



Asthma Environmental Intervention Guide for School-Based Health Centers

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Controlling Asthma in the Port Chester Community: How one School-Based Health Center network transformed a community

Imagine children with asthma sitting out for PE, not taking part in athletics, waiting outside the nurse's office, or simply absent from school. That was the reality at many Port Chester, NY schools back in 2007 before the Open Door Family Medical Center's School-Based Health Centers launched a comprehensive asthma management and prevention program. Now the picture is quite different. Every child with asthma seen at the school-based health centers (SBHCs) has well-controlled asthma. The number of acute care visits decreased by 83% and the number of missed school days decreased by 93%.



“If you can identify children with asthma early, you can get the asthma under control by the time they reach elementary school.”

— Ellette Hirschorn, Director of Clinical Services and Programs for Open Door Family Medical Centers

How did the School-Based Health Centers achieve such dramatic improvements in asthma management? According to Ellette Hirschorn, Director of Clinical Services and Programs for Open Door Family Medical Centers, “Our mantra is ‘We build strong healthy communities.’ Once everyone is on the same page, it’s easy to achieve. Everyone wants a healthy community.”

Asthma is a significant public health concern for the Port Chester community. 18% of children seen by the School-Based Health Centers have asthma. 70% of residents are 100% below poverty level and 30% are between 150-200% below poverty level. 72% of the population is Hispanic and many of the adults do not exhibit literacy in either Spanish or English. The Open Door Family Medical Centers responded by ensuring that all of their providers were trained in and practicing the clinical practices recommended in the national asthma management guidelines. But they didn’t stop there. Ms. Hirschorn explains, “It started in our school-based health centers to improve the clinical care for children with asthma. It evolved into an effort to improve systems across the community. We take a whole system approach.”

Indeed a whole systems approach is required to effectively address asthma, because even children with the best medical care will continue to suffer from asthma exacerbations if they encounter environmental asthma triggers at home, school, or in their outdoor environments. The SBHCs partnered with others in the community to implement a truly impressive array of interventions aimed at creating healthier communities where all children can breathe easily. Just a sampling of activities conducted by School-Based Health Center staff and partners include:

- Educate children with asthma one-on-one, through Asthma Club, and through Open Airways and Kickin’ Asthma, which are evidence-based programs developed by the American Lung Association.
- Partner with Not-on-Tobacco Adolescent Smoking Cessation Program to help their teen patients stop smoking and improve their ability to breathe.



- Initiated smoke-free parks, ensuring that all children are protected from exposure to second-hand-smoke, which has been shown to not only worsen asthma, but also to contribute to the development of asthma.
- Developed a partnership with a home visiting nurse program where nurses work with families to identify environmental asthma triggers in the home and make recommendations to reduce exposure.
- Educated school bus drivers about the health impacts of idling, which include unnecessary exposure to particulate matter that can worsen asthma.
- Port Chester School District developed a policy of no-idling on school grounds.
- Developed a Safe Routes to Schools program to encourage kids to walk to school, decreasing the amount of polluting traffic at school drop-off while encouraging physical activity.
- Established a policy on asthma-friendly cleaning products, as many cleaning products used by schools exacerbate asthma.
- Created a school policy on the use of Integrated Pest Management, which is a way to prevent pest infestations that can trigger asthma without using harmful chemicals.

The SBHC staff and partners also conducted activities in day care centers because, as Ms. Hirschorn explains, “If you can identify children with asthma early, you can get the asthma under control by the time they reach elementary school.” The SBHC staff made sure that everyone in the community received the same messages about asthma management and prevention—from the day care center providers to the high school principals; from the school lunch ladies to the parks and recreation department staff; and perhaps most importantly, from the children to the parents and caregivers. Ms. Hirschorn describes, “We include the parents in everything—whatever information the kids get, the parents get too. Our parents really want the best for their kids.”

This approach is what makes School-Based Health Centers well-positioned to address asthma. They can forge the connections among parents, clinicians, schools, and communities. It takes an asthma champion like Ellette Hirschorn and strong partnerships. Ms. Hirschorn’s comment truly captures the reason for this program’s success, “We have a great team and everyone is really invested in doing the best for the children and community.”

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For more information on how school-based health centers can address environmental asthma triggers, view the [Asthma Environmental Intervention Guide for School-Based Health Centers](#).

Managing and Preventing Asthma among Uninsured Children: How one School-Based Health Center in Nevada is solving the problem

Seven years ago in Henderson, children with asthma who lacked health insurance were forced to either forego treatment or utilize local emergency departments as their primary care source. Without a medical home, where families are educated on health promotion as well as illness care, the families of these children lacked information on the avoidance of environmental asthma triggers. The combination of inadequate medical care and ongoing exposure to asthma triggers led to many unnecessary and costly emergency department visits and hospitalizations. That was before the Dr. Joel & Carol Bower School-Based Health Center launched its asthma program in 2008.



The mission of the Center is to provide high quality, accessible health care to all children in Henderson schools, especially the uninsured, underinsured, and vulnerable populations. The Health Center is dedicated to treating the whole child; to promote physical, emotional, and social health; to effectively manage chronic illness; and to minimize health-related school absences. Approximately 900 children are served by the school-based health center (SBHC) every year and they proudly share that none of the children with asthma under the care of the Center were hospitalized during their time receiving care.

Providing health care at school makes a lot of sense. As Erika Webber, the School-Based Health Center Coordinator explains, “In order to get kids to graduate and stay in school, we need to keep them healthy.” The first visit with each student with asthma includes an hour-long comprehensive appointment. They conduct a screening, get a Spirometer reading, and conduct education. They also provide the children with inhalers, nasal spray and other medications depending on the severity with the goal of achieving adequate asthma control.

Once they have had the initial visit, they then refer them to the Healthy Homes program for a home visit and assessment of environmental asthma triggers. Deborah Noll, Pediatric Nurse Practitioner, explains “Anything you can prevent, you don’t have to treat. If we identify and eliminate triggers, hopefully we can keep the kids on less medicine and keep them in school.”

The home visit is conducted by the University of Nevada, Las Vegas & the Dignity Health program, which is designed to identify the child’s environmental asthma triggers. There is seamless coordination between the home visiting program and the school-based health center (SBHC). The visit includes a home assessment, evaluation, tools to help control triggers, and solutions to reduce trigger exposure.

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— Erika Webber, School-Based Health Center Coordinator



Such solutions can include giving the family needed mattress pads (to reduce exposure to dust mites, a common asthma trigger) or non-chemical pest control products (to reduce exposure to cockroaches, which can trigger asthma attacks). The home visitors also talk to apartment managers around systemic concerns like mold, which can make asthma worse. The Healthy Homes providers communicate directly with the School-Based Health Center staff about the triggers they identify and the recommendations they made. When the children are seen back in the clinic, the nurse practitioners are able to reinforce the messages that the home visitors provided, which includes strategies for avoiding triggers.

The School-Based Health Center is uniquely positioned to enhance collaboration among school staff, students, parents, and clinicians. They see the patients with asthma every 2-3 months and often see the parents and caregivers of the younger kids providing an opportunity to educate them directly about asthma triggers. For parents who smoke, they talk about cessation and refer them to cessation classes at the health department. They also talk about ways to reduce exposure to secondhand smoke until parents can successfully quit, such as smoking outside, wearing a smoking jacket, and keeping smoke out of the cars. The SBHC staff also meet with the school staff four times per year and have an opportunity to educate them. Additionally, the SBHC staff communicates with the school to let them know what the asthma triggers are for each student with asthma. Sherrilyn Coffman, Director of the Center explains, "The school staff is very supportive of the asthma program."

The staff at the Dr. Joel & Carol Bower School-Based Health Center is committed to building on the success of their asthma program to continue meeting the needs of the most vulnerable children in their community. Though the program has benefited from support from the Dignity Health Foundation for several years, both the Center and the home visiting program face ongoing funding challenges. They are working on agreements to bill insurers for the care and education provided, which could be a sustainable source of some funds, but about half of the children they see do not have any insurance at all. As they focus on sustainability, they remain committed to both asthma management and prevention. Ms. Webber explains, "The comprehensive approach is essential for our program's success!"

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Addressing Asthma and Air Pollution: How the West Oakland Middle School Health Center launched a comprehensive asthma program

West Oakland is a small neighborhood in Alameda County, California, on the shores of the San Francisco Bay, where residents live near thousands of moving and stationary sources of diesel pollution. Container trucks carry goods to and from the Port of Oakland, U.S. Postal Service trucks carry mail to a major distribution center, and trucks and automobiles move overhead on freeways that surround the community.¹ In 2008, the California Air Resources Board (CARB) conducted a health risk assessment and reported that West Oakland residents are exposed to high concentrations of diesel particulate matter—almost three times higher than the average background levels in the Bay Area.² The population is predominantly African-American and 35% of residents live below the federal poverty line.³



Asthma is a significant public health concern for this community. Rates for Emergency Department visits due to asthma are higher in Alameda County than for the state and West Oakland children go to the Emergency Department with asthma almost twice as often as the county average. The West Oakland Middle School has 220 students enrolled and over 50 have been diagnosed with asthma and many more report undiagnosed respiratory concerns. The West Oakland Middle School (WOMS) Health Center recognized the disproportionate burden of asthma in their community and chose to prioritize asthma as one of the key health issues they address at their clinic.

Run by Lifelong Medical, the WOMS Health Center developed an asthma management program based on national clinical guidelines. Components of their asthma management program include: an assessment and health history with the nurse practitioner, assessment of asthma control, medication management, provision of an asthma action plan, and spirometry—a tool recommended in the national clinical guidelines but greatly underutilized in clinical practice. “Although spirometry is only used by 52% of providers, we know that it is an essential tool in the diagnosis and management of asthma and are committed to providing the highest standard of care,” says Kristine Carter, Nurse Practitioner.

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They also conduct asthma education in a group setting at their clinic. They work with an AmeriCorps: Community Health Corp volunteer to conduct the four-session training which covers: what asthma is; recognizing symptoms; understanding medications; and identifying and reducing exposure to environmental triggers at home, school, and in the community. “Students are hesitant about coming to class, but are always excited to share what they have learned and used,” shares Aaron Steinfeld, the Community Health Corp Volunteer. Forty students were able to complete the educational program in the 2014–2015 school year.



The staff at the WOMS Health Center are eager to strengthen their asthma program in the fall by adding a component that directly addresses the air pollution in West Oakland through implementing the EPA’s Flag Program. The Flag Program uses different colored flags to inform students, school staff, and the community of daily air quality conditions. The flag colors correspond to the colors used in EPA’s Air Quality Index (AQI), which tells how clean or polluted the air is for that day. Sharing the daily air quality through these highly visible flags increases awareness about air pollution. In addition to raising awareness, the flag program also serves as important guidance for modifying physical activity in order to protect the health and well-being of students.

In addition to expanding the breadth of their asthma program, the staff have plans to expand their reach. They will be expanding their own clinic services to include students from a nearby Charter Middle School. Additionally, they plan to replicate their comprehensive asthma program in another school-based health center run by Lifelong Medical in East Oakland, CA. Hana Shirriell-Dia, Health Center Supervisor, shares: “We know that our program is working and we’re excited to expand it to other locations to help children all across Oakland breathe easier.”

- 1 “Clearing the Air: Reducing Diesel Pollution in West Oakland” A West Oakland Environmental Indicators Project Report by the Pacific Institute in conjunction with the Coalition for West Oakland Revitalization November 2003. http://www.pacinst.org/wp-content/uploads/sites/21/2013/02/clearing_the_air_final3.pdf
- 2 Bay Area Air Quality Management District. “West Oakland Truck Survey Final Report” 2009. http://woeip.org/wp-content/uploads/2010/12/West-Oakland-Truck-Survey-Final-Report-Dec-2009.ashx_.pdf
- 3 Douglas, R. “A Brief History of West Oakland” adapted from Olmsted and Olmsted (1994)

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For more information on how school-based health centers can address environmental asthma triggers, view the [Asthma Environmental Intervention Guide for School-Based Health Centers](#).

Leveraging Medicaid Delivery System Reform to Improve Asthma Management: The story of a network of 20 School-Based Health Centers in Texas

The 20 school-based health centers (SBHCs) run by the John Peter Smith Health Network serve over 40,000 children each year. There is great diversity in race, ethnicity, and English language ability and the majority of children seen are uninsured or underinsured. Tarrant County has asthma prevalence and emergency department visit rates that are higher than state or national averages. To address this, the School-Based Health Center Network leveraged their unique relationship with schools, students, and families along with the funding opportunity provided through DSRIP to launch a comprehensive asthma program.



DSRIP, the Delivery System Reform Incentive Payment, provides states with significant funding that can be used to support hospitals and other providers in changing how they provide care to Medicaid beneficiaries. Texas was one of the first three states in the country to implement DSRIP initiatives, under which funds to providers are tied to meeting performance metrics. The John Peter Smith Health Network has a DSRIP agreement with the state to improve asthma management for children, which led to the creation of a comprehensive asthma program that reaches 2,000 children with asthma each year.

As a first step in the program, each SBHC identifies either existing or new patients between the ages of 2 and 26 with a diagnosis of persistent asthma. During the first visit, the providers focus on assessing asthma control, understanding history and symptoms, conducting allergy tests, and providing medications. They conduct one-on-one education and schedule a group asthma educational follow-up visit.

The providers know, however, that asthma management and prevention cannot be achieved solely through clinical care. Beverly Ewing, School-Based Clinic DSRIP Nurse Practitioner, explains, “We all know that prevention starts in the home and in the environment.” The program was able to utilize four bilingual Community Health Workers from the Community Health Department to conduct a home visit during which they educate the family about environmental asthma triggers and conduct a home assessment to identify

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—Beverly Ewing, School-Based Clinic DSRIP Nurse Practitioner



any indoor or outdoor triggers. They made recommendations based on their findings. For example, parents can reduce indoor asthma triggers by keeping pets out of the children's bedrooms, using asthma-friendly cleaning products, and prohibiting smoking in their house or apartment. They also identified systemic problems that could worsen asthma. For example, plumbing leaks can expose children to mold, a common asthma trigger, and tobacco smoke from one apartment unit can enter another unit. In those cases, the Community Health Workers notified the health care providers who would then suggest environmental improvements to the property managers. The Community Health Workers entered any triggers they found into the electronic medical record so that clinicians could follow-up and reinforce messages.

The Nurse Practitioner also teaches group education classes for students and families. They discuss the causes of asthma along with allergens, medications, action plans, and nutrition. They encourage active participation with games and activities. One creative and fun activity is "Trigger Tag" in which every participant is assigned a trigger and wears a sign around their neck with a picture of that trigger. Then, they go outside and the students get to use super soakers to shoot the triggers that make their asthma worse. It's a fun activity in a hot climate that also reinforces the important role of environmental asthma triggers.

The program lasts for eight months and includes a number of follow-up clinical and educational appointments. The goals are to decrease exacerbations and emergency department use and to increase knowledge and the use of controller medications. Though the program is still new, students and families are already reporting improvements in their asthma control.

Factors contributing to the success of the program include having an asthma champion, like Beverly Ewing, and "having fantastic nurse practitioners and physician assistants." Yet, despite the innovative funding source, financial sustainability has been a challenge. In December, the program faced budget cuts and is currently not able to conduct home visits. Ms. Ewing and partners are committed to bringing back the home visits and continuing this comprehensive approach. She is hopeful as she explains, "We're all working for a common cause—to make sure children can breathe."

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For more information on how school-based health centers can address environmental asthma triggers, view the [Asthma Environmental Intervention Guide for School-Based Health Centers](#).

Help us share your story! If you are part of a school-based health center conducting asthma environmental interventions, we'd like to work with you to share your story. Contact us at info@rampasthma.org.

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