

# How Communities can Collaborate with Schools to Implement a Comprehensive Asthma Program



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**Detroit Department of Health and Wellness Promotion-Center for Asthma Education  
Management and Policy**

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Program**

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## **I. Introduction**

According to the National Center for Chronic Disease Prevention and Health Promotion, asthma is a leading chronic illness among children and youth in the United States. In 2003, 5 million school-aged children and youth were reported to currently have asthma and 3.1 million had an asthma episode or attack within the previous year.<sup>1</sup> On average, in a classroom of 30 children, about three are likely to have asthma.

In addition:

- Asthma is one of the leading causes of school absenteeism. In 2002, 14.7 million school days were missed due to asthma.<sup>2</sup>
- Low-income populations, minorities, and children living in inner cities experience more emergency department visits, hospitalizations, and deaths due to asthma than the general population.<sup>3</sup>
- Asthma can be controlled with proper diagnosis, appropriate asthma care, and management activities.
- In 2003, 5.9% of school-aged children and youth experienced an asthma episode or attack within the previous year.<sup>1</sup>
- The estimated cost of treating asthma in those under 18 is \$3.2 billion per year.<sup>4</sup>
- Asthma is the third-ranking cause of hospitalization among children under 15.<sup>5</sup>
- Asthma attacks, also referred to as episodes, can be caused by tobacco smoke, dust mites, furred and feathered animals, certain molds, chemicals, and strong odors in the school environment.

Although asthma cannot be cured, it can be controlled. Schools can do their part to control asthma by becoming more “asthma-friendly,” i.e., adopting policies and procedures, and coordinating student services to better serve students with asthma. For example, all students with diagnosed asthma should have an asthma action plan on file that is easily accessible at school.<sup>2</sup> Schools can provide asthma education and collaborate with organizations that focus on asthma. Chances for success are better when the whole school community takes part—school administrators, teachers, and staff, as well as students and parents.

The purpose for starting a community-based comprehensive asthma program in schools is to decrease the number of school days missed because of asthma. Also, to ensure that school administrators, principals, teachers, counselors, coaches and physical education teachers, custodians, other staff, and parents know how to recognize and respond to an asthma emergency.

## **II. Purpose**

The purpose of this document is to provide guidance on how to develop and implement a community-based comprehensive asthma program for schools. This document can be used by anyone interested in addressing asthma in school setting including but not limited to parent lead organizations such as PTA's, school nurses, community members, and asthma advocates.

## **III. Goals**

- Provide asthma management education in schools and the community with an emphasis on identifying and avoiding and reducing exposure to asthma triggers
- Provide safe and healthy school environment and reduce exposures to asthma triggers

- To ensure that physical education activity opportunities are safe and enjoyable for students with asthma
- Have student able to participate in Normal activities, including play, sports, exercise, or other school activities
- Coordinate with school, family and the community to better manage asthma symptoms and reduce school absences among students with asthma
- Reduce acute episodes of asthma that require visits to a doctor, the emergency room, or urgent care
- Reduce missed school days

#### **IV. School Intervention Components**

- Implement asthma programs for all schools and all grades, including preschool/daycare. Provide programs such as *Open Airways* (American Lung Association) in elementary schools, *Power Breathing™* (Asthma and Allergy Foundation of America) in middle schools, and *Puff City model* (Henry Ford Health System) in high schools.
- Implement evidence-based interventions whenever possible.
- Conduct an assessment - Asthma programs that are currently in the schools should be identified and evaluated to determine if the program needs to be enhanced.
- Provide asthma education and management workshops for students, teachers, food service workers, counselors, sports /physical education staff, school administrators.
- Identify and establish a database for students with asthma
- Ensure that all students have a completed health appraisal form in schools
- Identify age appropriate asthma education resources
- Have asthma action plans and peak flow meters for all students with asthma.
- Provide awareness on state inhaler law, if not available the State of Michigan Inhaler Law can be used as a model for legislation in your state
- Have signs explaining how to recognize an asthma emergency and how to respond to an asthma emergency placed in strategic locations in all schools
- Conduct asthma workshops for bus drivers
- Educate school administrators, and staff about the impact of indoor air quality on the health of students and personnel.
- Implement EPA's Tools for Schools
- Ensure that school system adopts EPA's Clean School Bus USA which includes: anti-bus idling practices, retrofitting buses with modern emission control technology, using cleaner fuels, and replacing older buses

#### **V. Establishing a Community Collaborative**

Whoever takes the lead to initiate a community collaborative in schools should do the following:

- Research regional area for national, state and local organizations that can provide services and assist with implementation of goals and expected outcomes
- Solicit organizations with members interested in working as a collaborative
- Solicit organizations to find an in-kind meeting place

Selecting a location is very important step in the process. The building and surrounding grounds should be accessible for all committee members. There should be ample room, store room, restrooms and office space if possible. Possible locations include: local and state health departments, schools, churches, community organizations, hospitals, healthcare management organizations and

corporations. Request space be donated and also request phone and internet access if possible.

- Schedule meeting with at least 2 weeks notice, more time if necessary
- Set a meeting agenda that outlines purpose, goals and school intervention component

#### **VI. What Needs to be Addressed at the Initial Meeting of the Collaborative**

- Review purpose, goal and school intervention component
- Poll attendees on level of expertise decide if other organizations and individuals need to be at the table
- Brainstorm and find out what services organizations and can provide to implement strategies
- Determine operation guidelines/procedures

#### **VII. Expectations of Collaborative Partners**

- Provide resources to schools through donations, minimal cost or in-kind education for students k-5, grades 6-8, grades 9-12, parents and staff
- Provide in-kind resources to collaborative and schools (i.e. peak flow meters, holding chambers, nebulizers, asthma action plans for all students, integrated pest management analysis, non-toxic cleaning supplies, etc.)
- Attend scheduled meetings and volunteer if possible for committees and special activities
- Establish a Memorandum Of Understanding (MOU) with schools
- Support other collaborative partners
- Identify coordinator for the collaborative

#### **VIII. Collaborative Coordinator's Responsibilities**

- Poll attendees to determine who has contacts with school board and superintendent or other members of the school system, obtain contact name and determine who will contact them
- Research the protocol for working in the school i.e. (Do you need a Memorandum of Understanding?)
- Review school intervention components
- Draft a to do list
- Decide which collaborative partner is responsible for specific tasks
- Decide on meeting dates, locations, who will be responsible for chairing the meetings
- Approach school and set a meeting with appropriate person whether it is the School Board or Superintendent or principals (It is important to note that approaching the school board or the superintendent would be the best approach. However, do not discount the relationships that your collaborative partners have with school staff member or parent groups. It is important to capitalize on all relationship to have success in the school.) Goal is to get the buy-in of upper management to implement program in schools.

Note: Once the school system or school gives the collaborative permission to implement the comprehensive asthma program, organize a district wide team if a Coordinated School Health Council is not available

## IX. After Receiving Approval from the School System

- Select a coordinator from each school (should be the school nurse if available.)
- Assign tasks to school coordinator and/or school volunteer
- Conduct training for all school coordinators, staff, and volunteers to familiarize them with the comprehensive asthma program

*Review school district's policy for volunteers*

Minimum Requirements:

- Completed application
  - Release and authorization for clearances: State Police Clearance, FBI Clearance, Child Abuse Clearance
  - Health Appraisal including TB test
  - Emergency Information sheet
  - Letters of reference
  - CPR and First Aid training
- 
- Conduct school assessment
  - Conduct a school walk through with designated building maintenance or custodian
  - Work with school to prioritize interventions and implement school interventions
  - Ensure that all students have a completed health appraisal form in school file
  - Identify and establish a database for students with asthma
  - Identify age appropriate asthma education resources
  - Distribute asthma action plans, peak flow meter and holding chambers for each student with asthma
  - Schedule evidence based asthma education for students suggestions include: *Open Airways* (American Lung Association) in elementary schools, *Power Breathing™* (Asthma and Allergy Foundation of America) in middle schools, *Puff City model* (Henry Ford Health System) in high schools
  - Schedule training in school for parents with an emphasis on environmental asthma triggers, secondhand smoke, medication, advocacy, and smoking cessation
  - Post signs in school on how to recognize and respond to an asthma emergency
  - Develop a training module and provide training to each staff and school coordinator.

Suggested curriculum should include the following:

What is asthma?

Asthma Symptoms

State and Local Statistics

Mortality Rates

Risk Factors for Asthma

Asthma Management

Goals of Asthma Management

Environmental Interventions

Medical Interventions

Behavioral Changes

What are Asthma Triggers?

Common Asthma Triggers: Allergens, Irritants, and other Triggers

How to reduce exposure to asthma triggers?

Asthma Medications

Peak flow monitoring

Asthma Management Plan

How to recognize and respond to an asthma emergency

Early Warning Signs  
Danger Signs

Note: Handouts should be culturally and literacy appropriate materials.

## **X. Sustainability Strategies**

- Create a sustainability plan
- Create a train-the-trainer program for school coordinators and volunteer programs as a part of a sustainability strategy
- Evaluate program's effectiveness; make program changes as appropriate to achieve desired goals
- Implement an effective internal and external communication plan to keep staff, students, parents and community abreast of school improvements
- Facilitate system changes in schools by establishing good school policies such as:
  - Integrated Pest Management
  - Indoor Air Quality
  - Clean School Bus USA
  - Continuing Education for Staff
  - Medication Policy
  - Inhaler Law
  - Smoke Free School

A quality community program can be expensive. High quality, efficiency and careful management will hold cost down, and donations of goods and services- while still a part of the cost of running a program – help reduce the amount of money required to run a program. There are regional variations in cost associated with running a program which reflect differences in wages, available facilities and other resources.

Despite high cost, however, the hope for high quality does not have to be abandoned by any community, rich or poor. Those who set out to provide quality programs must count on dedicating a considerable amount of time to fund-raising and solicitation of in-kind services. Collaborative partnerships must create a fund development strategy which considers multiple funding sources. Consider every major component of the program operation. Decide how each component is to be provided in the program setting or elsewhere; by using staff or outside help; by hiring specialist or consultants on an hourly basis; on a long-term or short-term contract, or on a per-job basis. In most communities, both a carefully planned budget and successful pursuit of funds from one or more sources will help in sustaining a comprehensive program. Below are examples of funding sources:

### **Public Funds**

Most public funds are available to school systems, public health departments and municipal governments as well as community based organizations. Some funding sources give priority to communities that experience health disparities. Guidelines of public funding sources may change so it is important for collaborative partners and schools to review this information on a regular basis.

### **Community Fund Raising Campaigns**

The collaborative or the school should apply to private philanthropic agencies, such as The United Fund/Way or local Community foundations for funding. To receive these funds, an organization is generally required to be a nonprofit agency with a 501c3 designation. They may

also require an organization to be incorporated and to meet other standards. Funds are usually granted only as a means to relieve a deficit between annual operating expenses and income from all other sources, a may not be used on one-time needs.

### **Individual Fund Raising Campaigns**

Collaborative Partners can undertake their own campaigns to raise money. The collaborative can sponsor bake sales, car washes, dramatic performances or social occasions; or they may charge membership dues or issue letters of appeal. These efforts can be successful but the funds generated through these methods could be limited. Unless run by groups with considerable experience, the project may actually produce expenses higher than income. The most effective way to manage such activities is to create a fundraising committee made up of Collaborative Partners.

### **Grants**

Many foundations and organizations make grants to education, health and child welfare entities that can provide a unique service for asthma students. Applying for grants can be laborious, time consuming, complicated process and usually involves submitting a detailed proposal and a budget. Details differ widely and should be obtained from each individual organization or foundation.

### **In-kind Donations**

Gifts of goods or services are often available in the community, especially if the program uses good advertisement and public relations techniques that inform the community about the program. Local merchants may donate various items.

## **XI. Communities' Expectation of Schools**

- Implement EPA Indoor Air Quality Tools for Schools (IAQ TfS)

IAQ TfS program is flexible, comprehensive resource for a school building's health. The district wide approach for implementing the IAQ TfS Kit has become the standard for schools that are looking to initiate proactive indoor air quality practices in there school system.

- Implementation of EPA's Clean School Bus USA

Twenty-Four Million of our nation's children are transported safely by school buses between home and classrooms. Children spend an average of more than one hour on the bus each day. Unfortunately, school buses particularly older ones lack emission control devices and therefore, emit tiny sooty particles and toxic gases in their exhaust that can pose a health hazard for children. When inhaled, pollutants in diesel exhaust may aggravate asthma and allergies or cause other serious health problems for our nation's children.

- Use Integrated Pest Management

Integrated Pest Management (IPM) is the coordinated use of pest and environmental information with available pest control methods to prevent unacceptable levels of pest damage by the most economical means and with the least possible hazard to people, property, and the environment. IPM uses mechanical trapping devices, natural predators (e.g., insects that eat other insects), insect growth regulators, mating disruption substances (pheromones), and if necessary, chemical pesticides. The use of biological pesticides is an important component of IPM.

Since children spend so much of their day at school, integrated pest management provides an opportunity to create a safer learning environment - - to reduce children's exposure to pesticides as well as eliminate pests. EPA is encouraging school officials to adopt IPM practices to reduce children's exposure to pesticides. [www.chej.org](http://www.chej.org)

- Establish a resource library for all school personnel and students to obtain additional information about asthma, including: pamphlets, brochures, and other publications.
- Schedule any extensive building repairs or cleaning during long vacations or summer months in order to avoid exposing students to fumes, dust, and other irritants.
- Support and encourage communication with parents to improve school health services.
- Reinforce twenty-four/seven tobacco-free policies within all school buildings and at all school events held on school grounds.
- Require staff to wear non-latex gloves when preparing foods or treating students medically.
- Follow state medication policy for schools, if available
- Make sure that the ingredients in all foods served by the cafeteria are posted/published and/or have a complete ingredient list available for students with food allergies

## **XII. Roles and Responsibilities**

### **(a.) Parents**

In order to keep your child's asthma under control at school, parents need to prepare themselves, their child and school staff. Here's what **MUST** be done before school starts:

1. Have the student's written Asthma Action Plan prepared by child's doctor and give a copy to your child's school.
2. Make sure the school has emergency numbers to reach the parent or guardian.
3. Schedule a conference with your child's teacher to talk about your child's asthma.

Working with school staff year round will help your child have a healthy school year. Below is a checklist of important items to remember:

#### **During the summer:**

- Visit the student's doctor or health care professional, and complete a new asthma action plan. Give a copy to each of the child's teachers, school nurse, and school secretary and after school activity staff.
- While at school, be sure to talk about your child's:
  - technique with peak flow meter, inhaler and spacer
  - asthma triggers, especially those that the child might have at school, such as exercise, animals, and food allergies
  - medications
- Complete all medication/health forms from the school - don't forget the ones for sports or other physical activities
- Request copy of school Indoor Air Quality (IAQ) report. The IAQ report should include information on:
  - cockroaches
  - dust mite sources (often found in humid places and in pillows, carpets, upholstery and stuffed toys)
  - mold
  - other airborne asthma triggers (i.e. particulate matter and Volatile Organic Compounds (VOCs))

Request the smoke free policy (if applicable). Review the policy and find out how well it is enforced. If no smoke free policy exists, work with school to establish one. Example of a smoke free policy can be found at <http://schoolasthmaallergy.com>

If you are concerned about any of the above, talk to the school staff about correcting the problems prior to school starting.

**Before school starts:**

- Complete all school, activity, medication and health forms
- Check to see if all inhalers are full and in working order
- If your child uses a nebulizer, make sure all of its parts are clean.
- Label all medications and asthma tools with child's name and classroom
- Arrange a meeting with child's teacher and other school staff, include the child in the meeting if possible
- Arrange a meeting with child's after school day care teachers, if needed

**At the meeting with the school/daycare staff, discuss:**

- Basics of asthma and allergies
- Warning signs for your child's asthma episodes
- Triggers, such as animals in the classroom, cold air at recess, and strong odors
- Your child's Asthma Management/Action Plan
- Your child's Emergency Plan, make sure staff knows what to do and how to do it
- Medications and access to medications. Some states and/or schools have policies that allow students to carry their inhalers with them at all times.
- Asthma tools, such as peak flow meters, spacers, and nebulizers
- Emotional aspects of your child's asthma
- Gym class and other times they play hard
- Missing school and making up school work
- A time for asthma education for the class – ask the school nurse, doctor or local asthma coalition if you need help talking about this or arranging for someone else to do the talking.
- Any other important items parents and people caring for your child can do to help the teacher/staff

**During the school year:**

- Be sure to check often with teacher and other staff to make sure they are not having problems following the asthma management or action plan – if the plan changes, be sure to give the school staff a new one, and review changes with them
- Make sure there are enough medication supplies - use weekends and school vacations to clean or replace valved-holding chambers/spacers and peak flow meters, and check inhalers
- Talk to your child about any difficulties or problems in controlling their asthma at school.

Note: It is equally important to make sure to reduce exposure to allergens and irritants in the home. Parents should review the Indoor Air Quality information and implement the steps at home.

## **(b.) School Administrators/Principals**

Involve your staff in the school asthma management program. A school asthma management program is a cooperative effort that involves the student, parents, teachers, school staff, and physicians. Many members of the school staff can play a role in maintaining your school's asthma management program, although the principal or the school nurse may be most instrumental in getting a program started. Take the steps listed below to help set up an asthma management program at your school.

Develop a clear policy on taking medication during school hours. Work with parents, teachers, the school nurse (if available), and others to provide the most supportive policy that your school system allows so that the student can get the medication he or she needs. Be knowledgeable about medication policy that allows students to carry their quick-relief inhalers with them at school, for use in preventing or treating asthma symptoms, if permission is given by the doctor and parent.

- Designate one person on the school staff to be responsible for maintaining every student's Asthma Action Plan. If there is not a nurse at the school, assign this task to a staff member who has received appropriate asthma training. To find asthma training opportunities, contact your local American Lung Association office. For helpful information about delegating school health services to unlicensed personnel visit [www.lungusa.org](http://www.lungusa.org)
- Provide in-service opportunities for staff to learn about asthma and allergies. Assistance is available from the school nurse, a local hospital, or asthma coalition. Additional resources are available from: the American Lung Association, Asthma and Allergy Foundation of America, National Jewish Center for Immunology and Respiratory Medicine, and the Mothers of Asthmatics.
- Asthma may be considered a disability for a student, depending on severity, under Section 504 of the Rehabilitation Act. Many students with asthma, especially those with severe asthma, may need a 504 Plan/Individual Education Plan (IEP) to ensure that they receive the services they need to learn in the school environment. IEP's, as appropriate, particularly for health services and physical activity modifications.
- Establish a resource library for all school personnel and students to obtain additional information about asthma, including: pamphlets, brochures, and other publications. This library of information will provide staff and school personnel an opportunity to obtain additional information about asthma. Many organizations offer educational materials for this purpose.
- Schedule any extensive building repairs or cleaning during long vacations or summer months in order to avoid exposing students to fumes, dust, and other irritants.
- Support and encourage communication with parents to improve school health services.
- Enforce any tobacco-free policies. Ideally, should be 24/7 within all school buildings and at all school events held on school grounds.
- If such a policy does not exist, work with collaborative partners to have one established.
- Require staff to wear non-latex gloves when preparing foods or treating students medically.

- Follow your state medication policy for schools, if there is not a policy available, the state of Michigan has a good medication policy for schools that may be helpful.
- Make sure that the ingredients in all foods served by the cafeteria are posted/published and/or have a complete ingredient list available for interested families
- Control exposure to chemicals and volatile materials used in science, art and other classes (i.e. store in airtight containers and ensure proper ventilation.)
- Avoid using pens, glue, and paints that emit irritating fumes. The fumes can be a trigger for asthma symptoms.

**(c.) Coaches and Physical Education Instructors**

- Appreciate that exercise can cause acute episodes for many students with asthma. Exercise performed in cold dry air and activities that require extended running tend to exacerbate asthma more readily than other forms of exercise. Medicines can be taken before exertion to help avoid an episode. Discuss appropriate pre-medication before student begins any physical activity. Warm-up and cool-down activities appropriate for any exercise will also help the student with asthma. These preventive measures allow most students with asthma triggered by exercise to participate in any activity they choose.
- Avoid outdoor exercise when pollen or pollution levels are high.
- Follow the student's treatment plan if it requires pre-medication before exercise.
- Know what to do if an asthma episode occurs during exercise. Have the child's Asthma Action Plan and medicine readily available.
- Encourage students with asthma to participate actively in sports, recognizing and respecting their limits. Know the warning signs and symptoms for asthma. Permit less strenuous activities if a recent illness or asthma episode precludes full participation. When asthma is under good control, students are able to play most sports. Many Olympic and professional athletes have asthma.
- Refer your questions about a student's ability to fully participate in physical education to the parents, school nurse and student's physician.

#### (d.) Counselors and Teachers

- Be a resource and point of contact to help all school personnel. Understand that asthma is not an emotional or psychological disease – it is not “all in the child’s head.” Strong emotions such as laughing or crying can trigger an acute episode because this irritates and constricts the sensitive airways of a person with asthma.
- Recognize that learning to cope with asthma, as with any chronic illness, can be difficult. Teachers may notice low self-esteem, withdrawal from activities, discouragement over the steps needed to control asthma, or difficulty making up schoolwork. Special counseling with the student and/or parents may help the student handle problems more effectively.
- Help the student feel more comfortable by acknowledging their feelings. Try to maintain confidentiality. Educate classmates about asthma so they will be more understanding and know when to get help from an adult. If you need help talking about asthma, contact your school nurse, local asthma coalition or regional American Lung Association.
- When counseling pregnant students that have asthma: convey the *extra* need at this time for good medical care and control of asthma.
- Assist students with asthma to factor avoidance in curriculum:  

Vocational/technical track: many fumes, vapors, dusts may aggravate lung disease (*examples*: soldering, grain dusts, animal dander, detergent enzymes, wood dusts, chloride, diisocyanates, products of heated adhesives, second hand smoke)
- Know which students have asthma.
- Know the early warning signs of an asthma episode or attack and how to respond.
- Have a copy of the Asthma Action Plan in the classroom. Review it with the student, parents and appropriate school personnel. Understand that a student with asthma may feel:
  - Drowsy or tired
  - Different from the other kids
  - Anxious about access to medications
  - Embarrassed about the disruption to school activities that asthma symptoms can cause
- Know the possible side effects of asthma medications and how they may impact the student’s performance in the classroom. Refer any problem to the school nurse or other appropriate school staff, and parent(s). Common side effects of medicine that warrant referral are nervousness, nausea, jitteriness, hyperactivity, and drowsiness.
- Reduce known allergens in the classroom to help students who have allergies and asthma. Common allergens found in classrooms include chalk dust, animals, and strong odors (perfumes, paints).

- Encourage the student with asthma to participate in physical activities, but make sure they follow proper precautions.
- Plants are sources of mold growth; reduce the quantity of plants in classroom. Do not cover up any vents in the classroom. This prevents fresh air from circulating into the room.

### **(e.) Building Engineers and Custodians**

Preventive actions taken by the school maintenance staff can reduce asthma triggers:

- In some students, pollen can be an asthma trigger. Keep pollen levels down by limiting grass and plant trimming to after hours, closing windows when pollen or pollution levels are high and if possible, and installing air conditioning in all classrooms.
- Use cleaning solvents or fumigate when school is not in session. Maintenance supplies may give off air contaminants during use and storage. Products low in emissions, are preferable. However, a product that is low in emissions is not necessarily better if it is more hazardous. Learn about your maintenance supplies and identify precautions regarding effects on indoor air or ventilation rates and requirements. Examples of maintenance supplies that may contribute to indoor air quality (IAQ) problems include:
  - Caulks
  - Solvents
  - Paints
  - Adhesives
  - Sealants
  - Cleaning agents
- Cleaning classrooms on a regular basis helps to reduce the amount of dust and dirt in the school, including pollens and molds, which can cause allergic reactions. Whenever possible, use non-toxic and non-irritating cleaning substances.
  - Install barrier floor mats at each school entrance to reduce the amount of dirt and dust in the school. Mats should be cleaned daily.
  - Use High Efficiency Particulate Air (HEPA) vacuum bags that can retain dust and particles in the 3 micron size range or smaller.
  - Vacuum dust from heating, cooling, and ventilation air return grilles, air supply vents and ceiling and wall surfaces regularly to remove visible dust.
  - 
  - Use a dust wiping technique that ensures the dust stays on the cloth. Avoid using a flicking motion when you wipe.
  - Clean all flooring, including vinyl, wood, terrazzo, tile and carpet daily. Remove spots and stains as soon as possible, using the flooring manufacturer's recommended techniques. Use care to prevent excess moisture or cleaning residue accumulation, and ensure that cleaned areas will dry quickly.
- Mold and mildew can grow almost anywhere that offers a food source and a small amount of moisture, whether from leaks and spills or condensation. Mold and mildew spark many allergic and asthmatic symptoms.
  - Inspect the building for signs of moisture, leaks or spills. Check for moldy odors, discoloration on ceilings, floors or walls, and signs of water damage. Also, check cold surfaces, such as under windows or in corners formed by exterior walls, and

areas where moisture is generated, such as locker rooms.

- Respond promptly to problems. Clean and dry damp or wet building materials and furnishings. Work with manufacturers of furnishings and building materials to learn recommended cleaning procedures and/or identify competent contractors who can clean damp materials.
  - Prevent moisture condensation by adding insulation near cold surfaces (piping, exterior walls, etc.), raising the temperature of the air, improving air circulation in problem areas, and decreasing the amount of water vapor in the air.
  - Do not rely on widespread use of pesticides to control pests. Monitor and use Integrated Pest Management (IPM) methods to control for cockroaches, mice and other pests. Pests can cause asthma symptoms in sensitive individuals.
  - If pesticides are used outdoors, do not apply near outdoor air intakes for the ventilation system, doors or open windows. If pesticides must be used, shut down the affected ventilation system(s) and remove occupants until application has been completed and ventilation has been restored.
- Drain traps can cause IAQ problems when water in the drain trap evaporates due to infrequent use. If the building interior is under negative pressure, soil gas or sewer gas can be drawn indoors through a dry drain trap.
    - Make sure all drains have drain traps, and make sure that all of the drains only you have access to are filled (pour about a quart of water down once per week, run water in sinks once per week).
    - Check water in seldom-used toilets once each week, if low, flush.
  - Plants are sources of mold growth; reduce the quantity of plants in classroom. Do not cover up any vents in the classroom. This prevents fresh air from circulating into the room.

**(f.) Food Service Worker**

- Maintain general cleanliness. A clean kitchen with food stored in secure containers discourages insects, rodents, and other pests. Integrated Pest Management (IPM) practices minimized the need for pesticides and discourage pests by eliminating the food sources, pathways, and shelter they need. Adhere to the state food safety program policy.
- The kitchen is often the busiest part of the school for deliveries. Because fans are exhausting air from the kitchen, air and exhaust from a nearby loading dock may be drawn into the kitchen. These exhaust fumes can be very irritating to those in the school with asthma. Post a sign prohibiting vehicles from idling their engines in the receiving area, and ask drivers to turn off their engines if they don't follow the sign's directions. In addition, smoking should not be allowed near receiving areas.
- Make sure that the ingredients in all foods served by the cafeteria are posted/published and/or have a complete ingredient list available for with food allergies.
- Other links that may be useful:  
The Food Allergy & Anaphylaxis Network - <http://www.foodallergy.org/guidelines.html>  
<http://www.foodallergy.org/school.html>

### **XIII. Success Story**

The Detroit Department of Health and Wellness Promotion-Center for Asthma Education, Management and Policy (DHWP-CAEMP) addressed the asthma issue in the Detroit Public School (DPS) by collaborating with DPS' Coordinated School Health Council (CHSC) and the Environmental Service Division. CHSC includes school nurses, physical education department, parent organization, school-based health clinics, parent liaisons and students. The school intervention includes DHWP-CAEMP asthma management education in the schools with emphasis on identifying and avoiding or reducing exposures to environmental asthma triggers. The implementation of Environmental Protection Agency's (EPA) Tools for Schools, and Indoor Air Quality assessments in schools were conducted by the DPS' Environmental Health Service Division. Through successful communication with DPS' Chief Executive Officer, DHWP-CAEMP had the opportunity to present a workshop to over 240 principals and offer asthma management workshops to each individual school. The workshop enabled DHWP-CAEMP to introduce the asthma school packets. The asthma school packets are a set of four booklets customized for principals, teachers, administrative assistants, and custodians. The packet was produced by the Asthma Initiative of Michigan a state collaborative partner. DHWP is a member of the Detroit Alliance for Asthma Awareness (Alliance), the asthma coalition for the City of Detroit. The coalition consists of 45 member organizations and community people addressed the asthma burden in Detroit through working with the Alliance members. Several Alliance partners worked together to provide asthma education and resources in schools. American Lung Association of Michigan – *Open Airways* in elementary schools, Angel Group-asthma education for elementary schools, parents and staff, Asthma and Allergy Foundation of America - *Power Breathing*<sup>™</sup> for middle schools and Henry Ford Health Systems - *Puff City* for high schools. The DHWP-CAEMP and the Alliance involvement with DPS was important because only 30 out of the 240 schools have nurses on staff. As a result of our collaborative efforts, the number of asthma emergency calls overall in the schools declined by over 50% and was not limited to the schools with nurses. This model demonstrates the effectiveness of pooling limited resources to improve health outcomes, in this case, better management of asthma.

#### **XIV. Indoor Air Quality**

People with asthma have airways that are very twitchy or sensitive. These airways may react to things that can (or cause) asthma symptoms. When a person with asthma breathes in an asthma trigger, their airways may swell up, tighten up, and produce too much mucus. The person may then start to wheeze or cough, and may develop congestion, itchy eyes, or a runny nose. Because of this, it is important for people with asthma to find out what their asthma triggers are and learn ways to control them.

Many different items in the indoor environment can be asthma triggers and can affect people with asthma. It has been recognized that because Americans spend so much time indoors - over 90% of the day is spent at home, school, and/or work – it is important that people with asthma maintain healthy indoor environments and reduce exposures to indoor asthma triggers. Not only can poor indoor air quality make the symptoms of someone who already has asthma worse, but it may also play a role in the development of asthma in more susceptible people, like small children. In addition, some people with asthma may be more sensitive to certain indoor air triggers than other people with asthma. To help you find out what these asthma triggers are, people with asthma often keep a written record of their activities. Writing down what they were doing, and where, whenever there are symptoms will help to find out if being near certain things causes the asthma symptoms. For example, if asthma symptoms are worse when making the bed or vacuuming, dust mites may be a trigger.

Indoor air triggers can be classified as either irritants or allergens. *Irritants* include gases such as volatile organic compounds (voc) that can aggravate the airways and cause inflammation. Irritants also include small particles that can reach the lower regions of the respiratory tract and cause inflammation. Examples of irritants include the following:

- Tobacco smoke, a well-documented respiratory tract irritant, can cause wheezing or an asthma attack in people with asthma. Smoke particles remain in the air long after the cigarette has been put out.
- Nitrogen dioxide (NO<sub>2</sub>) is a gas given off by indoor combustion appliances such as gas stoves and gas or kerosene space heaters. The presence of NO<sub>2</sub> indoors may increase the risk of respiratory infections that can make asthma worse.
- Household dust includes a range of particles from smoke to pet dander. Smaller particles remain airborne for longer periods, and therefore are more readily inhaled than larger particles that settle out more quickly onto floors, beds, countertops, and other surfaces. However, if particles are not routinely cleaned from heavy traffic areas or locations where air disturbances or currents occur, settled particles could become airborne again.
- Chemical odors are given off from a wide variety of materials: paint, solvents, pesticides, adhesives, particleboard, vinyl flooring and tiles, dry-cleaned clothes, toner from photocopiers, and cleaning agents used in the home. These odors can cause an asthma attack in people with asthma.
- People with asthma may be quite sensitive to certain fragrances such as perfumes, scented detergents and soaps, personal deodorants, and room deodorizers.
- There are known causes of work-related asthma.

*Allergens* are materials that cause an immune-type reaction in people who are sensitized to these materials. Allergens found in indoor air are primarily biological material such as pet dander, cockroach and other insect pest particles, pollen, bacteria, and mold. All of these materials are

small particles, can become airborne, and thus, are easily inhaled. Allergens that are inhaled by sensitized people with asthma can cause asthma attacks. For example, if you think about a group of people with asthma, the presence of cat allergen could bring on an asthma attack in people with cat allergies, but not in those people who do not have cat allergies.

### Tobacco Smoke

Environmental tobacco smoke (ETS) or secondhand smoke is an irritant to the eyes, nose, and throat, and can cause permanent damage to the lungs. It may cause asthma attacks and respiratory infections to happen more often, and may cause the development of asthma in children. Infants and children are most vulnerable to ETS because their lungs are still developing.

### Mold

Molds are fungi that appear as cottony tufts. Molds reproduce by making and releasing spores, which range in size from 2 to 100 micrometers. Spores become airborne when released by the mold or when disturbed through physical contact. Certain molds may also contain substances called mycotoxins that act as irritants in both allergic and non-allergic people. Spores, mycotoxins, and other components can trigger respiratory irritation. High humidity and dampness in the home permit the growth of these microorganisms in heating, ventilating and air conditioning systems (HVAC), dehumidifiers, condensate pans, damp insulation, plaster/sheetrock, and carpets.

### Cockroaches and Other Insect Pests

Waste products and rotting bodies from insect pests including cockroaches are the source of many allergens. Cockroach allergens are found in household dust and can become airborne. Studies have shown the higher the concentration of cockroach allergen, the more asthma symptoms children experience.

### Pets

All warm-blooded pets, including dogs, cats, birds, and rodents, can make asthma worse. Allergens from pet urine, dander, and saliva can cause asthma symptoms and worsen lung function.

### Dust Mites

Dust mites are tiny, microscopic spiders usually found in household dust, bed linens, pillows, mattresses, and carpets and can trigger asthma attacks. Dust mites grow well under humid conditions and several thousand mites can be found in a pinch of dust.

Note: Resource websites are provided at the end of this document. For people without access to the Internet, call the USEPA at 1-800-438-4318 to speak to an indoor air quality (IAQ) information specialist.

## **XV. Outdoor Environmental Triggers**

Diesel exhaust from school buses, ozone, grass/trees on playgrounds, pollen, mold, spores, and particulate matter are outdoor environmental triggers that can be hazardous to health. Asthma attacks, respiratory disease, heart attacks and premature death are all link to exposure to pollution. The built environment (location of factories, incinerators, living near freeways and other facilities) plays a major role in the disproportionate impact of environmental pollution on human health and contribute to asthma. To learn more about environmental pollution and asthma visit [www.nbejn.org](http://www.nbejn.org)

Montana State University, the United States Department of Agriculture (USDA), and the United States Environmental Protection Agency (USEPA) created a Microsoft PowerPoint presentation on asthma and outdoor asthma triggers that can be seen on the following website: [www.montana.edu/wwwcxair/](http://www.montana.edu/wwwcxair/).

## **XVI. Resource Websites**

American Academy of Pediatrics

[www.aap.org](http://www.aap.org)

- Advocacy
- Publications
- Services

ASMANET- Asthma on the net

[www.asmanet.com](http://www.asmanet.com)

AIM Public Awareness Tool Kit

[www.getasthmahelp.com](http://www.getasthmahelp.com)

1-866-ezlungs(395-8647)

Allergy & Asthma Network- Mother of Asthmatics

800-878-4403

- Patient education
- Patient support
- News

American Academy for Allergy and Immunology

[www.aaaai.org](http://www.aaaai.org)

1-800-822-2762

- Diagnosis
- Treatment
- Support organizations
- Resources
- Section for kids

American College of Allergy, Asthma & Immunology

Phone: 1-800-842-7777

<http://allergy.mcg.edu>

- Toll free number for referral to an allergist
- Booklets and other materials on allergies and asthma.

American Lung Association

[www.lungusa.org](http://www.lungusa.org)

- Pamphlets
- Educational programs
- Fact sheets

- Patient information

Asthma and Allergy Foundation of America

[www.aaafa.org](http://www.aaafa.org)

1-800-727-8462

- Education
- Advocacy
- Support groups
- Resources

e-Asthma

<http://www.e-asthma.com>

- Improve quality of life
- Goals of asthma management
- Self education
- Partnership with clinician

The Foundation for Better Health Care – Asthma Care Profile

<http://fbhc.org/modules/asthma.cfm>

- Comprehensive overview of asthma for patients
- Additional links

The National Asthma Education and Prevention Program (NAEPP) of National Heart, Lung, and Blood Institute (NHLBI)

[www.nhlbi.nih.gov/health/public/lung/asthma](http://www.nhlbi.nih.gov/health/public/lung/asthma)

- How asthma friendly is your school?
- How asthma friendly is your childcare setting?
- Asthma action plan
- Emergency protocol
- School Health Index – A self assessment and planning guide

School Asthma Allergy.com

<http://schoolasthmaallergy.com>

- State specific information
- Respiratory guideline and programs
- Teaching Tool Kit
- Medications
- Information for teachers, coaches, parents and kids
- Allergy information
- Smoking prevention

## **XVII. Smoking Cessation Web Sites**

American Lung Association (Freedom from Smoking): [www.lungusa.org](http://www.lungusa.org)

Dr. Koop Online: <http://www.drkoop.com> Massachusetts Department of Health:  
[www.trytostop.org](http://www.trytostop.org)

Mayo Clinic: <http://www.mayoclinic.org/nicotine-rst>

Smoke free Families (Pregnancy): [www.smokefreefamilies.org](http://www.smokefreefamilies.org)

### **Other Important Tobacco Links**

Smoke Free Environments Law Project [www.tcsg.org/sfelp/home.htm](http://www.tcsg.org/sfelp/home.htm)

American Lung Association [www.lungusa.org/tobacco/](http://www.lungusa.org/tobacco/)

Environmental Protection Agency [www.epa.gov/smokefree/](http://www.epa.gov/smokefree/)

American Cancer Society [www.cancer.org/docroot/PED/ped\\_10\\_1.asp?sitearea=PED](http://www.cancer.org/docroot/PED/ped_10_1.asp?sitearea=PED)

Center for Disease Control and Prevention [www.cdc.gov/tobacco/](http://www.cdc.gov/tobacco/) Bus Drivers

Campaign for Tobacco-Free Kids: [www.tobaccofreekids.org](http://www.tobaccofreekids.org)

[www.getasthmahelp.org](http://www.getasthmahelp.org)