing on Chief Pediatric Residents who, as leaders in their programs, are able to integrate environmental health into their residency programs. It is hoped that some of those who participate in the workshops will go on to become leaders in pediatric environmental health.

### American Nurses Association

The EPA is supporting a multiyear effort with the American Nurses Association to provide continuing education to practicing nurses. Continuing education will be in the form of on-line and in-print journal articles as well as pre-conference workshops. The first continuing education piece will be about environmental hazards, including asthma triggers, in school settings and will be available this summer.

### Managed Care Organizations

The EPA is incorporating environmental controls into clinical practice standards of care for asthma patients through the medical community and managed care organizations (MCOs). The EPA is conducting regional conferences with MCO officials to gather information on clinical practices and to explore opportunities for greater incorporation of environmental control messages, services, and products in asthma management programs.

### **Healthy People 2010 Objectives:**

24-3 Hospital emergency department visits for asthma

24-6 Patient education

24-7 Appropriate asthma care

- 3. Title:** School and Child Care-Based Asthma Education  
**Focus:** Public health practice/intervention  
**Contact:** Mary Smith

### **Summary:**

The Environmental Protection Agency (EPA) is partnering with national organizations to address asthma in urban and minority communities around the United States. The goal of the projects is to teach students and staff about asthma and improve their ability to manage indoor triggers while enhancing asthma management in school and childcare settings.

### Asthma and Allergy Essentials for Child Care Providers

Of the more than 13 million children aged five and under currently enrolled in child care in the United States, an estimated 1.4 million, more than one in 10, have asthma. The EPA is partnering with the Asthma and Allergy Foundation of America to offer a CEU-based training course, “Asthma and Allergy Essentials for Child Care Providers,” for licensed childcare providers on appropriate asthma and allergy management. In the first two years of the project, over 1,300 childcare providers have been trained in appropriate asthma management, including indoor environmental controls.

### Improving Indoor Environments in Schools

Children may spend up to 8 hours a day in schools, thus a healthy indoor school environment is crucial for all children and staff, especially those with asthma. The EPA has been working with national organizations like the American Lung Association, the American Association of School Administrators, the National Education Association, and the National Association of School Nurses and their membership to implement the Indoor Air Quality Tools for Schools (IAQ-TfS) program to reduce exposures to asthma triggers in schools. This comprehensive approach reaches the wide variety of school officials and community advocates necessary to successfully implement the IAQ Tools for Schools program.

The EPA is planning its 2nd annual National IAQ Tools for Schools Symposium to provide the information and techniques needed to implement the program. The EPA has also recently launched a comprehensive incentives program to encourage schools to implement the IAQ Tools for Schools Action Kit. The incentive program includes a competitive National Awards and Recognition Program; a marketing strategy targeting the top 10 school districts in the United States (based on student population); technical tools and resources such as a promotional brochure, a publication on managing asthma in the school environment, and case studies on schools that have successfully used the kit; and a mentoring program to provide support and technical assistance to schools beginning to use the kit.

### Open Airways/IAQ Tools for Schools

In partnership with the American Lung Association (ALA), the EPA is promoting the use of Open Airways For Schools (OAS), a volunteer program that educates and inspires children with asthma through an innovative approach to peer teaching and asthma self-management. It teaches children ages 8 to 11 how to detect warning signs of asthma, including environmental factors that can trigger an asthma episode. It empowers kids to better manage their asthma, with help from parents, teachers, school nurses, and physicians. The ALA has combined the OAS and IAQ TfS programs, thus enabling schools to implement a holistic asthma management plan. To support the initiative, the ALA provides mini-grants to ALA affiliates that are conducting OAS/IAQ TfS master trainer workshops and working with local asthma coalitions.

### School Nurse Training

The National Association of School Nurses (NASN) has developed an asthma education training manual entitled *Managing Asthma Triggers: Keeping Students Healthy* that provides a series of modules to increase awareness of potential asthma triggers and irritants in the school environment. The NASN is holding 15 state training sessions for school nurses on the training manual and IAQ Tools for Schools.

EPA Regional Offices are also supporting state and local school-based programs, such as a grant to a coalition between Denver Health, National Jewish Hospital and Colorado Access (Colorado's largest Medicaid provider) to provide information on environmental asthma triggers to inner city children. The project involves educating physicians who staff Denver school-based health clinics about environmental asthma triggers. Education and tracking of patients will be the second part of the program.



**Healthy People 2010 Objectives:**

- 24-5 School or work days lost
- 24-6 Patient education
- 24-7 Appropriate asthma care

- 4. **Title:** Family/Patient Care and Education  
**Focus:** Reducing disparities  
**Contact:** Mary Smith

In-Home Asthma Education

The EPA is collaborating with national, state, and local organizations to educate children with asthma, their parents and/or primary care-givers about indoor asthma triggers in the home. Through a competitive process, the EPA awarded a grant to the San Francisco County Department of Health to help 200 children with asthma and their families conduct environmental assessments in their homes and learn how they can reduce sources that cause or exacerbate asthma. San Francisco County has an estimated asthma prevalence 1.5 times the national average. Rates are highest among African-American children, and rates for Latino and Asian children are among the highest in the state. This project builds on current home-based educational interventions with the San Francisco General Hospital and seven neighborhood health clinics that provide primary care to many low-income families. The EPA also awarded the Children's Hospital of Philadelphia a grant to support the hospital's in-home asthma education efforts and assess the effectiveness of this approach in educating children with asthma, as well as their parents and care givers. Efforts include identifying indoor asthma triggers and how to mitigate them. The EPA plans to award in-home asthma grants through a competitive grant process again in FY 2001. EPA regional offices also fund state and local in-home asthma education programs and asthma coalitions.

Bureau of Primary Health Care

The EPA is collaborating with the Bureau of Primary Healthcare (BPHC) to integrate indoor environmental asthma management into existing BPHC community health center and school-based health center programs. The BPHC provides comprehensive training, including management of environmental asthma triggers, for teams from school and community health centers. The EPA provides support to the BPHC program in order to expand delivery of training and support to primary health clinics.

**Healthy People 2010 Objectives:**

- 24-3 Hospital emergency department visits for asthma
- 24-6 Patient education
- 24-7 Appropriate asthma care

- 5. **Title:** EPA Research  
**Focus:** Research  
**Contact:** Mary Smith

**Summary:**

In 1998, the Environmental Protection Agency (EPA) provided a grant to the National Academy of Sciences/Institute of Medicine (NAS/IOM) to assess the role of indoor air quality in the growing asthma problem. The NAS/IOM convened a Committee on the Assessment of Asthma and Indoor Air to review the current state of the science on asthma and indoor air pollutants. The Committee report, *Clearing the Air: Asthma and Indoor Air Exposures*, affirmed the important role of the indoor environment in the

increasing asthma problem and recognized the five indoor agents targeted by the EPA for which there is sufficient evidence of a casual relationship or association with the triggering of asthma.

The EPA Office of Research and Development (ORD) is responsible for the research and development needs of the EPA operating programs and for conducting an integrated EPA research and development program. ORD asthma-related research and activities are described below.

#### Intramural Asthma Research Program

The ORD is undertaking a 24-project intramural asthma research program to characterize the role of various environmental factors (e.g., molds and gaseous and particulate pollutants) in asthma and to better understand the mechanisms of allergic sensitization and asthma exacerbation. The general hypothesis is that environmental factors influence asthma onset and exacerbation, and that these factors can be controlled. The program will also assess the relative role these pollutants play in the indoor versus outdoor environments, and study the efficacy of various intervention protocols. Several projects address adult populations as part of epidemiological studies as well as in controlled clinical exposures. Children are specifically targeted in various epidemiology studies around the U.S. The ORD is a partner in the Inner City Asthma Study (ICAS), a multi-center intervention trial among moderate to severe asthmatic children in seven cities, through an Interagency Agreement with two NIH institutes, the National Institute of Allergy and Infectious Diseases and the National Institute for Environmental Health Sciences.

#### National Center for Environmental Research: STAR Grants Program

The mission of the ORD National Center for Environmental Research (NCER) is to stimulate the research community to provide high quality, innovative ideas and solutions to protect human health and the environment. Its STAR program, "Science to Achieve Results," funds research grants and fellowships in environmental science and engineering.

In 1998, the NCER began a five year partnership with the National Institute of Environmental Health Sciences (NIEHS) and the Centers for Disease Control and Prevention to sponsor eight Centers for Children's Environmental Health and Disease Prevention Research. The Centers have undertaken multi-disciplinary basic and applied research in combination with community-based prevention research. These efforts support studies on the causes and mechanisms for children's disorders that have an environmental etiology, including asthma and respiratory illnesses. One program is investigating how exposures to environmental pollutants and allergens exacerbate asthma and relate to other lung diseases in children living in the inner city, while another is studying causes of airway disease in children from rural communities. Research on effective neighborhood and household interventions to reduce risks of asthma is also an important focus of the Centers program. In addition to the Centers grants, the NCER, in partnership with the NIEHS, is supporting two Environmental Justice grants to develop effective community-based environmental interventions to help combat asthma in the urban environment.

Another major priority for the STAR program has been research related to particulate matter air pollution. Particulate matter (PM) is the general term used for a mixture of solid particles and liquid droplets found in the air. These particles come in a wide range of sizes (from fine to coarse) and originate from many different stationary and mobile sources as well as from natural sources. Particles can accumulate in the respiratory system and are associated with numerous health effects including aggravation of asthma. The NCER awarded five-year funding to five university-based PM Research Centers to undertake integrated programs of health research. Exposure studies are being conducted to better understand and characterize personal exposures to PM (e.g, size and composition of PM, indoor air versus outdoor air contribution). Controlled clinical studies in humans and animal toxicology studies will help identify constituents or properties of PM which are most responsible for human health effects and help explain how these effects

occur. The Research Centers are also developing dosimetry models that take into account the amount of PM deposited into the lungs of exposed individuals. This will help elucidate the relationship between individuals' exposure to PM and the health responses of sensitive populations, such as those with asthma. In addition, epidemiological studies are underway to examine health outcomes in susceptible subpopulations, such as children and adults with asthma, and their association with PM exposures.

In addition, the STAR program has awarded a number of individual grants to investigators examining environmental influences on asthma. Examples range from the relationship between exposure to PM and exacerbation of asthma to effective means of controlling dust mites, a cause of asthma in susceptible individuals. For more information on the NCER grants programs, visit the web site:

<http://es.epa.gov/ncer>. For information about NCER's research centers, see <http://es.epa.gov/ncerqa/centers>.

#### Ambient Air Research

The EPA is conducting a risk analysis for particulate matter as part of the National Ambient Air Quality Standards (NAAQS). As a small part of the total risk assessment, the review includes a look at hospital admissions for respiratory causes and the risk of asthma symptoms for children exposed to ambient particulate matter. The EPA also anticipates conducting a risk assessment for the ozone NAAQS review, which should include looking at the increased risk of childhood asthma at higher ambient ozone levels.

In addition, the EPA is conducting research on sulfur dioxide (SO<sub>2</sub>), a suspected asthma trigger. As announced in the Federal Register on January 9, 2001, the EPA plans to propose an integrated monitoring strategy to revise the minimum requirements for ambient monitoring in compliance with the SO<sub>2</sub> NAAQS. We intend to issue SO<sub>2</sub> monitoring guidelines to assist state and local air pollution control agencies in evaluating their networks and the appropriateness of revising such networks to better address the issue of short term peaks of SO<sub>2</sub> (5 minutes) that have been shown to cause breathing difficulty in people with asthma. Finally, we are seeking support and participation from the states and industry to develop plans for collecting additional 5-minute SO<sub>2</sub> air quality monitoring data. We expect this effort to take about two years including planning, coordination, data collection, and analysis and to provide important new information on the likelihood and nature of 5-minute peak SO<sub>2</sub> concentrations that may occur around various types of industrial facilities. We expect that this information will help inform our decisions in the next periodic review of the SO<sub>2</sub> NAAQS.

#### **Healthy People 2010 Objectives:**

24-2 Hospitalizations for asthma

24-3 Hospital emergency department visits for asthma

24-7 Appropriate asthma care

# INVENTORY OF FEDERAL ASTHMA ACTIVITIES

## INDEX

Public health practice/intervention	
Administration for Children and Families	2
Agency for Toxic Substances and Disease Registry	6
Centers for Medicare and Medicaid Services	17
Department of Education	1
Department of Housing and Urban Development	47
Environmental Protection Agency	51, 53, 54
Health Resources and Services Administration	21, 22
National Center for Chronic Disease Prevention and Health Promotion	7
National Center for Environmental Health	9
National Heart, Lung and Blood Institute	29
National Institute for Occupational Safety and Health	15
National Institute of Environmental Health Sciences	37, 38
National Library of Medicine	42
Office of Disease Prevention and Health Promotion	43
Office of Minority Health	44, 45
Reducing disparities	
Agency for Toxic Substances and Disease Registry	6
Department of Housing and Urban Development	49
Environmental Protection Agency	55
Health Resources and Services Administration	19
National Center for Environmental Health	10
National Heart, Lung and Blood Institute	29
National Institute of Allergy and Infectious Diseases	34
National Institute of Environmental Health Sciences	37
Research	
Agency for Healthcare Research and Quality	3
Agency for Toxic Substances and Disease Registry	5
Centers for Medicare and Medicaid Services	16
Department of Housing and Urban Development	48
Environmental Protection Agency	56
National Center for Environmental Health	11
National Center For Health Statistics	13
National Heart, Lung and Blood Institute	25
National Institute for Occupational Safety and Health	14
National Institute of Allergy and Infectious Diseases	32
National Institute of Environmental Health Sciences	36, 39
National Institute of Mental Health	40
National Institute of Nursing Research	40
Office on Women's Health	46
Surveillance	
National Center for Environmental Health	8
National Center For Health Statistics	12
National Institute for Occupational Safety and Health	15