



Successes of the National Asthma Control Program, 2009-2014

Stories from “Addressing Asthma from a Public Health Perspective” Grantees

National Center for Environmental Health
Division of Environmental Hazards and Health Effects



Contents

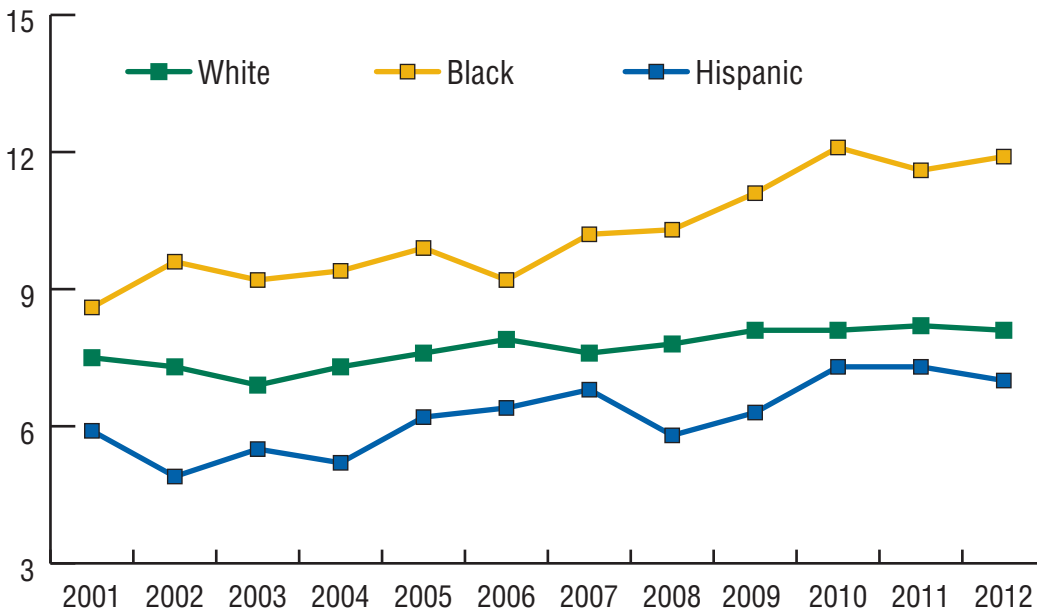
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Introduction

Asthma is a common, chronic disorder of the airways characterized by wheezing, breathlessness, chest tightness, and coughing at night or early in the morning. Airflow is obstructed by factors which narrow the airways in the lungs in reaction to certain exposures or “triggers,” making it hard to breathe. Asthma has no known cure. Effective management of asthma is necessary to prevent costly medical treatment due to uncontrolled symptoms and attacks.

Asthma is a major public health concern in the United States. In 2011, 26 million Americans reported having asthma, or about 1 in 12. Asthma does not affect all groups equally: the highest rates of asthma occur in children, women, black and multi-racial Americans, and American Indians and Alaskan Natives.

Figure 1. Current Asthma Prevalence by Race and Ethnicity, All Ages, 2001-2012



Data from the National Health Interview Study.

The National Asthma Control Program

In 1999, the CDC created the National Asthma Control Program (NACP) with the overarching goal of providing people with the tools to manage their asthma successfully, reducing the collective burden of asthma symptoms and costs. By reducing environmental trigger exposure, improving use of asthma controller medications, and providing education to people with asthma and their caregivers, the severity of asthma symptoms and frequency of exacerbations can be decreased. The NACP enters into cooperative agreements with state health departments to assist them in implementing coordinated public health strategies to address asthma. These might include increasing the treatment of asthma in primary care settings rather than in more costly settings (emergency rooms and hospitals), improving ongoing asthma surveillance systems, and carrying out intervention program activities.

Addressing Asthma from a Public Health Perspective

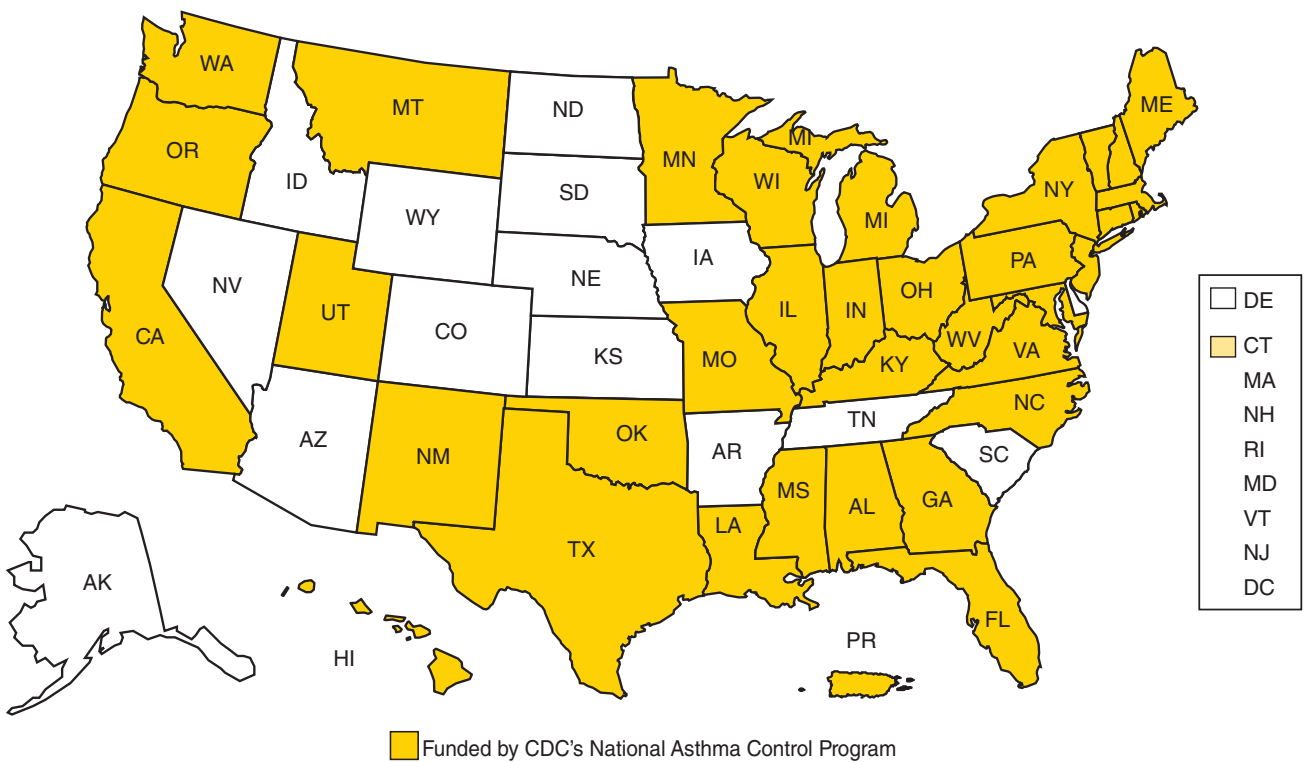
The CDC established the NACP to administer the cooperative agreements with states and provide technical assistance as the states built their programs. In 2009, the CDC released CDC-RFA-EH09-901, “Addressing Asthma from a Public Health Perspective,” a funding opportunity to consolidate three separate funding streams into a single FOA for the National Asthma Control Program. This FOA supported 34 states, the District of Columbia, and Puerto Rico until August 2014.

CDC-RFA-EH09-901 invited state applicants to address asthma from a public health perspective, to bring about:

1. A focus on asthma-related activity within states
2. An increased understanding of asthma-related data and its application to program planning through the development of an ongoing asthma surveillance system
3. An increased recognition, within the public health structure of states, of the potential to use a public health approach to reduce the burden of asthma
4. Linkages of state health agencies to other agencies and organizations addressing asthma in the population
5. Implementation of interventions to achieve positive health impacts, such as reducing the number of deaths, hospitalizations, emergency room visits, school or work days missed, and limitations on activity due to asthma.

The following map displays the states and territories funded under CDC-RFA-EH09-901.

Figure 2. States and territories funded by CDC-RFA-EH09-901, 2009-2014.



The primary activities of state asthma programs funded by CDC-RFA-EH09-901, “Addressing Asthma from a Public Health Perspective,” fall under the areas of surveillance, evaluation, partnerships, and interventions (which took place in home, school, and healthcare settings). These reflect the multifaceted approach needed to control asthma across the affected populations. Success in these efforts is measured by a variety of outcomes: for example, patient self-management skills, improved understanding of asthma disparities by state and local agencies, improved use of asthma controller medications, fewer asthma-related hospitalizations and deaths, and fewer school or work days missed.

The purpose of this document is to share some of the successes reported by state asthma programs funded through the National Asthma Control Program. These success stories reflect achievements in the primary activities of these programs in improving processes and reaching desired outcomes for asthma control on a population level. The stories help paint a picture of the achievements of these programs in diverse sectors—state public health agencies, partnerships, schools, homes, and in healthcare. The National Asthma Control Program has enabled these accomplishments through funding and technical assistance.

Surveillance, Evaluation, and Communication Strategies

Asthma programs funded by the CDC engage in ongoing activities essential for planning, delivering, and evaluating public health actions related to asthma control. State asthma programs are required to conduct surveillance activities to determine the asthma burden, identify trends in the asthma burden, and identify and track causes and risk factors associated with asthma. They evaluate surveillance activities and public health interventions in order to promote efficiency, effectiveness, and accountability. Alongside interventions focused on educating or providing services, several state asthma programs engaged in communications interventions or awareness campaigns. The success stories in this section feature the accomplishments of state asthma programs in these areas.

State Asthma Program	Page	Improvements in Surveillance Systems	Improvements in Surveillance Outcomes	Success in Evaluation	Communications or Awareness Strategy
Florida	3	▲	▲		
Hawaii	3				▲
Illinois	4	▲			
Michigan	4				▲
Mississippi	4	▲	▲		
Puerto Rico	4	▲			
Rhode Island	5		▲		
Texas	5			▲	
Wisconsin	5				▲

Florida

Improved Local Asthma Surveillance

Before the Florida Asthma Program, the state had no systematic approach to asthma surveillance. With CDC’s support, the program has developed a robust system for gathering asthma data and making it easily accessible to local partners. Today, the system offers 24-hour access to the latest, county-specific asthma data. Providing such localized asthma data is also empowering localized action. As of 2011, 15 percent of the state’s county health departments had tapped asthma as a priority health issue. The Florida Asthma Program has seen a decrease in asthma attacks among adolescents as captured by the Florida Youth Tobacco Survey. In 2009, 22.5% of those with asthma reported having an attack in the past 12 months; in 2012, it was 17%.

Hawaii

Hawaii Volcano Helpline

The Hawaii State Asthma Control Program established a partnership with the Department of Health’s Hazard Evaluation and Emergency Response office to address the potential health hazards for people with asthma and other respiratory conditions. The partnership supported the volcano helpline and created a special asthma message for visitors and residents. The Hawaii Volcano Helpline offered tips on how to reduce asthma risks related to volcanic emissions. Since 2008, the helpline has responded to more than 20,000 calls.

Illinois

Illinois Emergency Department Asthma Surveillance Project

The Illinois Asthma Program supported the Illinois Emergency Department Asthma Surveillance Project (IEDASP), a voluntary effort to ensure health care services are aligned with national asthma care guidelines. Participating emergency department staff entered asthma data into a specially designed website and could then view the data historically to pinpoint areas for improvement. For example, staff entered data on asthma severity, asthma prescriptions and use, and whether a patient was offered educational asthma materials. Most recently, the IEDASP was tasked with hosting asthma quality improvement teleconference calls following each data collection cycle (annually and bi-annually), and follow-up with ED leadership and champions to encourage and promote system change of their self-identified goals. These efforts netted outcomes that include: 1) generation and distribution of site-specific data reports back to each institution, 2) creation and refinement of the IEDASP's emergency/urgent care-focused discharge education plan, and 3) the generation of aggregate state and regional data reports presented to federal, state, and community agencies.

Michigan

Get Asthma Help Website

The Asthma Initiative of Michigan website, www.GetAsthmaHelp.org, provided centralized access to current and accurate information on asthma diagnosis, treatment, control plans, resources, activities and events. The website was developed to provide access to information about asthma and Michigan's asthma activities to a diverse audience, including 202 pages specifically designed for people with asthma, with a lower reading level and glossary to explain medical terms. In 2011, the Michigan Department of Community Health staff and asthma quality improvement partners completely reviewed the content of the site and created additional pages and links to help people with asthma find additional helpful information. Since September 2009, the website has had 439,486 unique visitors, and made 653,954 visits to pages geared toward people with asthma.

Mississippi

Mississippi Asthma Hospital Discharge Database

In 2010, the Mississippi Asthma Hospital Discharge Database became a mandatory reporting system for hospitals to report hospital discharges, emergency department visits, and outpatient visit data. From 2007-2011, there was a significant decrease in the age-adjusted adult current asthma hospital discharge rates and emergency department visits from 16.6 per 10,000 to 6.1 per 10,000 and 49.1 per 10,000 to 48.0 per 10,000, respectively. A significant decrease in the age-adjusted adult current asthma hospital discharge rates and emergency department visits was observed in the African-American population, from 24.8 per 10,000 to 9.1 per 10,000 and 89.6 per 10,000 to 81.8 per 10,000, respectively. With the improved data collection process, the Mississippi State Department of Health Asthma Program was able to capture data from the reporting hospitals, which ultimately allowed the program to implement target-specific interventions.

Puerto Rico

Improvements in Surveillance Systems

The Puerto Rico Asthma Project created a code-based surveillance system. Standardized data collection systems were integrated into new software. The time in reporting certain asthma indicators improved with this change. Puerto Rico therefore made available a real-time surveillance system built with more health measures and statistical models. Partners can base their strategies in up-to-date information, which is available on the Program's website, www.proyectoasmapr.org.

Rhode Island

Improvements in Asthma Outcomes

Since 2009, the Rhode Island Asthma Control Program and its many partners have built on existing asthma interventions, policies, and workforce development efforts statewide. Key areas addressed included quality improvement in asthma care, healthy homes, asthma in schools, smoke-free housing, and linking healthcare and environmental health. These efforts appear to be making a difference: trends in healthcare utilization among children with asthma in Rhode Island have seen a significant decrease. From 2009 to 2012, asthma emergency department (ED) visits for children under 18 decreased significantly from 110/10,000 in 2009 to 92/10,000 in 2012. Among this group, reductions in asthma ED visits was seen most significantly in children younger than five years of age, 190.1 per 10,000 to 136.6 per 10,000. Although disparities still exist, the decrease in ED utilization rates among children younger than five during the same time period was consistent and also significant across races/ethnic groups:

- White (138.0 per 10,000 to 95.7 per 10,000),
- African-American (476.0 per 10,000 to 282.9 per 10,000.), and
- Hispanic (290.1 per 10,000 to 211.4 per 10,000)

Hospitalizations due to asthma in children under 18 years also significantly decreased from 25.6 per 10,000 in 2009 to 16.6 per 10,000 in 2012.

Texas

Texas Evaluation Partnership with University of North Texas Health Science Center

The Texas Asthma Control Program (TACP) partnered with the University of North Texas Health Science Center to evaluate two local asthma control efforts. The lessons learned were applied to the program's many other activities to create higher-quality, more effective asthma control. The UNT Health Science Center assisted the TACP's Hidalgo County project in improving evaluation capacity through the collaborative restructuring of pre- and post-assessment tools to better measure knowledge acquisition and behavioral changes made by participating families.

Wisconsin

Wisconsin Educational DVD: "Living with Asthma: Families Speak"

The Wisconsin Asthma Program partnered to produce the "Living with Asthma: Families Speak" Educational DVD. This professionally developed DVD features parents and their children telling their own personal asthma stories. Intermixed with these stories is professional commentary on the disease. The 20-minute video discusses asthma, its symptoms, and triggers; describes asthma action plans and asthma medicines; and highlights the importance of good communication between families, doctors, school nurses, coaches, relatives and others who take care of a child with asthma. Just over 4,000 DVDs have been distributed to about 80 different organizations or partners. About half the organizations used the video in conjunction with patient education, while others made the DVD available for families to review on their own.

State asthma programs have leveraged partnerships and improvements in surveillance and evaluation systems to collect high-quality data and understand changes in asthma outcomes over time. Asthma programs have also used their position and funding to increase public awareness of asthma and connect people with asthma to crucial information.

School, Home, and Healthcare Interventions

State asthma programs work with a variety of partner organizations and develop interventions to promote comprehensive asthma control across home, school (including daycare), and healthcare settings. These programs are aimed at offering or improving services to reach populations with a high asthma burden and to reduce poor asthma control. These activities align with the overall goal of reducing asthma disparities and improving specific asthma outcomes on the population level. Some focus on providing asthma self-management education (SME) to children and adults with poorly controlled asthma, while others aim to educate the parents and caregivers—like school nurses, teachers, and coaches—of students with asthma. Other programs integrate home visits and environmental trigger reduction into comprehensive asthma care. Those with a healthcare focus often work on transforming health systems or educating healthcare providers to promote better access to guidelines-based asthma care and more coordinated asthma management. The success stories that follow highlight some of these initiatives from state asthma programs, using evaluation data where possible to illustrate their effectiveness and potential sustainability.

State Asthma Program / Intervention Name	Page	School-based Intervention			Home-based Intervention			Healthcare-focused Intervention		
		Training for School or Childcare Personnel	Education for Students	School Environmental Trigger Assessment/Reduction	Home Asthma Self-Management Education	Home Trigger Assessment	Home Health Worker Training	Health Systems Change	Healthcare Provider Education	Patient Education
Alabama Department of Public Health										
“No Idling” Campaign	16	▲		▲						
Online Health Professional Training	26								▲	
California Breathing / Impact Assessment, Inc.										
Achievements in Respiratory Health Awards	16	▲		▲						
Healthy Housing Code Enforcement Training	22						▲			
Connecticut Department of Public Health										
Putting on AIRS	18				▲	▲				
District of Columbia Department of Health										
Asthma Greenlight Training for Childcare Providers	10	▲								
IMPACT DC Transitional Case Management Program	28									▲
Florida Department of Health										
Asthma-Friendly Childcare Center Training	10	▲								
Georgia Department of Human Resources										
Georgia Asthma Management Education for Childcare Settings (GAME-CS)	10	▲								
Hawaii Department of Health										
Childhood Rural Asthma Project	18				▲		▲			
Asthma-Friendly Pharmacy Project	26								▲	
Illinois Department of Public Health										
Managing Asthma in Child Care Facilities Toolkit	10	▲								

State Asthma Program / Intervention Name	Page	School-based Intervention			Home-based Intervention			Healthcare-focused Intervention		
		Training for School or Childcare Personnel	Education for Students	School Environmental Trigger Assessment/Reduction	Home Asthma Self-Management Education	Home Trigger Assessment	Home Health Worker Training	Health Systems Change	Healthcare Provider Education	Patient Education
Indiana State Department of Health										
School Nurse Trainings	11	▲								
Parkview Hospital Emergency Room Asthma Call-back System	23									
Kentucky Cabinet for Health & Family Services										
Creating Asthma-Friendly Schools Resource Kit	16	▲								
Healthy Homes Training Center	22						▲			
Louisiana Department of Health and Hospitals										
Asthma-Friendly Schools Initiative	11	▲								
Healthcare Provider Trainings and Toolkit	26								▲	
Maine Department of Health and Human Services / Maine CDC										
School Nurse Asthma Toolkit	11	▲								
Healthy Homes Trainings	22						▲			
Maryland Department of Health and Mental Hygiene										
Asthma-Friendly Child Care Initiative (AFCCI)	11	▲								
Asthma-Friendly Schools Initiative	16	▲		▲						
Massachusetts Department of Public Health										
Boston Healthy Homes and Healthy Schools Collaborative	17	▲		▲			▲	▲		
Asthma Disparities Initiative	23							▲		
Michigan Department of Community Health										
Managing Asthma through Case Management in Homes (MATCH)	18				▲	▲				
Minnesota Department of Health										
Coach's Asthma Clipboard Program (CACCP): "Winning with Asthma"	12	▲								
Reducing Environmental Triggers of Asthma (RETA) Home	19				▲	▲	▲			
Interactive Asthma Action Plan (iAAP)	23							▲	▲	
Mississippi State Department of Health										
School-based Asthma Management (SAM) Program	12	▲								
Missouri Department of Health and Senior Services										
Teaming Up for Asthma Control (TUAC)	12	▲								
Kennett Public Schools Asthma Program	14		▲				▲		▲	
Early Childhood Asthma Initiative	17	▲								

State Asthma Program / Intervention Name	Page	School-based Intervention			Home-based Intervention			Healthcare- focused Intervention		
		Training for School or Childcare Personnel	Education for Students	School Environmental Trigger Assessment/Reduction	Home Asthma Self- Management Education	Home Trigger Assessment	Home Health Worker Training	Health Systems Change	Healthcare Provider Education	Patient Education
Montana Department of Health and Human Services										
Asthma Hospital Patient Education, Action Plan, and Discharge Protocol Program (AHEAD)	24							▲		
Asthma Care Monitoring System (ACMS)	24							▲		
New Hampshire Department of Health and Human Services										
Improving Asthma Management Series	24							▲	▲	
New Jersey Department of Health and Senior Services										
Asthma-Friendly School Awards	17	▲		▲						
New Mexico Department of Health										
Nor-Lea General Hospital Asthma Self-Management Education Initiative	28									▲
New York State Department of Health / Health Research, Inc.										
Healthy Home Environments for New Yorkers with Asthma	19				▲	▲				
NY Asthma Outcomes Learning Network	24							▲		
North Carolina Department of Health and Human Services										
Enhancing Local Asthma Efforts Project - Vidant Medical Center	25							▲		
Ohio Department of Health										
“Staying in the Game with Asthma”	13	▲								
Oklahoma State Department of Health										
Asthma-Friendly Schools Initiative	13	▲		▲						
Open Airways for Schools	14		▲							
Oregon Department of Human Services, Public Health Division										
Patient Self-Management Collaborative	25							▲		
“The Guide to Improving Asthma Care in Oregon”	25							▲		
Pennsylvania Department of Health										
Pediatric Asthma Toolkit	13	▲								
Community Asthma Prevention Program	19					▲	▲			
Puerto Rico Department of Health										
Asthma Interventions Respiratory Education (AIRE)	13	▲								
“Diagnosis and Action Plans for Management of Childhood Asthma” Training	27								▲	

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		Training for School or Childcare Personnel	Education for Students	School Environmental Trigger Assessment/Reduction	Home Asthma Self-Management Education	Home Trigger Assessment	Home Health Worker Training	Health Systems Change	Healthcare Provider Education	Patient Education
Rhode Island Department of Health										
Controlling Asthma in Schools Effectively (CASE) Pilot Program	14	▲	▲							
Home Asthma Response Program (HARP)	20				▲	▲				
Texas Department of State Health Services										
Integrated Educational Interventions for Asthma Management in South Texas	15		▲							
Utah Department of Health										
“What to do in Case of an Asthma Attack” Training	13	▲								
Recess Guidance for Schools	17	▲		▲						
Asthma Telehealth	27							▲		
Vermont Department of Health										
Support and Services at Home (SASH) Partnership	20				▲	▲				▲
Asthma in the Rutland Region (AIRR)	20				▲	▲				▲
Asthma Learning Collaborative	27						▲	▲		
Washington State Department of Health										
Clean Air for Kids	21				▲					
West Virginia Department of Health and Human Resources										
Clinic-based Asthma Management Program (C-bAMP)	27						▲	▲		
Charleston Asthma Management Program for Seniors (WVChAMPS)	28									▲
Wisconsin Department of Health Services										
Asthma Care Fax Program	27						▲			

School-based Interventions

Focus: Training for Nurses, Faculty, Coaches and other School or Childcare Personnel

District of Columbia

Asthma Greenlight Training for Childcare Providers

The District of Columbia Asthma Control Program developed an asthma training curriculum for local daycare providers. The voluntary training included an overview of asthma treatments as well as tips on mitigating environmental asthma triggers. Since the outset of the program, approximately 400 day care providers, both English and Spanish-speaking, were trained to recognize asthma symptoms and self-management techniques. The DCCAN Program worked to include the content of this training in mandatory daycare provider training, so that the impact can be sustainable among new and renewing providers. The participants reported increased asthma knowledge and more confidence in working with asthmatic children. Overall, providers demonstrated at least a 25% improvement in knowledge of asthma symptoms and self-management over the pre-training levels.

Florida

Asthma-Friendly Childcare Center Training

In 2011, the Florida Asthma Program launched its asthma control curriculum for child care providers as well as its Asthma-Friendly Childcare Award. To receive an award, child care centers must participate in asthma control training, do an environmental assessment, keep asthma action plans on file, and develop processes for communicating with parents and healthcare providers about asthma. By summer 2014, approximately 2,000 child care providers completed the training, seven child care centers achieved silver-level recognition, and nine achieved bronze-level recognition. Today, the number of asthma action plans on file among child care centers is on the rise.

Georgia

Georgia Asthma Management Education for Childcare Settings (GAME-CS)

In Georgia, surveillance data show that children ages 0 to 4 have the lowest prevalence of asthma among children 0-17, yet they have the highest rate of asthma-related emergency department (ED) visits, roughly 2.5 times as high as other age groups. The Georgia Asthma Management Education for Childcare Settings (GAME-CS) curriculum was developed by the Georgia Asthma Control Program to address the need for asthma education in childcare settings. The implementation of the GAME-CS courses has been a success, showing statistically significant increases in knowledge among participants and significant behavior modifications (e.g. new policy implementation, systemic asthma training, etc.) among 85% of participating centers. A pilot of the GAME-CS courses among 157 participants representing 14 childcare centers in four metropolitan Atlanta counties saw statistically significant increases in knowledge about asthma triggers, medication types, and symptoms (pre-test 80.7% average, post-test 91.7%, $p < 0.001$), as well as increases in knowledge about asthma medications and devices (pre-test 74.3% average, post-test 80.3%, $p < 0.001$).

Illinois

Managing Asthma in Child Care Facilities Toolkit

The Illinois Managing Asthma in Child Care Facilities Toolkit aimed primarily to increase the numbers of asthma action plans on file at child care facilities, as well as to increase awareness of asthma triggers in childcare and school environments, and to promote knowledge of available resources. The Illinois Asthma Program provided grant money to the Logan County Health Department, McLean County Health Department, and the Hult Center for Healthy Living in Peoria to recruit facilities and distribute materials. The McLean County Nurse Child Care Consultant supplied secondhand smoke materials for 70 families at the Bloomington Day Care Center. The Hult Center distributed The Illinois Managing Asthma in Child Care Facilities toolkit and asthma action plans to seven Bright Futures schools. As of November 2012, over 100 packets had been distributed. Southern Illinois University - Edwardsville partnered with St. Clair County Health Department staff to provide asthma information to home-based child care providers. The health department staff sponsored programs for child care providers at various sites.

Indiana

School Nurse Trainings

Annually, the Indiana Asthma Program trained school nurses in asthma care. In 2014, 200 school nurses received training on asthma management, indoor air quality and environmental health, entomology and integrated pest management, asthma management plans, and prevention planning for asthma action days. To maximize reach and reduce barriers to access, the Asthma Program included a live web stream option for those nurses who may not have been able to attend in person. The web stream had 37 pre-registered participants and received 82 unique visitors throughout the day. The streamed broadcast was recorded and is available online through IN-TRAIN, the Indiana State Department of Health's online public health training resource.

Louisiana

Asthma-Friendly Schools Initiative

The Louisiana Asthma Management and Prevention (LAMP) program promoted Asthma-Friendly Schools training. 12 school districts have adopted the IAQ and Bus Idling Policy, with more than 850 students identified with asthma in the targeted school districts. Through the Asthma-Friendly Schools initiative, physicians have completed more than 620 asthma action plans, and more than 4000 school personnel were trained on asthma and received the Asthma Toolkit. 1,674 school faculty and staff representing seven Louisiana parishes were trained through the Asthma-Friendly Schools Initiative in the 2011-2012 school year. Average test scores for knowledge about asthma and its control and management in a school setting saw a statistically significant increase from pre-test to post-test (7.1 to 8.9, $p < 0.001$). Beginning in 2012, an online version of the Asthma-Friendly Schools training was offered to staff members of two additional school districts. 1,265 staff members participated in the online trainings, with a significant increase in average percentage of answers correct on a test of asthma knowledge for the city of Monroe district (62.3% to 86.9%, $p < 0.001$) and the Morehouse Parish school district (64% to 85%, $p < 0.05$). Both types of training were thus effective in increasing asthma knowledge and awareness for school personnel.

Maine

School Nurse Asthma Toolkit

The Maine Asthma Prevention and Control Program has partnered with the Maine Department of Education to educate school nurses in asthma management. After surveying school nurses on their asthma knowledge and needs, the asthma program developed an asthma toolkit that school nurses use when working with students, parents, and fellow school faculty. The toolkit includes information on environmental asthma triggers, asthma and exercise, and asthma self-management. Approximately 300 of Maine's 400 school nurses have received the School Nurse Asthma Toolkit and the accompanying orientation. The Maine Asthma Program conducted an evaluation of the toolkit in the spring of 2013 using post-test surveys and key informant interviews. 56% of nurses responding to the survey agreed or strongly agreed that they were using the Toolkit to raise awareness of asthma-related issues among target groups, including students, parents, other faculty and athletic coaches. 67% of nurses responding to the survey indicated that they thought the Toolkit was helpful in establishing or maintaining Asthma Action Plans for students with asthma.

Maryland

Asthma-Friendly Child Care Initiative (AFCCI)

The Maryland Asthma Control Program developed the Asthma-Friendly Child Care Initiative (AFCCI). The AFCCI encouraged child care centers and family child care homes to create and sustain safe, supportive, and asthma-friendly environments. This voluntary program offered education on how to create healthy environments for children with asthma, such as having asthma action plans on file for each child. As of 2014, more than 400 child care providers had completed the training, which was also available to Head Start and after-school programs. 30 centers or family providers have earned the Asthma-Friendly designation. The creation of the AFCCI has been successful thus far due to the enthusiasm and interest of child care providers, state and local governments, and non-profit organizations.

Minnesota

Coach’s Asthma Clipboard Program (CACP): “Winning with Asthma”

The Minnesota Department of Health’s Asthma Program has been a leader in developing educational programming available to users nationwide. The Coach’s Asthma Clipboard Program (CACP) - Winning with Asthma was launched in January 2006 by Utah and the Minnesota Department of Health (MDH). The CACP is a free 25-minute online educational program that provides coaches and those who work in youth athletics with basic information on asthma and how to help athletes properly manage their asthma during athletic events. The program explains proper medication management, ways to prevent exercise-induced asthma symptoms, steps to take when an athlete is having an asthma episode, common asthma triggers, and suggestions for those who play cold-weather sports. The evaluation results showed that the program has been effective in immediate knowledge gain and improved self-efficacy in handling an asthma attack, but fewer than desired coaches completed the online training. The CACP evaluation showed that even with improved marketing and promotional strategies, this audience is not self-motivated to take action to seek out and complete coaches’ training on asthma without a mandated requirement by an overseeing authority. The solution to this issue has been found in partnering with the Minnesota State High School League (MSHSL). Program staff from the MDH and the MSHSL will be collaborating to develop an Asthma E-Learning module for coaches that will be a continuing education requirement for certification and re-certification for coaches on the MSHSL coach’s portal. The modules will be made available on a national level with other affiliated states.

Mississippi

School-based Asthma Management (SAM) Program

The highest asthma hospital and ED discharge rates in Mississippi were concentrated among residents of counties in the Delta and Southwest regions. From this information the Mississippi State Department of Health Asthma Program began development of the School-based Asthma Management (SAM) Program. The SAM intervention was a multifaceted program that included asthma education and training in medication usage and trigger reduction. SAM was implemented in seven Delta counties and seven Southwest counties in Mississippi. There were 178 schools and 61 school nurses participating. The goal of this action-oriented program was to provide school nurses and other identified stakeholders with asthma education, health promotion, assessment, and referral and communication tools to implement effective case management for students with asthma. With the assistance of the Asthma Education Resource Specialists in the two areas, the programs were able to conduct activities in creative and effective ways that helped make the process for schools much easier. In the SAM areas, there was a decrease in the asthma inpatient visit rates from 29.5 per 10,000 before SAM implementation (2006-2008) to 10.3 per 10,000 after the implementation (2009-2011). Since its inception, the program has been very successful in the targeted school districts and communities, and has gone above and beyond what was envisioned during the planning phases.

Missouri

Teaming Up for Asthma Control (TUAC)

The Missouri Asthma Prevention and Control program partnered with the University of Missouri to create a new intervention to build and maintain a school nurse workforce proficient in asthma care management. TUAC trained and equipped school nurses to be proactive in their involvement with students who have persistent asthma. During the first phase of TUAC’s implementation (Spring 2011 - Spring 2012), 31 trained school nurses put components into practice and agreed to participate in a full evaluation of student health outcomes, netting 126 children (average age of 9 years) and 195 parents for a focused evaluation effort. At baseline, two-thirds of the evaluation cohort students were identified by school nurses as having “not well-” or “very poorly controlled” asthma. Pre-post mean predicted FEV1 for 70 students with poorly-controlled asthma at baseline increased from 68.3% to 78.4%, a statistically significant increase ($p < 0.01$). Student-reported impairment declined and FEV1 improvement correlated with decreasing impairment. As part of their comprehensive approach to self-management education, TUAC school nurses focused on tobacco smoke exposure, and the evaluation data revealed their success as student-reported smoke exposure scores declined. With TUAC program satisfaction among school nurses and parents at excellent levels—more than 90% of each group reported they would recommend TUAC to other school nurses and parents—the steady expansion into other communities across the state began in 2012.

Ohio

“Staying in the Game with Asthma”

With the help of its Ohio Asthma Coalition partners, the Ohio Asthma Program developed and released “Staying in the Game with Asthma,” a new training video for athletic coaches and PE teachers. The video was created specifically to address exercise-induced asthma complications, a common problem. The free training featured professional sports stars and educated teachers and coaches on how to create healthy environments for students with asthma and reduce the risk of asthma attacks. The video was initially marketed through Ohio TRAIN, an online training platform that lets users take the training at any time. However, to better capture detailed use information, the Ohio Asthma Program is transitioning to make the training material available via a different delivery system.

Oklahoma

Asthma-Friendly Schools Initiative

Recognizing asthma affects rural school systems, the Oklahoma Asthma Program conducted staff training in two school systems for teachers and staff members to attend. These trainings were comprehensive, and included in the school’s annual orientation. A total of 104 people signed into the trainings from the two schools, located in Kiowa County and Beckham County. Both of these counties have high rates of hospital discharge rates for young adults with asthma. After the training, a school grounds evaluation was performed. This ‘report card’ evaluated potential opportunities for the school systems to improve the environment and make the grounds more ‘asthma-friendly.’ Key issues were addressed, and a follow-up evaluation was performed months later at both schools. Both schools agreed to paint and mow after school hours, and it was observed that both school systems had implemented the usage of low-volatile cleaning compounds. 97.8% of the staff found the training to be useful.

Pennsylvania

Pediatric Asthma Toolkit

In 2009, the Pennsylvania Asthma Control Program launched its Pediatric Asthma Toolkit for school nurses. The toolkit, which was available in English and Spanish, educated school nurses in asthma basics and asthma self-management. It encouraged nurses to join the Pennsylvania Asthma Partnership and taught them how to work effectively with students, teachers, and parents. The aim was to support school nurses in becoming asthma champions in their regions. The toolkit was sent to all of the state’s 501 school districts. School nurses who used the toolkit reported improved ability to help students with asthma.

Puerto Rico

Asthma Interventions Respiratory Education (AIRE)

In partnership with the University of Puerto Rico, the Puerto Rico Asthma Project trained teachers and school personnel to create asthma-friendly environments. By spring 2013, the effort had reached 175 teachers and school staff, mostly health teachers, who followed indoor air quality practices and provided educational asthma activities. Teachers trained by the project have delivered 35 post-training workshops and activities in their schools.

Utah

“What to Do in Case of an Asthma Attack” Training

Since 2004, the Utah Asthma Program has trained school faculty and staff on what to do in the event of an asthma attack. The asthma program hired interns from local colleges to provide the training in person. The original training took an hour, but as a result of feedback from the schools, the training has been streamlined to take 15 minutes. The training comes with a variety of additional resources and a laminated emergency protocol card for every classroom. From 2004 to 2014, the school training effort reached more than 9,200 faculty and staff in nearly half of all schools in Utah. At schools where staff members have been trained, a general emergency protocol containing instructions for handling asthma attacks is posted in each classroom.

Missouri

Kennett Public Schools Asthma Program

At the time the Missouri Asthma Prevention and Control program began working in Dunklin County (located in the southeastern Bootheel region), the county averaged the highest rate of pediatric hospitalizations for asthma in the state. About 40% of the county's children live in poverty. Kennett Public Schools (KPS), the largest public school district in the county, has an estimated prevalence of asthma in the student body of 18%--approximately twice the current state childhood asthma prevalence of 7.9%. Working through a community coalition model, KPS school nurses developed a multi-pronged intervention that involved self-management education, proactive assessment of asthma severity by school nurses, home environment assessments, a specialist referral clinic, health care provider training, and school linkages to the nearby hospital and local primary care physician offices. Between 2004 and 2011, the pediatric asthma hospitalization rate in Dunklin County fell from 101.3 to 39.9 per 10,000, a 60% decline over the 7-year period. The KPS model was assessed by evaluation experts that examined health status improvement of KPS students (n=299) in comparison to a control school district (n=157) located about 30 miles away. Results of the study showed KPS students had, on average, fewer asthma symptoms, as measured by the Asthma Control Questionnaire (ACQ), even when controlling for race, grade, gender, and age. When controlling for confounders, the odds of having well-controlled asthma were 55% higher for KPS versus the comparison site (odds ratio = 1.548; 95% CI, 1.017 to 2.358). KPS parents consistently offered positive feedback regarding their interactions with the asthma management program; they expressed confidence that their children were well-cared for at school, and reported learning how to better manage asthma.

Oklahoma

Open Airways for Schools

The Oklahoma Asthma Program (OAP) worked with schools to implement the American Lung Association's Open Airways for Schools program. This teaches young children living with asthma about the disease and how to manage asthma on their own. Because the program targets children ages 8 to 11, it uses creative techniques to gain their attention, such as storytelling. Over 193 children were educated in 2010/2011. In 2013, about 50 schools were taking part. In 2014, the initiative was mostly operated by ALA staff; however, the Oklahoma Asthma Program took a much more hands-on approach in six local school systems which primarily educate disproportionately affected populations. Staff members from the OAP worked directly with school nurses to implement the education. In 2014, over 100 students were reached and 80 of them qualified for evaluation. The evaluation results showed that the greatest student behavior change was achieved in the area of asthma trigger recognition. All students that attended the training were provided with a spacer, regardless of whether they took part in the evaluation or not.

Rhode Island

Controlling Asthma in Schools Effectively (CASE) Pilot Program

The Rhode Island Asthma Control Program (RIACP), Hasbro Children's Hospital, Family Services of Rhode Island, and the Rhode Island Asthma Control Coalition partnered with schools through the CASE Pilot Program to improve asthma outcomes at school. CASE worked with four schools and in three communities to teach asthma management skills through workshops for students, parents, teachers, and staff. The RIACP has piloted CASE with four elementary schools located in core urban cities of Central Falls, Pawtucket, and Providence. These schools were chosen based on their location in areas of high asthma burden as reported by surveillance of claims data, reporting of chronic absenteeism rates as high as 21%, issues in the schools' physical environment that needed to be addressed, and reports from parents. These schools have between 14-21% of students with an asthma diagnosis. Within a three-year period, between 11-15% of these students with asthma had an asthma-related ED visit or hospitalization. Project CASE schools aimed to reduce asthma disparities among students from minority and low socioeconomic backgrounds. In the four CASE schools from October 2012 to April 2014, 70 students, 49 families/caregivers, and 102 staff members received the educational curriculum. Staff reported 15% greater self-efficacy, 12% greater importance of asthma, and expressed greater interest in learning who in their class has asthma and in demanding additional support to address school environmental concerns.

Texas

Integrated Educational Interventions for Asthma Management in South Texas

In Hidalgo County, the southern tip of Texas, residents experience a high rate of asthma-related hospitalizations. With funding support from the Texas Asthma Control Program, the McAllen Asthma Coalition and its university partners embarked on a drive to decrease hospitalizations and missed school days among children living with asthma. The program recruited and trained local nursing and respiratory students to provide asthma education to elementary and middle school students. More than 700 students have received the education and the effort has resulted in improved asthma self-management knowledge and improved ability to identify and reduce asthma triggers. The asthma education, which included home visits from a *promotora*, resulted in statistically significant improvements in children's physical health and families' quality of life. The percent of parents reporting that their children had a recent asthma attack dropped from 42% at baseline to 17% at follow-up, and there was a 43% decrease in parental reports of children's difficulty sleeping due to asthma. The percent of families reporting a recent hospitalization declined from 6.3% to 1.3%.

Focus: School Environmental Trigger Reduction

Alabama

“No Idling” Campaign

In 2009, the Alabama State Board of Education adopted a resolution urging Alabama school systems to establish “Idle Free Zones” on school campuses. To support this resolution, the Alabama Department of Public Health’s Alabama Asthma Program, the Alabama State Department of Education, and the Alabama Department of Environmental Management collaborated to implement a statewide “No Idling” campaign. As part of the campaign, individual schools placed signs in their designated “Idle Free Zones.” School bus drivers received training, and then signed pledges to reduce the amount of time they idle while waiting to pick up students at schools. 3,000 signs were distributed for 1,500 schools in late 2009 and early 2010. Representatives of 115 of Alabama’s 132 school districts were surveyed in 2011 about the status of the No Idling implementation: 81% reported receiving the signs, 72% reported posting signs on all school campuses, and 28% reported handing out No Idling brochures to parents. Bus drivers were surveyed in August 2013, with nearly 4,000 drivers from 65 school districts responding. While 91.8% reported receiving training about not idling their buses, 67% (2,655) reported that No Idling signs were posted at the schools they served, and 41.8% (1,670) reported signing a No Idling pledge.

California

Achievements in Respiratory Health Awards

Schools around the state of California have competed for and been honored with California Breathing’s Achievements in Respiratory Health Awards. Award-winning schools enforce policies that improve air quality, such as stopping bus idling near schools, reducing environmental asthma triggers, and using nontoxic cleaning and school supplies. Since 2009, 11 school districts and 35 schools have been recognized, with the award recipients representing 16 (of 58 total) California counties. In addition, 300 school nurses and health-related school personnel have been trained in asthma care and prevention by attending Asthma Toolkit trainings.

Kentucky

Creating Asthma-Friendly Schools Resource Kit

In 2010, the Kentucky Asthma Program launched its Creating Asthma-Friendly Schools Resource Guide, a toolkit to help schools institute tobacco-free policies, recognize asthma triggers, implement the required Kentucky asthma self-carry laws for children, and help children manage their asthma in order to decrease missed school days. The resource guide was distributed to every school in the state. Since its debut, the number of schools adopting tobacco-free policies is on the rise, and school nurses and staff have implemented strategies to recognize asthma attacks and help children develop asthma action plans. Many others worked on this issue as well, including Kentucky Youth Advocates, a private organization, and the Tobacco Free Schools Program at KDPH. There are now a total of 33 independent or county districts (out of 174 total districts) with 100% tobacco-free schools, covering over one-third of the students in Kentucky.

Maryland

Asthma-Friendly Schools Initiative

Over 80 schools participated in Maryland’s Asthma-Friendly Schools Initiative. In order to receive an official asthma-friendly designation from the Maryland Asthma Control Program, schools had to meet specific criteria. The criteria ranged from posting non-smoking signs to instituting policies on asthma medication. Specific training was provided to educate staff, students, and families on the dangers of secondhand smoke to children with asthma. The schools also received a banner and plaque that they could display at the school’s entrance. School nurses and personnel focused on improved school environments and returned asthma action plans. Smoking as a trigger for asthma was a primary focus of their education. Additionally, school nurses were able to enroll in asthma device training through the University of Maryland School of Pharmacy and statewide conference trainings. Outreach efforts to specific jurisdictions for system-wide designation took place in fall 2014, with a focus on increased action plan usage and reduced absenteeism.

Massachusetts

Boston Healthy Homes and Healthy Schools Collaborative

The Massachusetts Asthma Prevention and Control Program (APCP) supported the Boston Healthy Homes and Healthy Schools Collaborative to improve indoor air quality in early education/child care settings and in Boston Public Schools. The Collaborative gained support from school administrators to use integrated pest management strategies on school campuses; trained 48 nurse leaders, Head Start staff, teachers, and parents about asthma control; developed a tip card for parents and distributed 200 copies; finalized an asthma resource guide for Community Health Workers; and co-chaired quarterly meetings of the Boston Healthy Schools Taskforce. They participated along with UMass Medical and MassHealth to support the design and implementation of a bundled payment pilot project for high-risk pediatric asthma patients. Members of the Collaborative also worked closely with a wide range of partners to build a statewide infrastructure for training community health workers to conduct effective interventions in the homes of patients with asthma.

Missouri

Early Childhood Asthma Initiative

The Missouri Asthma Prevention and Control program designed and implemented a statewide effort called the Early Childhood Asthma Initiative to provide self-management education services to parents/caregivers and environmental assessments of childcare centers. A total of 106 environmental specialists and child care health consultants completed one or more of the three on-line training courses; knowledge scores significantly increased across all domains evaluated, with the largest gain (+43.7%) in national guideline knowledge. Child care health consultants delivered in-person self-management education and support to parent/caregivers. The trained environmental specialists conducted facility assessments at 900 child care centers, of which 113 were randomly selected for a telephone follow-up; 51 completed the survey. Of those completing follow-up survey, 45% had made changes to improve the childcare facility environment including: cleaning ventilation, improving circulation (fans), washing bedding, facility cleaning, and controlling dust. The Early Childhood Asthma Initiative was successful in its ability to influence the environment and parent/caregiver care management practices of at-risk preschool age children, a population group that consistently has the highest rates of emergency room and hospital utilization in the state.

New Jersey

Asthma-Friendly School Awards

The New Jersey Asthma Program's Asthma-Friendly School Award program has reached more than 403,000 students and nearly 31,400 school faculty. To qualify for an award, a school had to fulfill six components, including signing a no-idling pledge for school buses, training school nurses, and having a nebulizer on site. The six components also helped schools comply with New Jersey's laws for asthma management and indoor air quality. About 650 schools have received the award since 2006. In 2012, the New Jersey Asthma Program launched a similar program for child care centers, reaching more than 850 children and more than 200 child care staff. The survey/evaluation data indicated that participants demonstrated an increase in confidence, knowledge, and skills related to asthma management in their respective settings.

Utah

Recess Guidance for Schools

In partnership with fellow state agencies, parents, school personnel, and other stakeholders, the Utah Asthma Program developed the Recess Guidance for Schools, available to all schools in Utah. Schools in counties where the Utah Department of Environmental Quality monitors air quality levels can use the air quality data to help decide when recess and other outdoor activities should be canceled or limited due to poor air quality. The guidance is coupled with a website where school personnel can check the daily air quality index and find resources for keeping students with asthma safe and healthy. As needed, urgent air quality messages are sent to more than 240 school personnel. During an evaluation, 84% of principals and school staff who received the guidance said they were aware of the resource and used it.

Home-based Interventions

Focus: Home Asthma Self-Management and Home Trigger Assessment

Connecticut

Putting on AIRS (Asthma Indoor Risk Strategies)

The Putting on AIRS (Asthma Indoor Risk Strategies) Program was an evidence-based home visitation program that provided free one-on-one asthma education and environmental assessments to asthma patients and their families. CDC funds through the Connecticut Asthma Program covered implementation of Putting on AIRS in six asthma regions, and EPA funds covered mattress and pillow covers, as well as integrated pest management supplies. The program helped empower families with the knowledge and tools they need to control asthma effectively. It also promoted referral links between funded regional asthma programs, Easy Breathing programs, school nurses, providers, local health departments, and Medicaid HMO's. The program was promoted on television programs throughout the state during World Asthma Day. In 3 years, Putting on AIRS and its local partners have reached 600 Connecticut families. In 2010, Putting on AIRS data were analyzed, written up in a report, and published in the Journal of Asthma. This study showed that over 6 months, for program participants, there were significant cost savings (net savings of \$26,720 per 100 participants), as well as significant ($\alpha=0.05$) decreases in the mean number of unscheduled acute care visits (87%), days absent from school/work due to asthma (82%), number of times a rescue inhaler was used in the past week (74%), and in the percent of participants with very poorly controlled asthma (decreased from 64% to 13%).

Hawaii

Childhood Rural Asthma Project

From 2003 to 2010, the Hawaii State Asthma Control Program funded the Hawaii Childhood Rural Asthma Project. The project focused on training community health center providers in the latest asthma care protocols, and teaching community outreach workers to conduct home-based asthma interventions. The project reached about 200 families. The project evaluation revealed that the Rural Asthma Project reduced the number of days children experienced asthma symptoms, including a reduction from 3.9 average days per month with shortness of breath to an average of 0.8 days per month ($p<0.001$). Missed school days were reduced in participating children from an average of 1.5 days missed per month to 0.4 days missed per month ($p=0.001$). Use of quick-relief medications were reduced from 3.9 days per month to an average 1.5 days per month ($p<0.001$). Scores on the Asthma Control Test, which measured control and self-management of asthma by participants, increased from an average 17.9 to 22.4 post-intervention ($p<0.001$).

Michigan

Managing Asthma Through Case-Management in Homes (MATCH)

The Michigan Asthma Prevention and Control Program (APCP) helped promote, coordinate, and implement Managing Asthma Through Case-Management in Homes (MATCH) in five regions with high asthma hospitalization rates. MATCH offered home visits, school in-service, an environmental assessment, access to a certified asthma educator, and a physician care conference to people with moderate to severe asthma. A recent APCP evaluation showed participants had a 60% decrease in asthma-related emergency department visits, with 58 participants (87%) having one or more ED visits in the past 6 months on intake and 23 participants (34%) having one or more ED visits in the past 6 months at discharge ($p<0.0001$). There was an 83% decrease in hospitalizations, with 30 participants (45%) having one or more hospitalization for asthma in the past 6 months on intake and 5 participants (8%) having one or more hospitalizations in the past 6 months at discharge ($p<0.0001$). The evaluation showed a 58% decrease in the number of nights awake due to asthma, with 50 participants (60%) having one or more nighttime awakenings due to asthma in the past 6 months on intake and 21 participants (25%) having one or more in the past 6 months at discharge ($p<0.0001$). Over 2000 people have been served by a MATCH program since 2009, and four of the five programs have reimbursement contracts with health plans for their services.

Minnesota

Reducing Environmental Triggers of Asthma (RETA) Home

Because of CDC funding for the Minnesota Department of Health (MDH) Asthma Program, staff secured EPA funding for a pilot program, Reducing Environmental Triggers of Asthma (RETA), involving in-home visits for children with asthma by a Certified Asthma Educator (AE-C). The AE-C educated the child's parent(s) on asthma management and identified asthma triggers in the home. She provided products to reduce or eliminate triggers, resulting in children who had fewer urgent care visits and missed less school. The program reached 64 children and, estimated conservatively, saved almost \$2,000 in medical costs per child over the 12 months of the project measurement. The project was replicated through a private foundation grant using local public health nurses (PHNs) with similar positive results. Sites used included two counties, a suburban city, and a tribal organization. CDC funds enabled another EPA grant that allowed MDH to develop an online training explaining how to identify and address home environmental triggers of asthma: www.retahome.org. In development, pre- and post- testing comparisons showed statistically significant gains in knowledge. As intended, this training is now viewed widely throughout the United States. This program was used to train MN PHNs. Also, the MDH Asthma Program is in the process of moving the [retahome](http://www.retahome.org) online training to the MDH servers and adding functionality to obtain greater information about those who use this training. MN is well-positioned to scale up the availability of comprehensive asthma home visits as ongoing funding streams are identified.

New York

Healthy Home Environments for New Yorkers with Asthma

In Buffalo, New York, more than 130 Medicaid Managed Care enrollees with poorly controlled asthma completed a program that included a visit with a community health worker, who provided tips on asthma management and how to reduce asthma triggers in the patients' environments. Healthy Home Environments for New Yorkers with Asthma (HHENYA) was a collaboration between the DOH Center for Environmental Health, the New York Asthma Program, Office of Health Insurance Programs, and the Erie County Department of Health and four regional managed care plans that serve Medicaid recipients in western NY. When comparing pre-visit Medicaid encounter data to post-visit encounter data, there were significant decreases in emergency room visits and hospital admissions, and an increase in controller medication prescriptions filled. The rate of emergency room visits decreased 47%, from 0.78 to 0.41 per member per year (PMPY), and the rate of hospital admission decreased 62%, from 0.24 to 0.09 PMPY. Controller medication prescriptions filled increased from 4.99 to 6.37%, a 28% increase. Outpatient visits increased by 4%, from 1.82 to 1.89 PMPY.

Pennsylvania

Community Asthma Prevention Program

In 2013, the Pennsylvania Asthma Control Program joined the Community Asthma Prevention Program, a project of Children's Hospital of Philadelphia. The program, which targets children ages 2 to 16, is based in Philadelphia ZIP codes with the highest asthma rates and identifies participants during asthma-related hospital visits. The state asthma program helps train health workers to assess homes for asthma triggers and connect families with local asthma control resources. It also provides non-CDC funding for remediation items, such as pillow and mattress covers. Research on the Community Asthma Prevention Program finds it is effective in reducing asthma triggers, asthma symptoms, and asthma-related emergency room visits and hospitalizations.

Rhode Island

Home Asthma Response Program (HARP)

The Home Asthma Response Program (HARP) is an evidence-based model for home visits by community health workers and certified asthma educators that has been shown to reduce asthma hospitalizations and ED visits among children with severe asthma. The Rhode Island Asthma Control Program (RIACP) established HARP in 2010 with the goal of addressing the needs of children with poorly controlled asthma. HARP's rigorous evaluation was designed to monitor program implementation, to document the cost effectiveness of asthma home environmental education, and to demonstrate to RI's three health plans and CMS that HARP should be sustained through reimbursement. Summarized here are the results for the 83 families enrolled in the Providence-based HEALTH-funded component of HARP. The majority were Medicaid recipients (87%); 64% were Hispanic. The retention rate was 82%. Three-year pre/post-test evaluation results for Providence include: 1) significant improvement on self-reported data in nighttime symptoms, sick visits to the doctor, and ED visits due to asthma; 2) overall improvement reported in daytime symptoms and activity limitations; 3) significant decrease in asthma ED visits at Hasbro Children's Hospital from 43 in the year prior to the intervention to 27 in the year after ($p=0.009$); and 4) decrease from seven to three for Hasbro asthma hospitalizations. In addition, the RI health plans' claims data will provide patient-level data for HARP participants one-year pre- and one-year post-intervention to evaluate the following outcomes: primary care visits, ED visits, and hospitalizations with primary diagnosis of asthma; and prescriptions for controller and relief medications.

Vermont

Support and Services at Home (SASH) Partnership

In 2013, the Vermont Asthma Program initiated a partnership with Support and Services at Home (SASH), a statewide program currently focused in three communities that provides residents with asthma education and links to specialty asthma care, and refers smokers with asthma to cessation resources within their own communities. Asthma Program staff in partnership with tobacco specialists also promoted the benefits of smoke-free housing policies. In the Rutland area, 25 SASH residents were taught about the importance of tobacco-free living and cessation resources that are available at no cost. All 25 were actively referred to tobacco cessation services. Of these residents, five have a primary diagnosis of asthma, while the remainder has a diagnosis of one or more other lung disease(s). In the other two SASH communities, there were a total of 15 tobacco referrals. All three SASH communities will have 100% smoke-free housing by the end of 2015.

Asthma in the Rutland Region (AIRR)

Rutland County not only has high asthma prevalence rates but also has high asthma-related hospital discharge and emergency room rates. In response, the Vermont Asthma Program established Asthma in the Rutland Region, or AIRR, an in-home asthma education and environmental assessment program. The long-term goal is to build capacity among local and regional stakeholders so they can sustain the program over time. To date, AIRR has expanded its efforts in reaching both pediatric and adult asthma patients and has screened 175 patients, mostly from the RRMC emergency department. AIRR has successfully enrolled 28 participants in the program, delivering the program's education and trigger identification protocols, and linking to treatment options and available resources as needed. As part of the formal evaluation of the AIRR Program (September 1, 2011-August 31, 2013), it was reported that 75% of all participants who completed the program reported an improvement in quality of life. In addition, three months after completing the program, 87% of all participants reported their asthma as controlled. Vermont hospital discharge data suggest that for Rutland Regional Medical Center (RRMC), both hospitalizations and emergency department visits attributed to asthma as the primary diagnosis have been decreasing since 2009.

- Hospitalization discharges for asthma overall in the Rutland region have decreased from 94 in 2009 to 82 in 2011.
- Similarly, emergency department visits have decreased from 378 in 2009 to 297 in 2011.

Washington

Clean Air For Kids

The Washington Asthma Program partnered with the Cowlitz County Asthma Outreach Program to develop a three-visit education protocol designed to teach patients how to effectively manage their asthma. Approximately 10 local and tribal health programs adopted and began to implement the three-visit model. One collaboration from the Tacoma-Pierce County Health Department and the Puyallup Tribal Health Authority was Clean Air For Kids (CAFK). Visits were conducted by a local healthcare worker or community volunteer. A 2013 project evaluation described improvements among 21 households completing all three home visits. Asthma Control Test scores improved by an average of 4.4 points from the first visit to the six-week follow-up. The TRACK test, used for children ages 1-3, had average score improvements of 13.5 points between the first and third visit. Households that received all three home visits made an average of 5 behavior changes as a result of the CAFK project.

Focus: Home Health Worker Training

California

Healthy Housing Code Enforcement Training

Hundreds of stakeholders banded together in summer 2010 to form the California Healthy Housing Coalition. California Breathing worked with the California Healthy Housing Coalition on multiple projects. They developed and implemented a Healthy Housing Code Enforcement training. The intent of the Healthy Housing Code Enforcement training was to encourage code enforcers to cite buildings with conditions like moisture intrusion, peeling lead paint, pest infestation, and other conditions that can affect occupant health and safety. Fact sheets were developed for code enforcers on mold/moisture, pests/integrated pest management, ventilation/indoor air quality, and lead-safe work practices (which inhibit dust in the air during renovation). Initial fact sheets were distributed to 135 participants in code enforcement training in Los Angeles for feedback. California Breathing also helped CA Healthy Housing Coalition members conduct educational activities to determine successful strategies for achieving green, affordable, healthy housing in California communities. Starting in FY 2010-2011, the California Department of Public Health's Healthy Housing Workgroup was coordinated by California Breathing; the workgroup was instrumental in developing statewide healthy housing tracking indicators.

Kentucky

Healthy Homes Training Center

In 2012, the Kentucky Department for Public Health's Kentucky Respiratory Disease Asthma Program (KRDAP) selected and funded the Ashland/Boyd County Health Department (ABCHD) as a new pilot site for asthma in Kentucky. They had demonstrated the capabilities and interest in establishing the state Healthy Homes Training Center certified by the National Center for Healthy Homes. Since that time, the ABCHD has not only hosted four two-day training sessions for Healthy Homes Practitioners, but they have also employed a train-the-trainer model—certifying trainers from the state health department in the lead program and the environmental division, and other pilot sites across the state, including the Purchase District Health Department and the Pike County Health Department. This brings a high level of competency in asthma knowledge by having Certified Asthma Educators, as well as environmental specialists and health educators, on the training team.

Maine

Healthy Homes Trainings

In 2011, the Maine Asthma Program supported Healthy Homes training for 125 public health, code enforcement, and housing professionals working in localities with high asthma prevalence. The Healthy Homes training initiative has been continued by the Maine Indoor Air Quality Council, who modified the Healthy Homes training module from 2011 into an online webinar titled "Indoor Air 101." The training was offered as an adult education class in the fall of 2014 through 4 local adult education offices. The Council gathered the number of attendees in the adult education classes; the Maine Asthma Program will review the attendance and course evaluation materials with the Maine Indoor Air Quality Council to determine how to improve the course. The asthma program partnered with the Maine CDC's "Partnership for a Tobacco-Free Maine" and the "Breathe Easy Coalition" to help create asthma-friendly environments in multi-unit housing. In 2011, Maine became the first state in which all public housing authorities adopted smoke-free policies. The asthma program helps public housing authorities implement this policy.

Healthcare-focused Interventions

Focus: Health Systems Change

Indiana

Parkview Hospital Emergency Room Asthma Call-Back Program

The Indiana Asthma Program has developed a successful partnership with Parkview Health, a nonprofit health care provider that delivers care to more than 875,000 people in a five county area in northeast Indiana. The asthma program has provided funding and technical assistance to Parkview Health Community Nursing as they have implemented the Asthma Call-back Program. Parkview's community consists of urban, suburban and rural populations that have seen increasing asthma prevalence over the past decade. In response, nurses have begun following up with asthma patients by phone and mail, inquiring about their health and medication access, and offering to do in-home visits. As a result, fewer patients returned to the emergency room, and fewer days of school or work were missed due to asthma. The Parkview Health hospital hosting the program pilot, when compared to 2013, is on pace to reduce asthma-related ED visits in 2014 by over 10%. Because of its outcomes success and continuing positive return on investment, the program was expanded from the original pilot site to all Parkview Health hospitals. In addition to ongoing economic and outcomes analysis, the Community Nursing team serves as mentors to groups around Indiana who are supporting optimal asthma management, and has helped the Indiana Asthma Program refine hospital-based interventions.

Massachusetts

Asthma Disparities Initiative

The Massachusetts Department of Public Health Asthma Prevention and Control Program (APCP) launched the Asthma Disparities Initiative in 2010 to integrate evidenced-based asthma self-management education (delivered in a community health center) with community coalition activities. The goal was to connect health care providers, their patients, and caregivers to community resources, thereby improving health systems and initiating policy changes. APCP provided technical assistance and funding to community health centers, local asthma coalitions, and schools in geographic areas of the state with significant asthma disparities. While the outcome analysis is limited due to small numbers (n=22) and a short tracking period, trends indicate improvements across several indicators. The outcomes observed include shifts in the level of asthma control (based on self-reports) from poorly or not well-controlled to well-controlled; reduction in home trigger factors (especially pests); and apparent reductions in ER visits, hospitalization, and urgent care use.

Minnesota

Interactive Asthma Action Plan (iAAP)

The iAAP, developed by the Minnesota Department of Health Asthma Program, was envisioned to be a state-of-the-art, online, downloadable clinical resource. It was designed to provide health care providers with an electronic decision-making support tool that incorporates the NIH EPR-3 asthma guidelines. It prompts questions that help determine severity and level of control, and it contains a large medication database that displays appropriate medication regimens only for the established control level. It is a resource available nationwide at no cost for use online and/or as a downloadable tool. As the development and use of electronic health records (EHRs) has proceeded, the incorporation of the iAAP in those EHRs has been challenging. Evaluation findings have identified the value of using the iAAP as a tool in training health care providers. A partnership was established to support program use by the University of Minnesota School of Pharmacy in training pharmacists and a partnership has been formed with the Pharmacy School at North Dakota State University to develop additional curriculum components to use the iAAP in health professional training.

Montana

Asthma Hospital Patient Education, Action Plan, and Discharge Protocol Program (AHEAD)

The Montana Asthma Control Program supports the Asthma Hospital Patient Education, Action Plan, and Discharge Protocol Program (AHEAD). The AHEAD protocol, implemented in 2011, is a quality improvement opportunity that aims to support delivery of evidence-based healthcare and discharge instructions according to EPR-3 Asthma Guidelines in emergency departments (ED). Among participating hospitals, the percent of patients who smoke and received a smoking cessation referral has increased from an average of 18% at baseline to 48% in the first year of follow-up. The average percent of patients at participating hospitals with a documented asthma self-management education (ASME) provision upon discharge has increased from 3% to 24% at a one-year follow-up. As of summer 2014, 13 critical access hospitals have implemented the AHEAD protocol, with ongoing monitoring. Between 2009 and 2012 (the most current year of data), the asthma hospitalization rate in Montana has decreased 27%, from 6.6 to 4.8 discharges/10,000 population.

Asthma Care Monitoring System

The Montana Asthma Control Program supports the Asthma Care Monitoring System (ACMS). ACMS is an information technology and quality improvement software designed to support medical sites in the assessment and follow-up of patients with asthma. First implemented in 2010, ACMS allows sites to track their asthma patients and capture each patient's level of asthma control, exacerbations, medications, self-management education and other clinically useful data at each visit. Through this system, areas for improvement can be identified and quality improvement projects designed. The percent of patients who are up-to-date with their spirometry in the last year has increased from 29% to 44% among participating clinics and pharmacies. The percent of patients who have received 3 of 4 key pieces of ASME has increased from 59% to 64%.

New Hampshire

New Hampshire Improving Asthma Management Series

In 2007, the New Hampshire Asthma Control Program (NHACP) and its partners developed the Improving Asthma Management Series, a group of educational modules for primary care physicians. Asthma educators presented the modules in-person and often helped providers redesign their internal systems and protocols to improve asthma care. In 2013, the NHACP added an on-line webinar to this series. This series was integrated with New Hampshire's Asthma Quality Improvement Project. As a result, an asthma module was implemented in the electronic health record, 92% of patients with a diagnosis of asthma had spirometry testing, and patients identified with uncontrolled asthma were referred to a local pulmonologist to improve asthma control. As of 2014, the effort had reached 81 primary care offices and 537 health providers.

New York

New York Asthma Outcomes Learning Network

With funding from CDC, New York's Asthma Program partners with regional asthma coalitions to find local problems and implement solutions. The NY Asthma Outcomes Learning Network convenes annually, engaging health care practice and community-based asthma care teams through NY's Regional Asthma Coalitions each year. Teams from eight high asthma burden regions across NY come together over a two-day period to develop and refine system change interventions aimed at improving asthma care processes and asthma health outcomes. A total of 79 improvement teams have been engaged in the Asthma Outcomes Learning Network since its inception. From 2010-2013, each newly participating team has demonstrated some level of improvement across measures of asthma care, such as increased documentation of asthma severity and asthma control status, and increased prescribing of appropriate asthma controller medications for patients with persistent asthma. From 2012-2014, 8 teams reported an increase in the number of individuals with asthma served by their practice who reported (via the ACT) that their asthma was "well-controlled" or "completely controlled," with an average increase from 10% of patients served to 46% of patients served reporting their asthma was "well-controlled" or "completely controlled" during the previous four months. From 2007 to 2012, asthma hospitalizations decreased in the seven regional areas, with the percent change over time ranging from 3-13%.

North Carolina

Enhancing Local Asthma Efforts Project, Vidant Medical Center

The North Carolina Asthma Program (NCAP) funded local health departments and health care systems over a 5-year period through its Enhancing Local Asthma Efforts Project. This allowed the NCAP to support and assist with asthma education, training curricula, and other efforts conducted on a local level throughout North Carolina. One example is the Vidant Medical Center in Greenville, NC. In Pitt County, data confirmed that pediatric asthma was the number one reason for emergency department use and the top reason for reported school absences. VMC partnered with physicians, Pitt County schools, the American Lung Association, and other stakeholders to form the Pediatric Asthma Steering Committee, focused on developing formal processes to manage this community health issue. Support from NCAP and The Duke Endowment helped them implement a comprehensive asthma management program. Services throughout the continuum of asthma care were provided free-of-charge to the community. This has resulted in major advancements in pediatric asthma management in Pitt County. Inpatient asthma admissions have dropped 59% since 1995, and 12-month repeat admission rates have dropped from 11% to 3%. An external evaluation by CDC concluded that the Pediatric Asthma Program had a statistically significant reduction in inpatient admissions and costs, and that the cost savings were greater than the costs of administering the program.

Oregon

Patient Self-Management Collaborative

Oregon's Patient Self-Management Collaborative, funded through the Expanded Component of the EH09-901 cooperative agreement, successfully demonstrated that Federally Qualified Health Centers are able to make significant changes in clinic flow, treatment protocols, and documentation to support patient self-management. Six Federally Qualified Health Centers participated in the collaborative. The impact for patients with asthma at these practices included enhancements in several aspects of patient-centered care: implementation of motivational interviewing as a means of identifying self-management goals, increased documentation of self-management goals in electronic medical record (EMR) systems, practice flow changes to enhance team-based support for self-management (including the use of qualified non-provider team members to provide patient coaching), and establishment of EMR-based referrals to evidence-based self-management programs and the Tobacco Quit Line.

“The Guide to Improving Asthma Care in Oregon”

Over many years, the Oregon Asthma Program (OAP) developed and updated “The Guide to Improving Asthma Care in Oregon.” It consists of a set of simplified quality care recommendations specific to asthma. To reach providers, OAP created a tri-fold brochure focused on some of the key population-based indicators for asthma. The tri-fold and an article on the Guide for the Public Health Division's publication called the [CD Summary](#) were mailed to all family practice, internal medicine, general practitioners, pulmonologists, allergists, and emergency department doctors in Oregon. Altogether, they were distributed to over 15,000 health professionals and providers in Oregon. OAP worked with the state Medicaid and Children's Health Insurance Program (CHIP) agency to distribute the guide to health plans providing services to these economically disadvantaged populations. OAP staff met one-on-one with each Managed Care Organization (MCO) in Oregon that provided Medicaid/CHIP services in Oregon to distribute the guide and discuss asthma care for their members. The Guide was also the foundation for asthma performance measures for Medicaid/CHIP in Oregon and these measures were discussed annually with MCO Medical Directors. Recently, population-based goals and indicators were added.

Focus: Healthcare Provider Education

Alabama

Alabama Online Health Professional Training

In 2012, the Alabama Asthma Program awarded a mini-grant to the University of South Alabama to produce an online version of the course, *Becoming an Asthma Educator and Care Manager*. The purpose of the course was to prepare health professionals, such as nurses, respiratory therapists, pharmacists, social workers and others to become asthma educators. Course topics included the burden of asthma in the United States, assessment and monitoring, control of environmental factors, medications, inhalation devices, education for a partnership in care and case studies. Continuing education credits were provided to professionals who completed the training and evaluation. As of June 2013, 113 individuals from 7 states had completed the course and took the test. Of these, 100 received continuing education credits. According to the National Asthma Educator Certification Board, in 2009, there were only 2 Certified Asthma Educators (AE-Cs) in Alabama; by 2014, there were 23.

Hawaii

Hawaii Asthma-Friendly Pharmacy Project

The Hawaii State Asthma Control Program partnered with the College of Pharmacy to educate students in asthma care. During the pharmacist rotations, the pharmacy students asked patients if they have a written asthma action plan, administered asthma control tests, and demonstrated proper inhaler techniques. The Hawaii Asthma-Friendly Pharmacy Project developed strategies that pharmacists and pharmacy students could use to improve outcomes for patients with asthma. The goal is to graduate pharmacists who will continue such work in the future.

Louisiana

Louisiana Healthcare Provider Trainings and Toolkit

More than 1100 healthcare providers received the provider trainings and the Healthcare Provider Toolkit sponsored by the Louisiana Asthma Management and Prevention (LAMP) program. Initial trainings with 233 healthcare providers in 2011 saw an increase in knowledge of the NAEP guidelines for asthma, from a pre-test average score of 9.9 to a post-test mean of 12.4 ($p < 0.001$). 80% of a small sample (19) of healthcare providers who were sent a follow-up survey three to six months

Certified Asthma Educators (AE-Cs), 2009-2014

Several National Asthma Control Program grantees reported success in supporting the expansion of the number of Certified Asthma Educators, or AE-Cs. AE-Cs are physicians, pharmacists, nurses, respiratory therapists, or other professionals who are experts in teaching and counseling individuals with asthma to improve asthma management and to minimize the impact of asthma on their quality of life. Certification helps assure that asthma educators all over the United States have followed a standardized process that evaluates their knowledge in a systematic, comprehensive way, as managed by the National Asthma Educator Certification Board (NAECB). As asthma educators increase in importance as part of a coordinated asthma care team, it is encouraging to observe the corresponding growth in the number of professionals receiving this credential and in the reimbursement of asthma education and in-home assessments by public and private healthcare plans.

The following table shows the number of AE-Cs in each of the EH09-901 grantee states in 2009 and 2014. Numbers of AE-Cs for the District of Columbia and Puerto Rico were not available.

State	AE-Cs in 2009	AE-Cs in 2014
Alabama	2	23
California	43	263
Connecticut	6	64
Florida	15	125
Georgia	10	78
Hawaii	0	17
Illinois	11	135
Indiana	15	97
Kentucky	5	45
Louisiana	9	56
Maine	2	33
Maryland	14	60
Massachusetts	13	116
Michigan	15	136
Minnesota	17	145
Mississippi	0	31
Missouri	9	110
Montana	4	41
New Hampshire	5	41
New Jersey	10	80
New Mexico	8	53
New York	33	282
North Carolina	5	95
Ohio	12	127
Oklahoma	3	22
Oregon	2	43
Pennsylvania	22	136
Rhode Island	2	55
Texas	27	247
Utah	1	14
Vermont	5	25
Washington	8	62
Wisconsin	16	100
West Virginia	4	19

Source: National Asthma Education Certification Board, 2014

after their 2011-2012 training stated that they felt the training had influenced their diagnosis, assessment, and treatment of asthma. An additional set of trainings in 2012 and 2013 with 141 healthcare providers saw a statistically significant average increase of 29% on a post-test of asthma guideline knowledge.

Puerto Rico

“Diagnosis and Action Plans for Management of Childhood Asthma” Training

The Puerto Rico Asthma Project worked with the Medical Sciences Campus of the University of Puerto Rico to provide free, in-person asthma training with continuing medical education credits. Since the effort began in 2006, the training has reached nearly 2,400 health professionals across Puerto Rico, including doctors, nurses, respiratory therapists, health educators, and pharmacists.

Utah

Utah Asthma Telehealth

The Utah Asthma Program developed the Asthma Telehealth continuing education program and offers it to health professionals quarterly. The free series covers a number of wide-ranging issues in asthma diagnosis and management. Participants can access the series via phone or online. As of July 2014, more than 1,330 health professionals had participated. The archived presentations have been downloaded more than 27,000 times in the previous 12 months.

Vermont

Vermont Asthma Learning Collaborative

The Vermont Asthma Program, in partnership with the Vermont Blueprint for Health, created the Asthma Learning Collaborative to engage clinical practices to improve delivery of asthma care in the state. As of mid-2014, the effort had reached 21 practices. Based on the size of the asthma panel at each of these primary care practices, the Asthma Learning Collaborative is estimated to have reached over 5,500 asthma patients.

West Virginia

Clinic-based Asthma Management Program (C-bAMP)

The West Virginia Asthma Education and Prevention Program (WVAEPP) funded the West Virginia University, Office of Health Services Research, to implement a Clinic-based Asthma Management Program (C-bAMP) in community health centers that provide primary health care services to people living in medically underserved areas of the state. The aim of the program was to increase provider adherence to clinical guidelines and to deliver high-quality care for patients with asthma. C-bAMP had two primary components: a chronic disease electronic management system (including an asthma registry) and a training program for health care providers. The registry enabled providers to track asthma patient care indicators over time and also offered decision support tools. Chronic disease nurse educators with expertise in asthma trained healthcare providers on the core concepts of national asthma guidelines, identified areas for improvement, and helped to reduce system-level barriers for providing high quality asthma care. The C-bAMP intervention was fully implemented in one Federally Qualified Health Center organization. Measures such as annual influenza vaccinations, bi-annual spirometry tests, use of asthma action plans, classification of asthma severity, and prescriptions written for albuterol and inhaled corticosteroids were tracked. While it is too early to determine if there were changes in patient health outcomes, participating clinics demonstrated significant increases in the documentation of core services provided to patients with asthma.

Wisconsin

Wisconsin Asthma Care Fax Program

The Wisconsin Asthma Coalition partnered with pharmacists to help patients stay in control of their asthma. The Asthma Care Fax program empowered pharmacists to alert primary care providers if their patients were overusing asthma rescue medication, a sign of uncontrolled asthma. By partnering with pharmacists and providing them with asthma control training, the coalition has created a systematic change to reach residents at high risk of asthma complications. The coalition is currently working to get the form available on the Pharmacy Society of Wisconsin’s electronic platform.

Focus: Patient Education

District of Columbia

District of Columbia IMPACT DC Transitional Case Management Program

The Improving Pediatric Asthma Care in the District of Columbia (IMPACT DC) program completed the second year of a pediatric asthma case management initiative in December 2012. During the year they exceeded their target of reaching 600 District children. They provided education and promoted linkages to primary and specialty care for children who presented to the emergency department (ED) with asthma episodes. The evaluation results indicated high patient satisfaction, and decreased frequency of ED visits.

New Mexico

New Mexico Nor-Lea General Hospital Asthma Self-Management Education Initiative

The southeast region of New Mexico has some of the highest asthma-related morbidity and hospitalization rates in the state. To address the problem, the New Mexico Asthma Program partnered with a local hospital and the University of New Mexico to implement an evidence-based asthma self-management program. Asthma patients visiting the emergency room and who were at high risk for respiratory complications were connected with a certified asthma educator (AE-C), who provided education in English and Spanish on reducing asthma triggers and proper inhaler techniques. Since the inception of this partnership, asthma-related emergency department (ED) visits and hospitalizations have decreased for patients who participated in at least two asthma self-management education sessions (n=65) with an AE-C. In the year prior to the first visit with the AE-C, there was a mean of 0.91 asthma-related ED visits and 0.34 asthma-related hospitalizations per patient. Following the first visit, there was a mean of 0.09 asthma-related ED visits and 0.05 asthma-related hospitalizations per patient. The asthma program and hospital are now working to create sustainability for the program.

West Virginia

West Virginia Charleston Asthma Management Program for Seniors (WVChAMPS)

The West Virginia Asthma Education and Prevention Program (WVAEPP) partnered with the Charleston Area Medical Center (CAMC) Respiratory Care Department to implement the WV Charleston Asthma Management Program for Seniors (WVChAMPS). WVChAMPS was a pulmonary education program focused on teaching seniors how to maintain effective control of asthma symptoms and to reduce hospital readmissions. It reached approximately 1,000 patients per year. The average age of participants was approximately 67 years; they were predominantly female. Seniors with asthma received “A Pulmonary Handbook for Patients” and worked with a registered nurse or respiratory therapist to develop a Better Breathing Plan (asthma action plan) that was tailored to their individual needs. Patients also received instruction on how to use a spacer and peak flow meter.

State asthma programs funded by the CDC have thus implemented a wide variety of interventions and strategies to help children and adults control their asthma, and to educate caregivers and healthcare providers in improving care for people with asthma. These interventions reflect a basis in the National Asthma Education and Prevention Program (NAEPP)’s Guidelines for the Diagnosis and Management of Asthma (EPR-3), which specify four components of quality asthma care: assessment and monitoring asthma control, educating patients in self-management skills, control of environmental factors and conditions that can worsen asthma, and medications. By integrating these components into planned population interventions, state asthma programs funded through the NACP have made strides toward reducing the overall burden of asthma in the United States.

Partnerships and Policy

A significant focus in CDC-RFA-EH09-901 was given to state asthma programs developing and expanding partnerships. Some of the strategic partners to funded state asthma programs include other state health department programs, asthma coalitions on the state or local levels, healthcare systems, advocacy organizations, and other initiatives. These partnerships support the implementation of public health interventions and enable state asthma programs to provide information to organizations advocating for policy changes. These partnerships also promote coordination and sharing of resources and information among asthma stakeholders, and encourage the dissemination of innovative approaches to asthma control. The following success stories describe some of the successful partnerships state asthma programs have formed with other stakeholders, and the policy changes achieved by stakeholders using state-provided information.

State Asthma Program	Page	State or Local Coalition/ Advisory Board	Hosted Summit/ Conference or Major Training	Partnership with State Agency	Partnership with Other Stakeholders	Assistance with Policy Change	Statewide or Major Surveillance Outcomes
Florida	29				▲		
Georgia	30	▲				▲	
Hawaii	30	▲				▲	
Illinois	30		▲	▲			
Kentucky	30	▲					▲
Maryland	30	▲					
Massachusetts	31	▲				▲	
Michigan	31				▲		▲
Mississippi	31	▲					
New Mexico	31	▲					
North Carolina	31	▲	▲			▲	▲
Ohio	32	▲				▲	
Oregon	32					▲	
Vermont	32				▲	▲	
West Virginia	32	▲				▲	
Wisconsin	33	▲			▲	▲	

Florida

The Florida Asthma Program partnered with the state chapter of the American Lung Association to bring asthma education to schools. By summer 2014, 1,410 third- through fifth-graders learned to better control their asthma via the American Lung Association’s Open Airways for Schools program, and about 1,600 school faculty participated in the Asthma 101 program. In addition, funding from CDC helped the Florida Asthma Program establish a new partnership with the Florida Healthy Kids Corporation, a quasi-governmental organization that administers a portion of the Florida Child Health Insurance Program. The Florida Healthy Kids Corporation dedicated \$40,000 to enhance marketing and to provide financial incentive for participating schools through the 2014-2015 school year.

Georgia

The Georgia Asthma Control Program (GACP) convened the Georgia Asthma Advisory Board (GAAB), which was a group of stakeholders brought together to inform the development of Georgia's Asthma Strategic Plan, guide GACP's programmatic direction, and contribute to the accomplishment of the strategic plan activities and objectives. In 2012, out of a realization for the need to refocus the program to achieve system level impact, the coalition, along with GACP, developed the 2013-2018 Strategic Plan for Addressing Asthma in Georgia. This plan represented a statewide comprehensive and coordinated response to address asthma management and control strategies within the following systems: Healthcare Delivery System, School and Childcare Settings, Indoor/Outdoor Environment, and Family Support Systems. The GAAB, with the support of the Georgia Asthma Coalition, was able to realize the passage of legislation that addresses the rights of students to self-administer asthma medication and carry inhalers in schools (Georgia (OCGA 20-2-774 (2004)). *A statute authorizing students to self-administer asthma medication, pursuant to local adopted school policies*).

Hawaii

As a member of the Coalition for a Tobacco-Free Hawaii, the Hawaii State Asthma Control Program was part of a statewide movement toward smoking-free housing. The Asthma Control Program provided information and messaging for a website that offers residents of multi-unit dwellings tips on how to approach landlords about secondhand smoke. The program was also working to help implement a new smoke-free policy in public housing.

Illinois

The Illinois Asthma Program collaborated with partners who were helping schools implement a state law allowing students to carry their asthma inhalers rather than leaving them with a school nurse. For example, the Chicago school district became the first district in the state to implement the self-carry law. Illinois Asthma Partnership member organizations provided technical assistance and education. The Illinois Asthma Program collaborated with the Illinois Department of Human Services to educate school nurses on asthma issues during School Health Days, where nurses across the state are trained in a one-day meeting. During the last training event, 450 school nurses took part.

Kentucky

In Kentucky, asthma results in millions of dollars in health care costs. Thanks in part to the Kentucky Asthma Program, asthma hospitalizations are decreasing and schools are making strides in helping children manage their asthma. Rates for hospitalization for asthma as a primary diagnosis have continued to trend down for both adults and children in Kentucky as a whole through the strength of the Kentucky Comprehensive Asthma Management Program and the Kentucky Asthma Partnership statewide interventions. In 2009, when the Kentucky Comprehensive Asthma Program began operationalizing interventions, the rate of age-adjusted asthma hospitalizations for adults was 14.1 per 10,000; a downward trend has been seen each year, to a rate of 9.7 per 10,000 in 2012, which represents a 31% decrease. The rate of asthma hospitalizations for children under eighteen years of age in Kentucky was 6.8 per 10,000 in 2009 and has decreased to 4.5 per 10,000 in 2012, which represents a 34% decrease.

Maryland

The Maryland Asthma Program convened the Maryland Asthma Coalition, a diverse partnership of stakeholders that included physicians, families, and schools. As part of its work, the coalition trained health care providers on the latest evidence-based asthma control guidelines. Such training is critical in reducing unnecessary asthma complications. An overwhelming interest in the program has required the program to continue with a focus on pediatric practitioner training. The data have shown that children with asthma enrolled in Maryland's Medicaid program have significantly increased the use of asthma controller medication instead of asthma rescue medication, which is a sign that asthma is under control.

Massachusetts

The Massachusetts Asthma Prevention and Control Program funded the Pioneer Valley Asthma Coalition (PVAC) to work with day care providers in Springfield, MA to develop, implement and evaluate healthy indoor air quality policies. PVAC received additional funding from the Baystate Children's Miracle Network to award stipends to school nurse champions to develop a system for enhancing asthma education and increasing the number of asthma action plans on file at schools. Finally, PVAC successfully advocated for an expedited housing code enforcement program for people with asthma and secured a commitment from Springfield Housing Authority to go smoke-free, which was completed in April 2013. As of May 2014, approximately 36 municipal housing authorities in MA had also become completely smoke-free, both indoor and outdoor.

Michigan

The Michigan Asthma Prevention and Control Program (APCP) actively promotes the use of EPR-3 guidelines through collaboration, partnerships and interventions. This integration effort has utilized multiple strategies to ensure high-quality guideline-based care for people with asthma. Collaborative partnerships include: the Michigan Quality Improvement Consortium (MQIC), APCP's Asthma Mortality Review Project (AMRP, implemented by Michigan State University), and the Michigan Primary Care Transformation project (MiPCT, a public-private multi-payer demonstration project designed to evaluate the effectiveness of the PCMH model of care). This integrative approach of promoting adoption of EPR-3 through collaboration and interventions has contributed to a drop in the state's hospitalization rate, an increase of 6.7% in ICS use among Medicaid children in Detroit, and a 51.4% decrease in Medicaid asthma hospitalization rate since 2005, with 38.8 hospitalizations per 10,000 population (37.3 – 40.3) in 2005 and 18.9 hospitalizations (17.9 – 19.9) in 2012. ICS use among kids on Medicaid in Detroit increased 12.7%, from 58.4% in 2005 to 65.8% in 2012.

Mississippi

The Asthma Coalition of Mississippi (ACM) was established in 2005 by the American Lung Association in conjunction with the Mississippi State Department of Health Asthma Program. The Asthma Coalition consists of over 500 individuals representing more than 200 organizations throughout the state. Mississippi is divided into nine Public Health Districts, and asthma coalitions were formed specifically for each district. Each of these local coalitions feeds into Mississippi's statewide asthma coalition. Over the past five years, the ACM has taken a lead in ensuring that asthma programs are being implemented throughout the entire state of Mississippi. They were also instrumental in assisting with the revision of the Mississippi State Asthma Plan in 2011.

New Mexico

In 2010, the New Mexico Asthma Program launched the New Mexico Council on Asthma, a diverse group of health professionals and organizations dedicated to asthma control. The council works on many issues, such as raising asthma awareness, promoting asthma-friendly school policies, and expanding insurance reimbursement to cover asthma self-management education. The council was so successful that it moved under the umbrella of the state chapter of the American Lung Association and was able to establish nonprofit status.

North Carolina

The North Carolina Asthma Program (NCAP) was an active member of the Asthma Alliance of North Carolina. The Alliance coordinated and facilitated communication among asthma programs across the state. Its members played an advisory role and assisted the NCAP staff to develop and implement effective strategies to meet goals outlined in the State Asthma Plan. The Alliance also hosted the annual asthma summit.

Ohio

Every other year, the Ohio Asthma Coalition brought together hundreds of public health practitioners, health care providers, and asthma educators to explore the latest in asthma research and care. As a result, participants have the tools and education they need to bring effective asthma control strategies to their communities. The Ohio Asthma Coalition is a collaboration between the Ohio Asthma Program and the American Lung Association of Ohio. The Ohio Asthma Program was also instrumental in implementing the state’s voter-approved smoke-free workplace policy. It provided compelling data that illustrated why the policy was needed.

Surveillance data show that the Ohio Asthma Program’s efforts could be making an impact: asthma-related hospital discharge rates among children younger than 5 have been declining. The trend toward lower ED visits began in 2008. In 2012, ED visit rates were at their lowest, at 118.5 per 100,000 residents under 5. This is a significant drop since 2007, when the rate was 149.8 per 100,000 residents under 5. This translates into approximately 2,000 fewer visits per year for children under 5. Similarly, the number of inpatient hospitalizations for primary diagnosis of asthma has decreased by approximately 200 visits per year for children under 5. In 2006, there were 35.5 hospitalizations per 100,000 children under 5. By 2012, the rate had decreased to 28.9, a significant drop. ACBS data also indicated that the percentage of children receiving routine asthma care (checkup for asthma) from a doctor or other health professional at least once a year increased from about 50.4% to 60.4% in between 2009 and 2011.

Oregon

In August 2012, Oregon became the second state in the nation to have a comprehensive tobacco-free state property policy. Oregon’s policy encourages employees to quit using tobacco, and protects employees, clients, and visitors at all 632 state-owned and leased properties from the toxins contained in secondhand smoke. According to Oregon surveillance data, individuals with asthma smoke more (28%) than those without asthma (21%) and a quarter of Oregonians are exposed to secondhand smoke. The Oregon Asthma Program’s local partners assisted property managers and state campuses located in their communities to implement the policy. These partnerships also facilitate ongoing monitoring and evaluation.

Vermont

In 2013, the Vermont Asthma Program partnered with Idle-Free VT to reduce vehicle idling in both large- and small-fleet businesses. Idle-Free VT worked with local businesses in four rural counties to help employers implement formal “no-idling” policies for their fleets. Through outreach and training, over 160 fleet employees were engaged. To date, 3 large-scale fleet businesses (that are estimated to account for 45% of the fleets in these 4 rural counties) have adopted formal anti-idling policies for their fleets.

West Virginia

In 2001, West Virginia Asthma Education and Prevention Program (WVAEPP) initiated a partnership with the American Lung Association to create the West Virginia Asthma Coalition (WVAC). The WVAC was a statewide coalition representing a diverse network of organizations and individuals dedicated to using a comprehensive public health approach to address the burden of asthma in West Virginia. In 2004, the WVAC and ALA successfully pursued statewide legislation giving students with asthma the right to carry and self-administer quick-relief/rescue inhalers at school. Coalition members also supported West Virginia’s School Bus Idle-Free Zone policy and education program that aimed to reduce emissions from school buses, delivery trucks, and passenger vehicles on school property. In 2013, West Virginia passed a state law requiring schools to stock epinephrine auto-injectors for students with undiagnosed anaphylaxis to use as emergency treatment for allergic reactions that occur at school.

Wisconsin

The 203-member Wisconsin Asthma Coalition (WAC) was funded via the state asthma program. In 2010, the WAC learned that the state Medicaid program did not reimburse for spacers. This device attaches to an asthma inhaler and ensures more of the medication makes it into the user’s lungs. In response, the coalition partnered with the Pharmacy Society of Wisconsin to examine whether providing spacers to patients would help reduce the high costs of uncontrolled asthma. The partnership provided the information needed to help the state Medicaid program begin to reimburse for spacers. The effort was a success and the policy changed, and nearly 1400 spacers have been reimbursed since 2010.

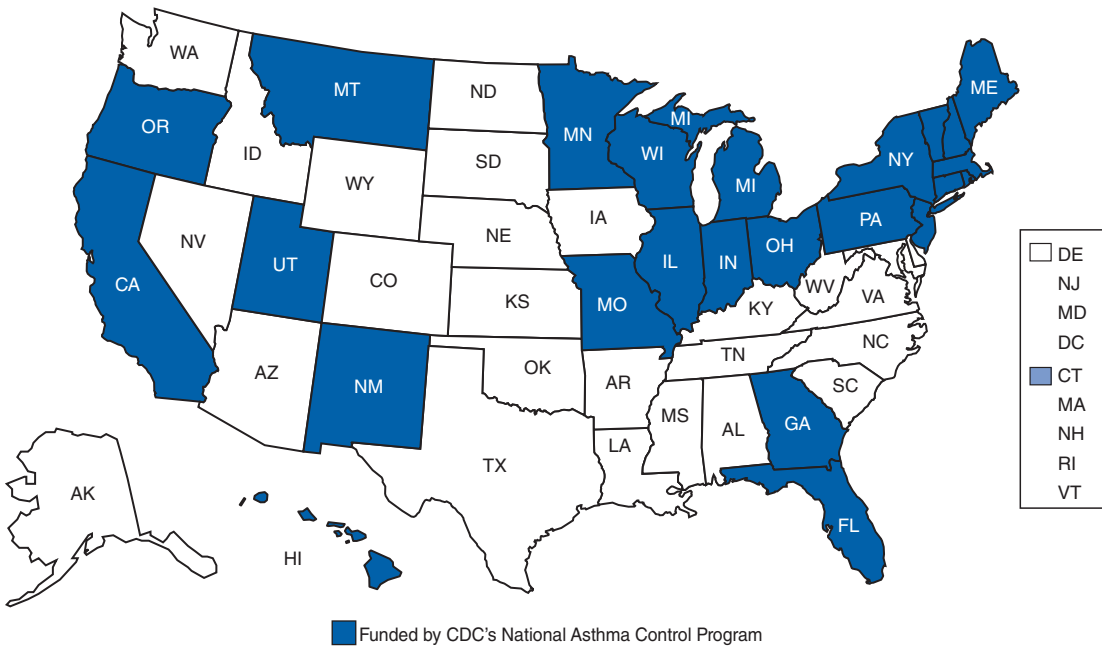
The Wisconsin Asthma Coalition claimed a win when the [National Asthma Educator Certification Board](#) (NAECB) announced its decision to offer continuing education credits (CEUs) as a way for certified asthma educators (AE-C) to recertify. The NAECB had originally considered this option in 2011 after receiving a letter led by the WAC, cosigned by 35 organizations across the nation. The letter requested that the NAECB change recertification of AE-C from the previous system of retaking the exam to the new system of utilizing CEUs to maintain certification.

Partnerships with state agencies, non-governmental organizations, and other stakeholders are crucial to the success of state asthma programs. These programs have developed relationships and influence to bring stakeholders together for strategic planning and informing policy changes across the United States.

Looking Ahead

The National Asthma Control Program continues in 23 states, starting in fall 2014. The new funding opportunity, CDC-RFA-EH14-1404, “Comprehensive Asthma Control through Evidence-Based Strategies and Public Health-Health Care Collaboration,” invites these states to maximize the reach, impact, efficiency, and sustainability of comprehensive asthma control services. The focus on a stepwise approach—ensuring availability of and access to guidelines-based asthma care management for all people with asthma, and increasingly individualized services like home-based trigger reduction for those whose asthma remains poorly controlled—encourages structures and strategies that enable people with asthma to receive more coordinated and complete asthma care. CDC-RFA-EH14-1404 also requires a new core activity of promoting public health-health care collaboration in view of the new health care environment. These collaborations will promote access to care and prepare more communities to support people with asthma. Already, many state asthma programs are testing pilot programs and conducting demonstration projects for state Medicaid systems and other health plans to show the cost-effectiveness and return-on-investment of reimbursing asthma education, and these efforts are expected to continue and expand. This work is crucial to moving asthma control forward and reducing asthma disparities in asthma care and outcomes.

Figure 3. States funded by CDC-RFA-EH14-1404, 2014-2019.



Reducing the morbidity and mortality associated with asthma remains a significant public health challenge in the United States. The progress toward this goal is reflected in the overall decline of deaths, but more Americans are diagnosed with asthma each year.

Because the latest funding was offered on a competitive basis, it represents a contraction of the number of state asthma grantees than were funded from 2009 to 2014. Long-term progress in reducing the burden of asthma will require continued support and partnerships with state asthma programs and other stakeholders. A coordinated nationwide effort to promote comprehensive asthma control will be key in reducing the burden, disparities, and costs of asthma.

Acknowledgments

CDC's National Asthma Control Program would like to recognize the "Addressing Asthma from a Public Health Perspective" grantees for their contributions to this report:

Alabama Department of Public Health
California Breathing / Impact Assessment, Inc.
Connecticut Department of Public Health
District of Columbia Department of Health
Florida Department of Health
Georgia Department of Human Resources
Hawaii Department of Health
Illinois Department of Public Health
Indiana State Department of Health
Kentucky Cabinet for Health & Family Services
Louisiana Department of Health and Hospitals
Maine Department of Health and Human Services / Maine CDC
Maryland Department of Health and Mental Hygiene
Massachusetts Department of Public Health
Michigan Department of Community Health
Minnesota Department of Health
Mississippi State Department of Health
Missouri Department of Health and Senior Services
Montana Department of Health and Human Services
New Hampshire Department of Health and Human Services
New Jersey Department of Health and Senior Services
New Mexico Department of Health
New York State Department of Health / Health Research, Inc.
North Carolina Department of Health and Human Services
Ohio Department of Health
Oklahoma State Department of Health
Oregon Department of Human Services, Public Health Division
Pennsylvania Department of Health
Puerto Rico Department of Health
Rhode Island Department of Health
Texas Department of State Health Services
Utah Department of Health
Vermont Department of Health
Washington State Department of Health
West Virginia Department of Health and Human Resources
Wisconsin Department of Health Services

The following Project Officers and Branch Leaders at the Air Pollution and Respiratory Health Branch, CDC, are also thanked for their contributions:

Daniel Burrows
Gary Coil
Pamela Collins
Paul Garbe
Shirl Ellis Odem
Kathie Sunnarborg
Linda Thomas-Houston
Paige Welch

This report was supported in part by an appointment to the Research Participation Program at the Centers for Disease Control and Prevention administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the U.S. Department of Energy and CDC.

Emily Gardner, Oak Ridge Institute for Science and Education Fellow

The work described in this report was supported by the CDC Cooperative Agreement CDC-RFA-EH09-901.

The activities and findings described in this report do not necessarily reflect the official position of the U.S. Department of Health and Human Services or the Centers for Disease Control and Prevention.



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