

Managing Asthma

in Minnesota Schools

A Comprehensive Resource
& Training Manual for
School Personnel



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Minnesota Department of Health
Chronic Disease and Environmental Epidemiology
www.health.state.mn.us/divs/hpcd/cdee/asthma



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Introduction

Asthma has reached epidemic proportions in the United States. More than 20 million Americans currently have asthma, including an estimated 6.3 million children under the age of 18. This chronic, but manageable, disease affects 1 in 13 school-aged children.

In K-12 schools, asthma is having a sizeable impact on the lives of students and staff.

Consider these facts:

- Asthma is the leading cause of school absenteeism due to chronic illness. Over 10 million school days are missed due to asthma each year.
- Asthma can affect a student's academic performance. It can disrupt sleep and the ability to concentrate. It can also cause a child to miss out on important social interactions and school activities.
- Asthma can be life threatening. An asthma episode can quickly escalate and may result in death if a student does not receive prompt medical attention.

The good news is that asthma can be managed. It can usually be controlled with the right medications and modifications to the environment. But it must be managed 24 hours a day, 7 days a week.

Because children spend a great deal of time in school, school staff members can play a pivotal role in helping students manage their asthma. By working together as well as with parents/guardians, medical providers and the students themselves, we can devise strategies that ensure their health and safety and allow them to get the most from their time in school.

Effective asthma management can result in:

- **A supportive learning environment for students with asthma.**
- **Reduced absences.** Students have fewer episodes and symptoms are treated earlier.
- **Reduced disruption in the classroom.** Students have fewer symptoms when they adhere to their asthma action plan.
- **Appropriate emergency care.** School staff members are prepared to respond to emergencies.
- **Full student participation in physical activities.** Physical education (PE) instructors and coaches know how to prevent exercise induced asthma (EIA).
- **Increased time for staff members.** Students spend less time in the nurse's office and away from class when asthma is well managed.

This manual is designed to educate school personnel about asthma and to share practices that help ensure a safe learning environment for students with asthma. The manual contains separate sections for each staff discipline. Each section contains information about why this is important, what that person should know, and what that person can do. Certain forms, policies and educational materials are available in the folders of the Resource Section. When you see   , go to the Resource Section for supplemental materials pertinent to that particular statement. These materials can be removed and copied for use when providing asthma information to all school personnel or other interested individuals. The entire manual is provided on the enclosed CD and available on the MDH asthma website at: <http://www.health.state.mn.us/divs/hpcd/cdee/asthma/> Most of the forms/documents are offered in a word or PDF document so you may add your own logo or other pertinent information.

Every school staff member will have contact with students who have asthma. That's why it's important that each understands his/her role as part of an effective asthma management program. Students with asthma should be able to live healthy, active lives without symptoms. The information in this manual can take us closer to achieving that goal.



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Tab index

Title page	
Introduction	iii
Acknowledgements	v
Use of Manual	ix
Administrators	1–16
All Health Staff	1–21
LSN/PHN/RN	1–13
LPN	1–3
Health Assistants	1–3
Secretaries	1–14
Teachers	1–17
Counselors	1–11
Coaches	1–9
Custodial	1–9
Nutrition Services	1–8
Playground Assistants	1–9
Bus Drivers	1–7
Asthma Basics	1–9
Training	
Resource Section	
Glossary	1–4
Resources	1–7
Folders	
 Forms	
 Educational Materials	
 Regulations and Policies	



Use of this Manual

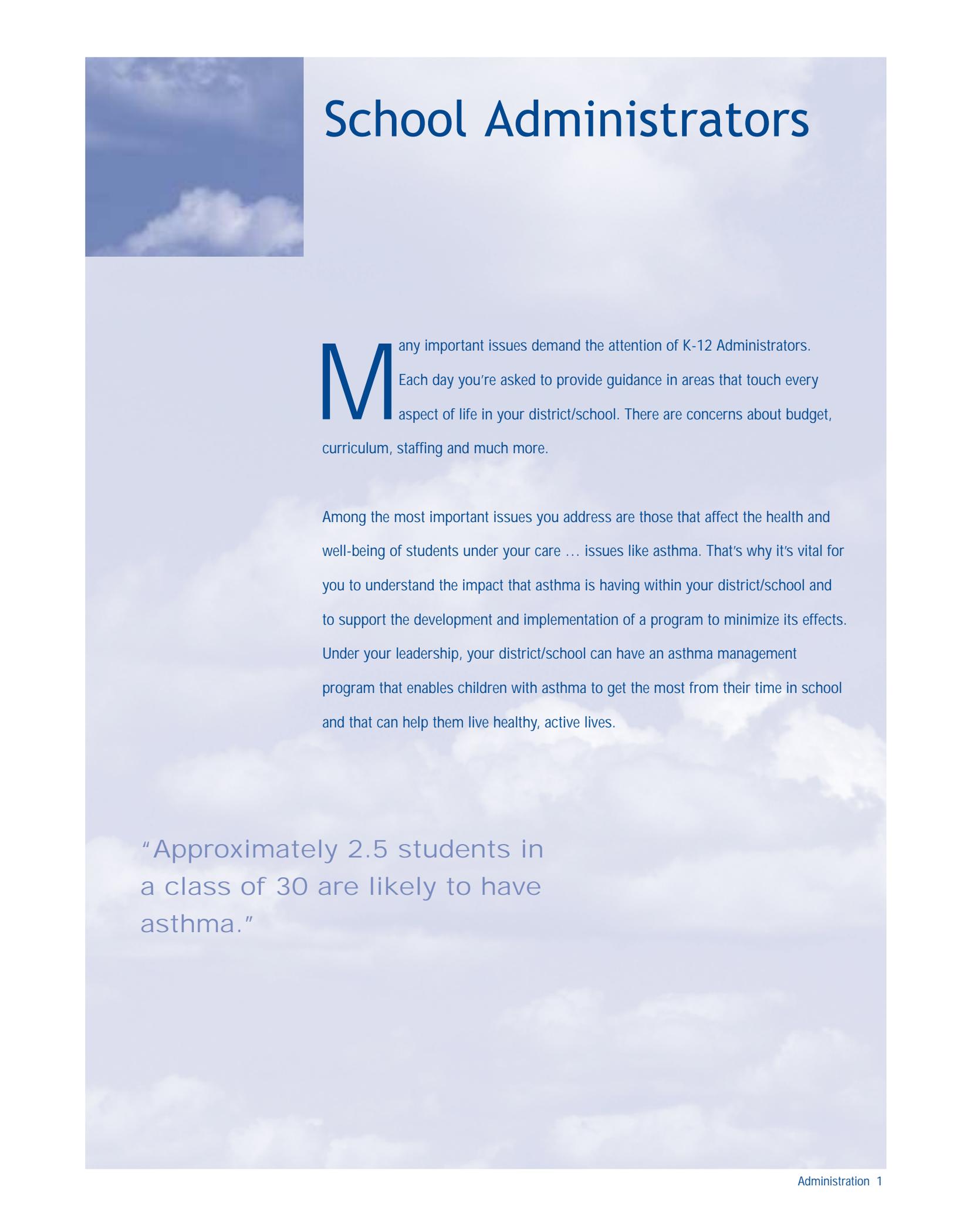
This manual has been developed to help school personnel understand the basics of asthma and to offer reasonable steps toward promoting an environment where children with asthma can be healthy, happy and active.

It is not intended to replace the services of a licensed medical professional or to be a substitute for the medical advice of physicians. The user should suggest the child's parent/guardian consult a physician in all matters relating to the child's health, and particularly in respect to any symptoms that may require diagnosis or medical attention.

USERS SHOULD ALSO RECOGNIZE THAT:

- School staff that perform duties typically delegated to licensed health care personnel should be trained and evaluated in order to meet state/district policies, standards, guidelines and regulations.
- Non-medical personnel must be trained to administer medications properly and be overseen by an RN who has evaluated their ability to perform those tasks safely and accurately.
- Performing these duties without proper training, licensure and supervision can put the individual as well as administrators and the school district at legal risk.
- You should ALWAYS check school district policies and procedures and provide care according to your licensure, position and district policies.

For questions regarding regulations, guidelines and state policies, please see the MDH Coordinated School Health Website: <http://www.mnschoolhealth.com/index2.html> or contact Cheryl Smoot MDH State School Health Consultant at: 651- 281-0061 or email: Cheryl.Smoot@state.mn.us



School Administrators

Many important issues demand the attention of K-12 Administrators. Each day you're asked to provide guidance in areas that touch every aspect of life in your district/school. There are concerns about budget, curriculum, staffing and much more.

Among the most important issues you address are those that affect the health and well-being of students under your care ... issues like asthma. That's why it's vital for you to understand the impact that asthma is having within your district/school and to support the development and implementation of a program to minimize its effects. Under your leadership, your district/school can have an asthma management program that enables children with asthma to get the most from their time in school and that can help them live healthy, active lives.

"Approximately 2.5 students in a class of 30 are likely to have asthma."



Why Learning about Asthma is Important for Administrators



ASTHMA CAN BE LIFE-THREATENING.

An asthma episode can quickly escalate and may result in death without prompt medical attention.

- Asthma symptoms can get out of control, causing an asthma episode.
- A child can die from a severe asthma episode.
- An asthma episode may come on suddenly, requiring school staff to respond to a life-threatening emergency.

ASTHMA IS AN EPIDEMIC.

- Asthma is the most common chronic childhood disease affecting at least five million children in America.
- Nearly one in 13 school-aged children has asthma.
- Asthma in children has increased significantly in both numbers and severity over the past 15 years.
- Asthma is the leading cause of hospitalizations among children.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

What's more, asthma can affect a child's performance. It can disrupt sleep, the ability to concentrate and, if not managed properly prevent a child from participation in "normal" school activities. Children who miss school due to uncontrolled asthma not only miss classroom instruction but he/she also misses out on social interactions with other children which can lead to fears of social isolation, rejection and believing they are "different" from other children.

- Over 10 million school days are missed each year by school children experiencing asthma-related problems.
- Children with asthma make more than 2.7 million physician visits annually.
- Children whose nighttime sleep is disrupted by asthma symptoms can have greater difficulty with schoolwork.
- Missed sleep due to nighttime asthma can cause children to have poor recall memory, lack of concentration and mood swings.
- Some medications have side effects which may interfere with a student's ability to concentrate or participate in school activities.

MOST ASTHMA EPISODES CAN BE PREVENTED.

By combining a reduction of environmental asthma “triggers” in the school’s internal environment with increased asthma awareness and proper medical management, most asthma episodes can be prevented. Good communication among parents, the child’s physician, and school staff is also vital to successful asthma prevention. The result is a better learning environment.

THERE ARE LEGAL REQUIREMENTS THAT AFFECT HOW SCHOOLS DEAL WITH STUDENTS AND STAFF WHO HAVE ASTHMA.

Federal and state laws require that schools take steps to promote the health, development and achievement of students and staff with asthma. Be sure to read “Relevant Legislation” later in this section.





What Administrators Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Recognizing the Signs of an Asthma Episode

Children who have asthma often learn to identify their own unique early warning signs—the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis! An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.

During the initial phase of an asthma episode a child may exhibit one or more of these signs.

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with his/her asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children who do not have asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child with asthma reacts to a different set of factors.

Some common “allergens” are:

- Dust mites
- Chalk dust
- Dander from furry or feathery animals (including pets in the classroom)
- Mold (*moist ceiling tiles or wet sink areas*)
- Seasonal pollens (*e.g. tree pollen in the spring, grass in the summer, ragweed in the fall*)
- Cockroach droppings
- Mice/rat dander, urine and their droppings
- Some medications (e.g. aspirin)

Some common “triggers” are:

- Exercise (*Exercise induced asthma or EIA*)
- Cold air
- Viral/upper respiratory infections, bronchitis, sinusitis
- Strong emotional expressions (*such as stress, anxiety, anger, crying*)
- Air pollution—both indoor and outdoor
- Chemical irritants (*cleaning supplies, perfumes, whiteboard markers, paints, pesticides, glues*)
- Tobacco smoke, secondhand smoke, smoke from burning wood and other substances

“About 6-8% of children who have asthma have food allergies that can trigger asthma symptoms.”

Exercise-Induced Asthma (EIA)

Exercise is a very common trigger for asthma. However, since exercise and participating in sports are a part of healthy living, this is one trigger that should be managed and not avoided. For teenagers, exercise is often the most common cause of asthma symptoms. Fortunately, with better medications, monitoring and proper management, a children can participate in physical activity and sports and achieve their highest performance levels!

SYMPTOMS OF EIA

May include coughing, wheezing, chest tightness and shortness of breath. Coughing is the most common symptom of EIA and may be the only symptom a child has at that time. The symptoms of EIA may begin during exercise and can be worse 5 to 10 minutes after stopping exercise or during the normal “cooling down” period rather than during the actual exercise. Symptoms can range from mild to severe and often resolve in 20 to 30 minutes. Occasionally, some individuals will experience “late phase” symptoms four to twelve hours after stopping exercise. These late phase symptoms are frequently less severe and can take up to 24 hours to go away. This is an important fact to remember when children are participating in school competitions that are repeated throughout the day.

CAUSES OF EIA

When a child exercises, he/she breathes faster due to increased oxygen demands. Usually, during exercise a child inhales through the mouth, causing the air to be dryer and cooler than when breathing normally and through the nasal passages. Decreases in warmth and humidity are both causes of bronchospasm or “airway constriction”. Exercise that exposes a child to cold air like skiing, skating or hockey is therefore more likely to cause symptoms than exercise involving warm and humid air such as swimming (although recent studies have shown the chemicals in a pool can be detrimental to children with asthma too). Pollution levels, high pollen counts and exposure to other irritants such as smoke and strong fumes can also make EIA symptoms worse. A recent cold or asthma episode can cause a child to have more difficulty exercising too.

Asthma Medications

Treatment for asthma is based on how severe a child’s symptoms are at any given time. Typically, there are two types of medications used to treat asthma:

- Quick relief (reliever) or rescue, and
- Controller or preventive.

Quick relief or rescue medications provide quick relief of an acute asthma episode and are used as needed for symptoms and before exercise. Controller or preventive medications must be taken daily and are used to control and prevent asthma symptoms. They are not effective once an episode has already begun.

A note about inhaled corticosteroids: When you hear the word “steroid” you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medications available.



All medications carry the potential for side effects. Some common complaints with rescue medications include **nervousness**, **jitteriness**, **nausea** and **drowsiness**. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.

For a complete listing of asthma medications, see the Resource Section.

Relevant Legislation



There are legal requirements that regulate schools working with not only children with asthma but with children with special needs in general. The following are simplified summaries of current statutes. The full statutes/laws are in the Resource Section.

FEDERAL LAWS (IDEA 1997) AND SECTION 504 OF THE REHABILITATION ACT OF 1973



These mandates require that schools promote the health, development, and achievement of students with asthma when the disease interferes with their learning. Schools are required to remove “disability barriers” that impede health, participation, and achievement. The law requires schools and parents to work together as partners to develop and implement health plans to protect the welfare of the child.

FAMILY EDUCATION RIGHTS AND PRIVACY ACT (FERPA)



Generally prohibits schools from disclosing personally identifiable information in a student's education record, unless the school obtains the consent of the student's parent or the eligible student (a student who is 18 years old or older or who attends an institution of postsecondary education). FERPA does allow schools to disclose this information, without obtaining consent, to school officials, including teachers, who have legitimate educational interests in the information, including the educational interests of the child. Schools that do this must include in their annual notification to parents and eligible students the criteria for determining who constitutes a school official and what constitutes a legitimate educational interest. Schools may not prevent the parents of students, or eligible students themselves, from inspecting and reviewing the student's education records.

MINNESOTA INHALER LAW OVERVIEW

Minnesota Statutes, Section 121A.22



The Minnesota legislature enacted language during the 2001 session that allows public elementary and secondary school students to possess and use inhalers prescribed for asthma or reactive airway disease. The following provides an overview of the requirements that must be met before a student is given permission to carry asthma medication and self-medicate in school:

1. The parent has not requested that school personnel administer the student's asthma medication; *and*
2. The school district receives annual written authorization from the student's parent for the student to self-administer; *and*
3. The inhaler is properly labeled for that student; *and*
4. The school nurse or other appropriate party assesses the student's knowledge and skills to safely possess and use his/her inhaler in a school setting and enters a plan to implement safe possession and use of the inhaler into the student's school health record; *or* for schools without a school nurse or nursing services, the student's parent or guardian submits written verification from the student's physician documenting that the physician has assessed the student's knowledge and skills to safely possess and use his/her inhaler in a school setting.

Summary, August 2001 ALAMN



SCHOOL BUS IDLING LAW

Minnesota Statutes, Section 123B.885



Diesel School bus idling

All operators of diesel school buses must minimize, to the extent practical, the idling of school bus engines and exposure of children to diesel exhaust fumes.

(This pertains to bus drivers lining up buses waiting for the children to exit the school and load the buses. Except in inclement weather (i.e. too cold or too hot), the buses engines should be shut off until all children are loaded onto the buses.)

Parking:

On and after July 1, 2003, diesel school buses must be parked and loaded at sufficient distance from school air-intake systems to avoid diesel fumes from being drawn into the systems, unless, in the judgment of the school board, alternative locations block traffic, impair student safety, or are not cost effective.

(Indoor Air Quality (IAQ) can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children.)

PESTICIDE LAW

Minnesota Statutes, Section 121A.30



The Minnesota Parents Right To Know Act requires public and non-public K-12 schools that plan to apply pesticides specified in the law to provide notices to parents and employees. This law also requires the Minnesota Department of Health (MDH) to develop and make available model notices for schools to use, if they choose to do so.

IAQ PLAN

Minnesota Statutes, Section 123B.57

Public school districts are required to adopt plans to monitor and improve indoor air quality. The Minnesota Department of Education (MDE) has adopted the US EPA's Indoor Air Quality Tools for Schools program as the basis for an effective IAQ Management Plan.

An effective IAQ Management Plan is a comprehensive, district specific set of policies and procedures established to maintain and improve indoor air quality. To meet MDE requirements, the IAQ Management Plan must include:

- A certified (trained) IAQ Coordinator;
- An overall evaluation (walk through) performed on all school district buildings;
- The evaluation of specific building systems (classrooms, ventilation system, maintenance operations), using checklists or a comparable method;
- A written set of policies and schedules that describe ways to correct the identified IAQ problems, prevent future problems from arising, and respond to emergencies and concerns;
- School board approval.

The MDE will not approve the use of Health and Safety funds unless a district has an approved IAQ Management Plan.

The MDH web site has additional information about IAQ Management Plans including the status of specific districts and the IAQ Coordinator for each district. To learn more about IAQ Management Plans go to:

<http://www.health.state.mn.us/divs/eh/indoorair/schools/index.html>.

To find out about your district, go to:

<http://www.health.state.mn.us/divs/eh/indoorair/schools/progress.htm>.



What Administrators Can Do

Providing Health Services

Administrators ensure that there is adequate health staff in each district and school. Typically, school boards make the final decision regarding health services staffing based on the recommendations of the Superintendent. Superintendents make sure that school board members understand the health and safety needs of students and how to best meet those needs.

School Health Services Law
Minnesota Statute, Section 121.21

A. Every school board must provide services to promote the health of its pupils.

B. The board of a district with 1,000 pupils or more in average daily membership in early childhood family education, preschool handicapped, elementary, and secondary programs must comply with the requirements of this paragraph. It may use one or a combination of the following methods:

1. Employ personnel, including at least one full-time equivalent licensed school nurse;
2. Contract with a public or private health organization or another public agency for personnel during the regular school year, determined appropriate by the board, who are currently licensed under chapter 148 and who are certified public health nurses; or
3. Enter into another arrangement approved by the commissioner.

While the statute specifically defines how districts with over 1,000 pupils should provide health services, it also clearly states that **every** school board **must** provide services to promote the health of its pupils.



Remember – as an Administrator, you do not have to do it all. Look to your community for support and assistance.

SCHOOL HEALTH SERVICES

Schools have flexibility in how to provide health care services. The essential steps are:

- Assess the health needs of students
- Create a system to meet those needs
- Evaluate the effectiveness of the system
- Adjust the services/contract if needs are not being met, and
- Communicate the information to parents.

ASSESSMENT

To determine what services need to be provided at the school or district, an assessment should be done of the students' health needs within the district. No matter the size of the student population, a proportional number of children will have chronic health conditions.

If there is no one within the system who can do this assessment, look to the community. Local public health agencies work to determine public health priorities. Children and youth are intrinsically a part of their public health target population and schools can build a relationship with their local public health agencies and work together in assessing the health priorities for children and youth in the school and in the community.

Schools can also contract with a university or find a graduate student who could provide the assessment as a part of his/her graduation requirements.

Use your health council. It is recommended that school districts develop a school health council. A well-developed health council can assist in providing input related to the determination of the health and safety needs of students within the district.

Another option for determining the health needs of students is to contract with an evaluator to do the assessment.



PROVIDING HEALTH SERVICES



■ Hire a Licensed School Nurse

“School nursing is a specialized practice of professional nursing that advances the well being, academic success, and life-long achievement of students. To that end, school nurses facilitate positive student responses to normal development; promote health and safety; intervene with actual and potential health problems; provide case management services; and actively collaborate with others to build student and family capacity for adaptation, self management, self advocacy, and learning.” (This definition was adopted by the National Association of School Nurses).



■ Contract with a Public Health Organization

Be specific with the services that you contract for and base those services on the health needs of students. If you contract for only vision and hearing screening, referral and follow-up, the public health nurse will provide only those services. The nurse is liable if he/she provides services beyond the scope of the contract.

■ Contract with Other Organizations

Look to your community to find the organizations or systems that provide health services and contract with them to provide services at school. This could be another school district, a hospital, home health agency, or a clinic.

■ Creative negotiation

If the necessary resources are not available, try a bartering system to provide services. The school or district may have technology, equipment, or staff that would be useful for a community organization. Barter those services for providing health services.

EVALUATE

It is important to ensure that the system you established is working and that the health needs of students are being met. An evaluation can tell you if you're meeting your goals.

As a suggestion, within 60 days of the services being provided and at the end of the school year, sit down with the agency or person under contract to identify the positives and negatives of the service agreement or contract. Another way to measure program achievement is to listen to the comments and concerns coming from the parents/guardians, students, and teachers.

Any meeting to determine whether the plan and contractual arrangement for student health services is working should include an option for change. Incorporate what you learn from the evaluation so that the appropriate/needed health services are provided in a timely fashion, whether it is during the contract year or at the beginning of the new contract year.

COMMUNICATION

Regardless of how these services are provided, it is important to clearly state to parents/guardians and students what health services are available at the school, including the amount of time services are available (every day, once per week, a few hours per day, etc). This information should be included in the student handbook and can be posted on the health service office door or sent to parents/guardians directly. If services change, share that information with parents.

UTILIZE A HEALTH COUNCIL

A school health council, or school health advisory council, is an advisory group of individuals who represent segments of the community. The group acts collectively to provide advice to the school system on aspects of the school health program. Typical roles of a school health council include: program planning; advocacy; fiscal planning; liaison with district and state agencies; direct intervention, and evaluation, accountability and quality control.

Establish a school health council in your district or school. Include medical professionals (including doctors and dentists), teachers, and representatives from local businesses. Utilize your school health council in determining which health services should be provided, how they should be provided and evaluating the process.

ADEQUATE COVERAGE

It is important to not just look at the number of students but at the needs of those students. For instance, one nurse for a district with 3,500 students does not meet the need. The National Association of School Nurses recommends a ratio of one FTE licensed school nurse for every 750 students.

If there is not a nurse in the district or at the school, Administrators must make the decisions about who deals with health issues (including asthma). It's up to the Administrator not only to determine policy but to communicate that there is a health issue and follow-up on it. Without a school nurse or contracted health services, the Administrator must be more hands-on because no one within that system has health knowledge. This does not mean that the Administrator must practice nursing, but it does mean that the Administrator must determine how the health needs of the students will be met. The system needs to be organized to meet the health needs which in turn will meet the educational needs of students.



Check List of Actions for the School Administrator



Help Children with Asthma and Their Families Manage Asthma

- ✓ Ensure adequate licensed school nurse/health staff time in each district and school.
- ✓ Involve your staff in developing a school asthma management program. An effective program requires a cooperative effort that involves students, parents or guardians, administrators, teachers, school staff and physicians. Encourage and support staff attendance at the Minnesota Department of Health's training on managing asthma in Minnesota schools. For more information, contact asthma@health.state.mn.us or 1-877-925-4189.
- ✓ Work with school nurses, other medical professionals, and parents or guardians to develop and implement policies that ensure a healthy environment for children with asthma. Be aware of legal issues and specific legislation regarding asthma. Every school should have policies in place for the following areas:
 - Medication administration
 - School bus idling
 - Animals in school
 - Indoor Air Quality Plan
 - Smoke free environment
 - Pesticide use
- ✓ Designate one person on the school staff, preferably the school nurse, to be responsible for maintaining students' asthma action plans and for educating appropriate staff members, including teachers, about each student's individual asthma action plan. Have a backup plan for emergencies in case the designee is not immediately available.
- ✓ Allocate sufficient resources to manage students with asthma.
- ✓ Provide health alerts and guidelines for outside play to protect students from extreme temperatures, high pollen counts, and air pollutants that may affect asthma.
- ✓ Provide opportunities for safe, enjoyable physical activity. Encourage full participation in physical activities when students are well. Provide modified activities as indicated by the asthma action plan, Individual Health Plan, 504 Plan or IEP, as appropriate, and ensure that students have access to medications before activity.
- ✓ Be able to recognize and respond to signs and symptoms of an asthma episode.

Teach Staff, Students, and Families about Asthma

- ✓ Make sure that staff members understand the school's responsibilities under the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act of 1973. In addition, staff should be familiar with any applicable State and local legal requirements.
- ✓ Provide in-service programs for staff members about managing asthma.
- ✓ Present an asthma awareness program for all students and staff.
- ✓ Encourage regular communication with parents or guardians and health care providers to improve school health services. Obtain written permission for school health staff and physicians to share student health information. Work with local communities to educate families about asthma symptoms to help reduce student absences. Proactive leadership by superintendents and boards can create a coordinated, supportive environment for children with asthma. By working with other school district staff, families, and the community, the negative impact of asthma on students can be significantly reduced or eliminated.

Keep the Environment Clear of Asthma-Provoking Substances

- ✓ Work with maintenance staff and environmental health specialists to set and monitor standards for school maintenance, humidity, ventilation, indoor air quality, mold and dust control. Design and schedule building repairs, renovations, or cleaning to avoid exposing students and staff to fumes, dust, and other irritants. Schedule painting, construction and major repairs during long vacations or the summer months when possible.
- ✓ Enforce smoking bans on school property for students and staff.

Liability and Litigation – A legal Primer

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School Responsibilities

Under the Individuals with Disabilities Education Act (IDEA) of 1997, schools are required to promote the health, development, and achievement of students with asthma. Asthma is classed as a disability under the “Health Impaired” category of IDEA, if it adversely affects a child’s educational performance or interferes with learning.

Schools are also required to remove “disability barriers” under Section 504 of the Rehabilitation Act (“504”). This law prohibits discrimination against those with disabilities in education or employment. While having asthma is not considered a disability in itself, school conditions (such as poor indoor air quality (IAQ)) may be considered “disability barriers” which bar equal access for those with asthma. Schools are obliged to inform parents and students whom to contact if they perceive discriminatory situations, conditions, practices or policies within the school. Further, “504” requires schools to follow certain procedures to protect the rights of parents, students, and school staff, and to ensure that decisions made regarding a child’s needs, and their implementation, are fair and appropriate. It stipulates that schools and parents should act as partners in the planning and decision making involved in the child’s welfare.

Both IDEA and “504” outline student evaluation procedures and stipulate the creation of individual health plans—an Individualized Education Plan (IEP) and a “504” accommodation plan, respectively. In addition to a student’s

asthma-related information, these plans include environmental modifications, physical education planning, and provision for studies during asthma-related absences from school. “504” ensures access to federally funded services for any handicapped person; IDEA provides funds to help schools serve these students when specific requirements are followed (IDEA grants.)

Maurice Watson, an attorney with Blackwell Sanders Peper Martin of Kansas City, MO, and a specialist in education law, notes that in disability cases the courts increasingly look at the severity of the impairment. Thus, if the asthma can be reasonably managed by medication, he continues, that individual might no longer have protection under IDEA and other federal statutes. “The court might say there is no “need” for further accommodation. On the other hand parents might respond that if there was higher compliance with IAQ, the child could use fewer medications.”

A school’s best protection against liability is having policies and procedures in place and being proactive. In the event of a lawsuit against the school district, it is important to be able to demonstrate that a school maintained its duty of care to students and staff by responding to complaints, dealing with problems (establishing or disapproving causation between, for example, poor IAQ and health complaints), and foreseeing potential problems.

Know the Law

In 1996, a court found the school's principal, guidance counselor, and Orleans Parish school board negligent in the death of an 18-year old New Orleans schoolgirl, according to a report in the May 29, 1996, issue of Education Week. Catrina Lewis died when a call to 911 was delayed because of efforts by the school counselor to contact her mother, as directed by the principal. Lewis alerted a school security guard when her inhaler was ineffectual in controlling her asthma attack. The guard immediately contacted the school principal who said that the girl's mother had to be called (in his testimony he said he did not mean for her to be called first, but to be contacted about the situation.) The school counselor tried unsuccessfully to reach Lewis' mother, and after 34 minutes it was the girl's younger sister who eventually called 911.

The judge found that the principal and counselor violated a state law stating that school officials have a duty to provide emergency medical care when a student requests it, and found the school board negligent in both failing to provide adequate training for its employees, and in failing to have a clear policy on medical emergencies. The judge ordered the insurance companies for the two school officials to pay \$1.4 million in damages to Ms. Lewis' mother and two sisters, and the school board to pay \$200,000.

In 2002, a California jury unanimously awarded \$9 million in damages (later reduced to \$2.225 million on appeal) to a mother after death of her 11-year old son from an asthma attack at school. The school district was found guilty of negligence for failing to warn parents of an unwritten school policy that would have allowed the boy to carry an inhaler

with him. Due to a written school policy stating that all medications must be stored in a specific place at the school, Phillip Gonzalez and his mother understood that he was not permitted to carry his inhaler. The school district contended that the regulation did not preclude a student from carrying necessary medication if certified necessary by a physician. However in her testimony, Phillip's mother pointed out that the physician's authorization form supplied by the school does not have a space for a doctor to indicate that the student should carry and/or administer his or her own medication. The court ruled that the district was liable for negligence due to the fact that the policy requiring medications to be stored at school was written but the exception was not (Health and Health Care, 2002.) Twenty-one states currently have statewide policies or laws giving students the right to carry and use asthma inhalers at school.

Some Uncertainties

Attorney Maurice Watson points out that in terms of air quality issues, schools are not covered by Occupational Safety Health Administration (OSHA) standards, and it is uncertain what the legal obligations might be in the future.

Mold in schools is emerging as a big problem for school districts. Many schools across the country have been closed for days, weeks and in some cases permanently, due to mold. And dozens of lawsuits have been filed already by teachers. The whole school district pays in such cases: students often have to be accommodated on other campuses, repairs are expensive and public (especially if the school is closed down), and someone may have to foot the illness compensation bill.

Resources

School Governance and Leadership, Spring 2003 Vol. 5, No. 1. Asthma Wellness.
<http://www.aasa.org/publications/sgl/Spring2003.pdf>

Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. 794, implementing regulations at 34 CFR Part 104. Available at www.ed.gov/ocr/disability.html.

Individuals with Disabilities Education Act, 20 U.S.C. 111 et seq., implementing regulations at 34 CFR Part 300. Available at www.ed.gov/offices/OSERS/OSEP.

Family Education Rights and Privacy Act (FERPA), 20 U.S.C. 1232g, implementing regulations at 34 CFR Part 99. Available at www.ed.gov/offices/OM/fpco.

Strategies for Addressing Asthma Within a Coordinated School Health Program.
http://www.cdc.gov/nccdphp/dash/00_pdf/asthma.pdf

American Association of School Administrators (AASA) Asthma Initiative.
http://www.aasa.org/issues_and_insights/safety/asthma.htm

Improving School Health: A Guide to School Health Councils.
http://208.142.197.5/hkn/schools/print_schools/print_advisory.htm

Sierra Club: School Bus Diesel Campaign
<http://www.northstar.sierraclub.org/schoolbus/>





All Health Staff

Each day, you address issues that impact the health and well-being of students at your school. Increasingly, that means dealing with asthma. Asthma in children has increased significantly in both numbers and severity over the past several decades. It's a leading cause of hospitalizations among children and the single most common chronic disease causing absence from school.

Asthma is a chronic but manageable disease. The more you know about asthma and how to manage it, the more you can help ensure the immediate safety and the long-term health of students in your school. As a member of the health care staff, you play a vital role in helping your school become an asthma-friendly school and in creating a supportive educational environment where all students can learn and thrive.

This section may be helpful to anyone providing health services to students who have asthma. After you read this section, also read the subsection that pertains to your specific role:

- Licensed School Nurse (LSN, RN, PHN)
- Licensed Practical Nurse
- Health Assistant/Paraprofessional

“Children who have asthma can live healthy, active lives without symptoms.”



Why Learning about Asthma is Important to All Health Staff



HEALTHY CHILDREN LEARN BETTER:

Poorly controlled asthma can affect a child's performance. It can disrupt sleep, the ability to concentrate, memorize, and, when not managed properly can prevent a student from participating in "normal" school activities. Children who miss school due to uncontrolled asthma not only miss classroom instruction, they also miss out on social interactions with other children, which can lead to fears of social isolation, rejection, and believing they are "different" from other children.

Health Services staff should understand that students with poorly controlled asthma may feel drowsy, tired or anxious about taking medications. They may also experience side effects from medications, and may be embarrassed when disruption to school activities occurs due to an asthma episode.

ASTHMA CAN BE CONTROLLED:

Asthma can usually be managed with the right medications and modifications to the home and/or school environment. Students with asthma should be able to live healthy, active lives without symptoms.

GOALS FOR STUDENTS WHO HAVE ASTHMA:

- Good asthma control (e.g. no asthma symptoms)
- Optimal school performance and attendance
- Normal levels of physical activity
- Asthma triggers minimized/avoided
- Acceptance by classmates
- Accessible Asthma Action Plan
- Student and family's goals are met (e.g. student is able to play on the school basketball team without symptoms, or the family doesn't have to spend time making trips to the school, urgent care/emergency department or hospital for asthma episodes or uncontrolled asthma)

These goals are achieved through good communication among parents/guardians, the child's medical provider, the school's nurse/health staff, and other school personnel.

What All Health Staff Need to Know

What is Asthma?

Three key features:

*Swelling of the airways
(inflammation)*

Mucous production

*Tightening of the muscles
around the airways
(bronchoconstriction)*

ANATOMY AND PHYSIOLOGY:

Asthma is a chronic disease with three key features: swelling of the airways (inflammation), mucous production, and tightening of the muscles around the airways (bronchoconstriction) resulting in increased irritability of the airways. With well-controlled asthma or in healthy lungs during normal breathing, air flows freely in and out of the lungs. With uncontrolled asthma or during an asthma episode, the linings of the airways (bronchioles) swell, mucus clogs the airways, and muscles around the airways tighten making breathing difficult. The airways become overly responsive (twitchy) to triggers.

SYMPTOMS OF ASTHMA:

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child's asthma control and amount of exposure to triggers or allergens. Some children only have occasional symptoms (e.g. after exposure to an asthma trigger or after strenuous exercise), while others have symptoms that interfere with their daily life, which includes the ability to concentrate and participate in school.



Common Symptoms Are:

- Coughing
- Wheezing (high pitched sound heard on exhalation)
- Shortness of breath
- Breathlessness
- Chest pain
- Tightness in the chest
- Difficulty exercising

During an asthma episode, a child may feel he/she can't inhale enough air, but actually his /her lungs are having trouble exhaling. The wheezing or whistling sound that is heard results from air moving through swollen, narrowed, mucus-plugged airways. Wheezing is comprised of high-pitched noises, usually heard with a stethoscope when a child breathes out, and sometimes when breathing in. At times wheezing can be heard by the naked ear. Coughing is the body's natural response to try to rid the lungs of mucus and open the airways. The outcome is a student with an "asthma episode" or a flare-up of symptoms.

THINGS THAT MAKE ASTHMA WORSE (ASTHMA TRIGGERS):

Children with asthma may be allergic or sensitive to allergens, irritants, and viral or bacterial infections. Each student with asthma may react to a different set of factors.

Common allergens:

- Dust mites
- Dander from furry or feathery animals
- Mold (e.g. from moisture from a leaky roof or plumbing, leaky/moist foundations/walls, wet sink/bathroom areas, and outdoor molds such as Alternaria which is common in MN in the fall)
- Seasonal pollens (e.g. tree pollen [spring], grasses [summer], ragweed [fall])
- Cockroach droppings
- Mice/rat dander, urine, and/or droppings
- Some foods*
- Some medications (e.g. aspirin)

Common irritants:

- Cold air
- Chalk dust
- Tobacco smoke, secondhand smoke and smoke from burning wood and other substances
- Air pollution - both indoor and outdoor (high ozone/high particulate matter)
- Chemicals and strong smells (cleaning supplies, perfumes, whiteboard markers, paint, pesticides, glues)
- Gastroesophageal reflux (acid from the stomach that gets into the airways can be an irritant)

"About 6-8% of children who have asthma have food allergies that can trigger asthma symptoms."

Common infections:

- Viral upper respiratory infections
- Sinusitis

Other triggers:

- Strong emotions (*laughter, crying, stress, anxiety, anger*)
- Exercise

Exercise-Induced Asthma (EIA) and/or Exercise Induced Symptoms:

Exercise is a very common trigger for asthma. However, since exercise and participating in sports is part of healthy living, it is one trigger that should be managed and not avoided. Some students may experience symptoms only when they exercise or participate in very strenuous activity (true EIA). Other students experience symptoms that are brought on by exercise, but they also may have an underlying persistent asthma that is exacerbated by the exercise. Students with underlying persistent asthma require controller medications whereas students with true EIA frequently do not. Any child who develops asthma-like symptoms should be referred to the Health Office for evaluation and possible referral to a health care provider. Fortunately, with better medications, monitoring, and proper management, a child can participate in physical activity and sports and achieve his/her highest performance levels.



SYMPTOMS OF EIA AND/ OR EXERCISE INDUCED SYMPTOMS:

Symptoms may include coughing, wheezing, chest tightness and shortness of breath. Coughing is the most common symptom of EIA and may be the only symptom a student has at that time. The symptoms of EIA may begin during exercise and can be worse 5 to 10 minutes after stopping exercise or during the normal “cooling down” period rather than during the actual exercise. Symptoms can range from mild to severe and often resolve in 20 to 30 minutes. Occasionally, some individuals will experience “late phase” symptoms four to twelve hours after stopping exercise. These late phase symptoms are frequently less severe and can take up to 24 hours to go away. This is an important fact to remember when students are participating in school competitions that are repeated throughout the day.

CAUSES OF EIA AND/OR EXERCISE INDUCED SYMPTOMS:

When a student exercises, he/she breathes faster due to increased oxygen demands. During exercise, students usually inhale through the mouth, causing the air to be dryer and cooler than when breathing normally and through the nasal passages. These decreases in warmth and humidity are both causes of bronchospasm or “airway constriction.” Exercise that exposes students to cold air (e.g., skiing, skating, or hockey) are therefore more likely to cause symptoms than exercise involving warm and humid air such as swimming. Pollution levels, high pollen counts and exposure to other irritants such as smoke and strong fumes can also make EIA symptoms worse. In addition, a recent cold or asthma episode can cause more difficulty in exercising.

HOW TO PREVENT EIA AND/OR EXERCISE INDUCED SYMPTOMS:

- Check the student's Asthma Action Plan or medical care plan to see if exercise is an issue. If so, the student should use his/her reliever medication 15-30 minutes prior to strenuous activity. A child who does not carry an inhaler will require medication administration from the school health office.
- Warm up and cool down activities appropriate for any exercise will also help students with asthma. Give them time enough to slowly get their respiratory system warmed up.
- Permit less strenuous activities if the student has recently been ill or is having any sort of respiratory difficulty.
- If a student is unable to fully participate, help him/her find ways to participate in a less strenuous manner such as being the scorekeeper, equipment handler, etc. until ready to participate fully.
- Check ozone/air quality levels for outdoor activity prior to exercise outside at: <http://aqi.pca.state.mn.us/hourly/> . High pollen or high ozone levels can make EIA worse in some students who have asthma.
- Never encourage a student or athlete with asthma to "tough it out" and don't allow other students to tease or encourage another who is wheezing to continue the activity.
- See Coaches Section for more complete information.



National Asthma Education and Prevention Program Guidelines

NATIONAL INSTITUTE OF HEALTH (NIH) AND NATIONAL HEART, LUNG AND BLOOD INSTITUTE (NHLBI)

These national guidelines were created in 1991 and updated in 1997 and 2002. They guide the care provided to people who have asthma and promote best practices. Anyone providing care to individuals who have asthma should be following these national guidelines. The full set of guidelines can be found at:

www.nhlbi.nih.gov/guidelines/asthma/index.htm



The guidelines define asthma severity levels and the appropriate care, medications and/or treatment recommended for each specific severity level.

THERE ARE FOUR ASTHMA SEVERITY LEVELS:

Step 1: Mild Intermittent

Step 2: Mild Persistent

Step 3: Moderate Persistent

Step 4: Severe Persistent

Severity Classification	Days /w Symptoms	Nights /w Symptoms	Peak Expiratory Flow PEF Rate Variability
Severe Persistent (Step 4)	Continual	Frequent	$\geq 60\%$ $> 30\%$
Moderate Persistent (Step 3)	Daily	> 1 /week	$> 60\% - < 80\%$ $> 30\%$
Mild Persistent (Step 2)	> 2 / week but < 1 / day	> 2 /month	$\geq 80\%$ 20-30%
Mild Intermittent (Step 1)	≤ 2 / week	≤ 2 /month	$\geq 80\%$ $< 20\%$

From: National Heart, Lung, and Blood Institute; Expert Panel Report No.2: Guidelines for the Diagnosis and Management of Asthma 2002

If a student is in the Health Office more than 2 times a week, or tells you he/she has nighttime symptoms more than twice a month, encourage the student to see his/her Health Care Provider as soon as possible.

Asthma Medication Review

Asthma is treated based on how severe the child's symptoms are at any given time. Typically, there are two types of medications used to treat asthma: quick relief (reliever) or rescue and controller or preventive meds.

The most common asthma medications most schools will come in contact with are the quick-relief or reliever medications. However, some students may need to take their daily controller medication at school, especially if they have difficulty remembering to take it at home.

LONG-TERM CONTROLLER OR "CONTROLLER" OR "PREVENTIVE" MEDICATIONS

Such as inhaled corticosteroids, leukotriene receptor antagonists, or long acting bronchodilators help prevent symptoms and episodes from developing in the first place. These controller medications typically reduce/prevent inflammation from occurring. One type of controller also relaxes the muscles surrounding the bronchioles (airways) over a long period of time.

Typical "controller" medications are: *Advair*[®], *AeroBid*[®], *Azmacort*[®], *Beclovent*[®], *Flovent*[®], *Pulmicort Turbuhaler*[®], *Pulmicort Respules*[®], *Vanceril*[®], *Flovent Rotadisc*[®], *Accolate*[®], *Singulair*[®], *Zyflo*[®], *Serevent*[®], *Foradil*[®], *Intal*[®] and *Tilade*[®].

Oral corticosteroids (in pill or liquid form) are taken when an episode becomes severe, or when a child's asthma requires very intensive treatment.

QUICK-RELIEF ("RELIEVER" OR "RESCUE") MEDICATIONS

These medications are taken when asthma symptoms flare up or a child is experiencing an "asthma episode." These medications work fast to relieve symptoms when they occur, and can also be used before exercise to help prevent exercise-induced symptoms. This is the inhaled medication you should most frequently see a student use when symptoms are flaring up, or in the case of exercise-induced or exercise triggered asthma, as a pre-exercise treatment, 15-30 minutes prior to strenuous physical activity. They help relax the muscles surrounding the airways usually within 10-15 minutes after using the inhaler.

Typical brand names of these medications are: *Albuterol (Proventil*[®], *Ventolin*[®], or generic *albuterol*), *Maxair*[®], *Combivent*[®], and *Alupent*[®].

All medications have potential side effects. Some complaints related to reliever medications are: ***nervousness, jitteriness*** or ***increased heart rate***. If side effects are excessive or the student complains of not feeling well, promptly contact the student's parent/guardian and/or health care provider for evaluation and follow-up, and do not leave the child unattended.

A note about inhaled corticosteroids: Inhaled corticosteroids are not the same as anabolic steroids used by athletes to build muscles, and they do not have the same side effects. Inhaled corticosteroids also are delivered right to the lungs where they are most effective. Inhaled corticosteroids are the most consistently effective controller medications available.



See Resource section for additional medication information

Peak Flow Meters

The peak flow meter (PFM) is a hand-held measurement tool that measures the amount of air forcefully exhaled in 1 second. Peak flow readings measure large airway function for the most part, and small airways can be affected before the peak flow starts to show any decline. Every child's peak flow (PF) is different depending on his/her *personal best* or *predicted* peak flow reading.

Personal best peak flow readings are evaluated and determined by a medical provider when the student is healthy and doing well with his/her asthma. During this time, the student measures his/her peak flow reading every morning and afternoon for 2 weeks. The best reading during that time is considered their personal best peak flow reading and that reading is used to calculate the 80% cut-off for the green zone and the 50% cut-off for the red zone.

Predicted peak flow readings are based on studies on children at different heights. If the predicted peak flow does not seem to be accurate for a particular student (e.g. the student consistently blows higher than their predicted peak flow reading), the reading can be adjusted to the higher number. (see resource section for predicted peak flow height chart)

A sub optimal or dropping peak flow level can indicate poorly controlled or worsening asthma.



Note: Peak flow readings are effort-dependent — if the student doesn't blow hard or use his/her best effort and technique when blowing, the reading may not be accurate. For this reason, it is important to coach students on their technique and actively encourage a good effort. Have the student blow into the meter 3 times while standing. Take the best of the 3 readings as the reading that you record.



Many schools keep one stock peak flow meter in the health office for use by students who don't have their own peak flow meter for school. In this case, one-way plastic filtered mouthpieces can be used to create a sanitary way to practically check peak flow readings on students without a peak flow meter.



Asthma Action Plan

The Asthma Action Plan (AAP) is a personalized, written tool (different from an individualized care plan) that can help students and staff effectively manage an individual student's asthma. MDH has an interactive asthma action plan program available at www.asthmamn.org, which can be used to create individualized asthma action plans. Blank AAP's are also available on the MDH website at: <http://www.health.state.mn.us/divs/hpcd/cdee/asthma/>.

AAP's come in a number of formats. The most common includes the **green = go**, **yellow = caution** and **red = danger** zone format. Each zone has assessment measures and tailored instructions specific to that zone. Most students can benefit from using both symptoms and peak flow measurements to determine their current asthma zone. Use whichever indicator is more significant. For example, if a student is coughing, but blows a green zone peak flow reading, that student is still in the yellow zone, due to the presence of asthma symptoms. Once you/they determine what zone a student is in, follow the specific instructions for each zone regarding medications and when to seek medical care.



GREEN = GO

(Feeling good, no symptoms, peak flow between 80-100%)

Children whose asthma is well controlled should be in this zone all of the time. By following the instructions in the green zone, students can often avoid slipping into the yellow or red zones. This zone also includes instructions for the controller medication/s the child may take every day (if he/she requires a daily controller medication), and it includes instructions for giving/taking medications for children with exercise-induced symptoms prior to strenuous activity.

YELLOW = CAUTION

(Having some asthma symptoms, peak flow is 50-80%)

A student may slip down into this zone if he/she forgets to take controller medication (if prescribed) or if he/she is exposed to asthma triggers. This section provides specific instructions for medication administration when the child is starting to have asthma symptoms. If action is taken when in the yellow zone, the student can often prevent dropping further into the more dangerous red zone.

RED = DANGER

(Severe symptoms, peak flow less than 50%)

A student in this zone signifies an emergency. He/she needs immediate medical attention. Follow the instructions regarding emergency treatment and medication administration. If the student is struggling to breathe, give red zone medication and call 911, if there is no significant relief.



All students who have asthma are advised to have a personalized AAP, with a special emphasis for students with persistent asthma (mild, moderate or severe). Some Asthma Action Plans include imbedded consents within the body of the plan that promote the sharing of information (and consent to administer medication at school) between the school and health care provider.



Be sure to consult your school district policy and guidelines about using an AAP with these specialized consents.

What All Health Staff Can Do

TAKE ASTHMA SERIOUSLY:

Asthma can be a fatal disease if steps are not taken to control it. You can make a huge impact in the lives of your students with asthma. You also may save one or more lives and improve countless other lives from your efforts.

OUR JOB AS HEALTH STAFF IS TO HELP STUDENTS ACHIEVE OPTIMAL CONTROL OF THEIR ASTHMA.

The definition of asthma control includes the following:

- No coughing
- No shortness of breath/rapid breathing, wheezing, or chest-tightness
- No waking up at night because of asthma symptoms
- Normal activities, including play, sports and exercise
- No episodes of asthma that require a medical provider, emergency room or urgent care visit
- No absences from school or activities
- Normal (or near normal) lung function

(Excerpted from: Pediatric Asthma: Promoting Best Practice — Guide for Managing Asthma in Children (AAAAI, 1999)



Provide Prompt Care for Students Who Are Having Breathing Difficulty

Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Difficulty breathing or talking due to shortness of breath
- The child can't walk, talk or move well (may be gasping for breath)
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Child feels short of breath
- Child feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Child feels apprehensive or fearful
- Increased or uncontrolled coughing
- Speaking in clipped or short bursts of speech
- Possibly restlessness or upset stomach

Care of asthma and breathing trouble:

- Remain calm and reassure the child.
- Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
- If an asthma episode is suspected, give the child a glass of room temperature water to sip.
- Elevate the child's arms to shoulder level and provide support for the arms (desk or back of chair).
- Notify the school nurse.
- Give medication as ordered per AAP or emergency care plan or have the student self-administer if he/she carries medication.
- Contact parent/guardian.

Reasons to call 911:

- Blue lip area or blue nail beds - or -
- Difficulty talking, walking or drinking - or -
- "Quick relief" or "reliever" medication (inhaled reliever such as albuterol) is ineffective, unavailable, or used too recently to repeat - or -
- Neck, throat, or chest retractions (sucking in of the skin between ribs or at base of the neck) - or -
- Nasal flaring when inhaling - or -
- Obvious distress - or -
- Altered level of consciousness/confusion - or -
- Rapidly deteriorating condition.

"A child may have only one or a combination of the above but each of these symptoms is evidence of a real asthma crisis developing!"

Reducing Triggers in the School

ANIMALS IN THE SCHOOL:

Some school districts may have policies or guidelines regarding animals living or visiting schools. All warm-blooded animals can cause allergic reactions. Animal allergen is in dander, saliva, and urine. Allergen particles become airborne and accumulate in carpets, upholstery, fabrics and on books, desks, and walls. Sensitive airways are affected by the odors from urine, cedar chips, room deodorizers, disinfectant sprays, and the flea powders or insecticides used to control fleas and ticks. Once furry animals are introduced into a school, removal does not immediately eliminate the exposure problem. A central ventilating system can contaminate the entire school. Even after a thorough cleaning, the allergens may persist for months or longer. Carpets in the room become a trap for animal dander and vacuuming just stirs up the particles.



It is important to know what your school district policy is regarding animals in the schoolroom and to take into consideration children in the classroom who may have asthma or allergies.

INDOOR AIR QUALITY:

Indoor air quality or "IAQ" refers both to the content of the air circulated throughout the school and also to the potential allergens and triggers that float around. Perfume and cologne are potential irritants, and for some children, strong scents (chemicals, cleaning supplies, perfumes, paste, whiteboard markers etc.) are triggers that can aggravate an asthma episode. When possible, avoid using items that have potential odor or scent producing irritants. Mold is a problem and may be difficult to eradicate once in place. Moist, dark environments promote mold (often called mildew) growth and areas found to contain mold should be referred to the school custodian for remediation.



MONITORING OUTDOOR AIR QUALITY/OZONE/ POLLUTION

Air Quality Conditions

Students with asthma are more sensitive to air quality and poor air quality may be a trigger for an asthma episode. The Air Quality Index (AQI) is a tool that can help you understand whether your outdoor air quality is good or bad on any particular day.

The AQI ranges from 0 to 500 and in Minnesota is based on measured or estimated levels of five air pollutants: ground-level ozone (smog), fine particulate matter, carbon monoxide, nitrogen dioxide and sulfur dioxide. The Minnesota Pollution Control Agency (MPCA) reports information about air quality on a daily basis on the AQI web site and AQI Information Line (651-297-1630). When the AQI exceeds or is forecast to exceed a value of 100, the MPCA issues air pollution health alerts.

Health Staff should be aware that athletes with asthma might experience problems when the AQI exceeds 100. You may sign up to receive e-mail notification when air quality alerts are issued by the MPCA and check the air quality index daily for Minnesota by going to: <http://aqi.pca.state.mn.us/hourly/>.

Create a Healthy Environment in the Health Office & School

There are many simple steps you can take to make sure your school is asthma-friendly. The Health Office, especially, should be a place where students with asthma can be comfortable and safe. Here are some suggestions for ensuring a healthy environment:

- Make sure heating and cooling ducts are open and free from clutter.
- Work with the Custodian/Engineer to ensure good indoor air quality and that an integrated pest management program is in place.
- Don't use/wear strong smelling hair products, perfume, or cologne when in the school building as they may trigger students' asthma.
- Be cautious with chemical cleaning supplies. The strong odors from some products can trigger an asthma episode. It is best to avoid using any cleaning products when children with asthma are present. When you do use cleaning solutions, use environmentally friendly solutions.
- Use natural cleaning agents when appropriate: White or apple cider vinegar removes mineral deposits, and crayon marks. Baking soda is a good general cleaner that can also be used as a deodorizer. Use mild, unscented bar soap for hand washing and encourage children to wash hands frequently to avoid speaking viral/cold germs.
- Contact the Custodian/Engineer when mold remediation is needed. Soap and water is generally the best cleaning solution for mold.
- Take care when eating in the health office, since pests such as cockroaches, mice, and rats are attracted to food and moisture.

Delivering Healthcare in Schools

Health care in each school district is guided by state statute and guidelines, number of students, student needs, locality and financial resources available. The practice models utilized, depend on the level of professional health licensure (e.g./PHN/RN/LPN) providing care or available in the district and or school. The following suggested models of delivering asthma care in schools depend on the type and amount of health personnel staffing in your school or district. Select the model that most closely matches your school or district and, depending on amount of staffing, start with the priority items and expand from there. For example: A school with a full time Licensed School Nurse (LSN) can carry out these components in a much more complete way than a school with a LSN only one day a week, and certainly in a much different manner than a school which has no licensed health staff at all.

Healthcare Delivery Models in Schools:

- LSN/PHN and Health Assistant practice model.
- LSN/PHN and non-health staff practice model.
- No LSN/RN professional practice model – see Role of Health Assistant/LPN without a
- LSN/RN in the Health Assistant/Paraprofessional or LPN sections.
- No health staff in school — see Secretary/Administrative Assistant section.



(Also see sample Components documents in Resource Section)

Please review the section and model that most closely reflects your licensure or role within the School Health office (e.g. LSN/PHN/RN or LPN or Health Assistant/Paraprofessional)

Communication and Teamwork

School health staff are essential participants in the control and management of asthma. But they can't do it alone. To be most effective, the health staff must work closely with students, parents/guardians, health care providers and other school staff. Good communication is vital when it comes to asthma education, identification and management.



WITH STUDENTS:

Any successful asthma care model should have the student as the central focus point. Working in partnership with students to plan, set goals and implement their asthma management plans encourages their participation and lets them know they have the ability to “manage” their asthma symptoms effectively. Supporting students while giving them the educational instruction to participate means being specific regarding what their responsibilities are.

For example, a student should:

- ✓ Complete and return all health related paperwork, questionnaires, medication updates etc. to health staff.
- ✓ Follow district policies if they self-carry their medications and check in with Health staff at regular, predetermined intervals for evaluation and updates of their asthma status.
- ✓ Report increasing (or decreasing) symptoms or changes in their asthma to health staff.
- ✓ Report changes in peak flow readings to the health staff.
- ✓ Understand how their AAP and/or medication care plan are used and when to request assistance.
- ✓ Be responsible for carrying and using their asthma medications at the proper time (e.g. pre-medicating before sports activities), self administering them correctly and not sharing medications with others.

HEALTH STAFF CAN BEST COMMUNICATE WITH STUDENTS BY:

- ✓ Asking what the students' goals are or what motivates them to be successful. For example, a child who gets short of breath while playing basketball may be more motivated to take his/her medication if he/she realizes he/she can be symptom-free while on the basketball court.
- ✓ Giving positive reinforcement and encouragement to a child who uses proper MDI/ medication administration technique. This demonstrates to the child that he/she is doing it “right” and promotes active participation by the child in managing the asthma.
- ✓ Using terminology and wording that is “kid” friendly and age appropriate. For instance: When referring to inhaled corticosteroids, use the term “controller medications” instead. Or, use “quick-relief inhaler” or “inhaler that helps you breathe easier” instead of “bronchodilator”

While this is by no means an all-inclusive list of communication techniques and responsibilities, health staff understand how important it is to help the child actively participate in his/her own asthma management plan.

WITH FAMILIES:



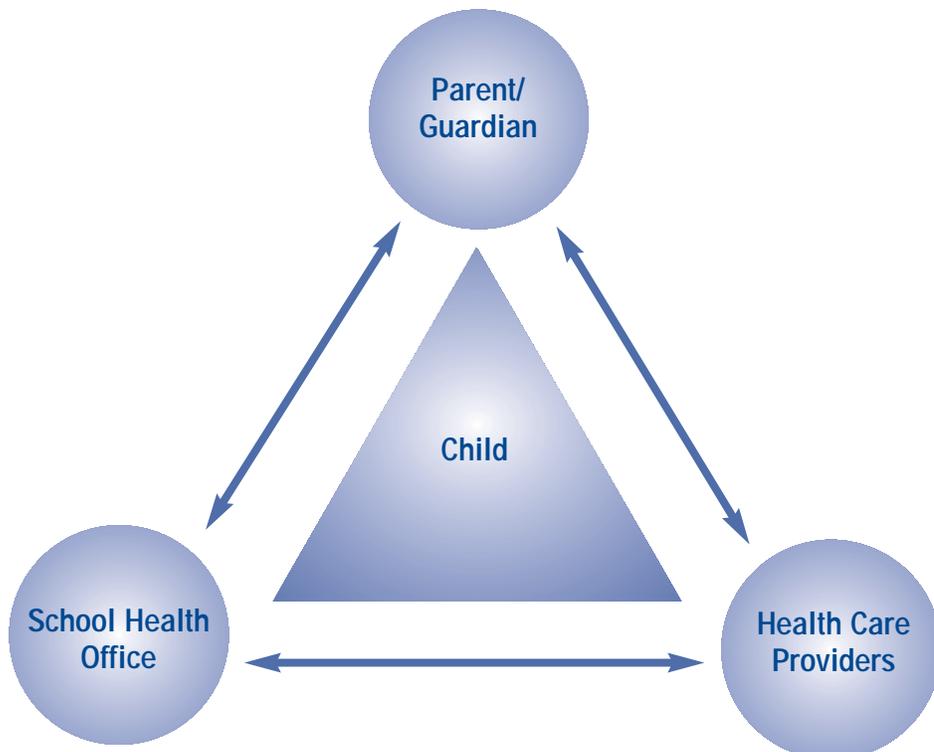
Since a child who has asthma affects the entire family, it is important to understand what a family experiences when dealing with a chronic health condition such as asthma. Families often do not fully understand asthma and how to manage it properly. Staff can assist families by providing educational resources and materials about asthma and organizing training workshops on asthma for the school community. Health staffs have the opportunity to educate families regarding asthma triggers in the home and can help them create a healthy home environment. Since children who have asthma are extremely sensitive to their environment, conducting a *home assessment* to identify triggers is essential. Contact your local home care agency or consult with your health care provider for resources available in your area. The Environmental Protection Agency (EPA) website provides good information on asthma triggers in the home and action steps a homeowner may take to eliminate these triggers. EPA website: <http://www.epa.gov/asthma/triggers/index.html>. Or the University of Wisconsin Extension Service offers "*Help Yourself to a Healthy Home: Protect Your Children's Health*" at: <http://www.uwex.edu/healthyhome/book.html>.

The Sustainable Resource Center does specific testing for some household pollutants.

Contact: 612-870-4255 or go to their web page:

http://www.src-mn.org/SRC_HOME_Absolute.htm. There are companies available who will perform a home indoor *air quality* assessment. A full listing and further information is available from MDH Environmental Health section by calling: 612- 215-0700 or via Internet at <http://www.health.state.mn.us/divs/eh/air/index.htm>.

Children may experience severe health problems, including asthma, decreased lung function, and an increased incidence of respiratory (upper and lower) track infections due to exposure to second hand smoke. Therefore, it is important to take all necessary steps to ensure a smoke-free home and school environment. If family members wish to quit smoking, there is support for them through the American Lung Association of Minnesota: <http://www.alamn.org/smoke/smoking.asp>. One free Minnesota featured smoking cessation program is QUITPLAN, 1-888-354-PLAN or via Internet at: www.quitplan.com. Some health plans may provide smoking cessation programs and supplemental aides so refer families to their health plan for benefit information.



The asthma action plan (AAP) is a communication tool that can create the opportunity for collaboration among school staff, the parent/guardians and the health care provider. Encourage parents/guardians to participate in the asthma management process by specifically requesting they provide AAP's or written medication care plans, medication supplies that remain at school (and that are labeled properly), and all required paperwork per district policies.

Notify parents/guardians when a child's asthma symptoms are flaring up or when health staff have any related concerns such as when the medication supply is diminished or if the child is not receiving or taking his/her medication (controller) on a regular basis. Establishing an open, two-way line of communication with families promotes consistent and current information and will lead to successful asthma management for the child who has asthma. (Exerts from "Managing asthma in Connecticut schools" 2003)

WITH HEALTH CARE PROVIDERS:



The triangle of teamwork and communication among the school, health care provider and parent/guardian, with the child as the focus is crucial to successful asthma management. School health staff should consider this an integral part of their role. Many times school health staff may be the first to recognize symptoms that are consistent with asthma. Evaluation and proper follow-up with referral to a health care provider opens the door toward establishing a collaborative relationship between school health staff, the health care provider and the parent/guardian. School health staff must obtain parental/guardian permission (release of information consents) prior to contacting and communicating with a student's health care provider directly. This step in the communication process is crucial.

The LSN/PHN/RN is the person responsible for establishing this network and other Health staff can support this relationship by providing the LSN/PHN/RN with clear and concise observations. Information that is provided in writing is much easier to respond to and less likely to be misinterpreted. For consistency and accuracy, School health staff should use district-approved forms when documenting information.



The health care provider's responsibility is to communicate with the School health office by:

- ✓ Providing written, up to date Asthma Action Plans (AAP's). Note that schools/districts typically require a new or updated AAP every school year.
- ✓ Performing student self-carry assessments and documenting his/her permission for that student to self-administer/carry his/her asthma medications.
- ✓ Communicating special student needs: i.e. if a student requires further education or support when administering medication or checking peak flow readings, or by clarifying specialized care plan instructions.
- ✓ Providing sufficient prescriptions so a student may have proper medications available while at school: i.e. a rescue inhaler and holding chamber/spacer should be available at school and at home for all students with asthma.
- ✓ Promptly completing and returning assessments and paperwork provided by school health staff that comply with district policy and guidelines.
- ✓ Contacting and discussing (with parental/guardian permission) the child's asthma management plan with appropriate school health staff.
- ✓ Obtaining parent/guardian signatures on consent to release/share information forms between the clinic and school since the parent is often present at the clinic with the student, whereas they are often not present at the school to give that consent.

School health staff responsibilities when providing information to health care providers vary greatly depending on school district policy and guidelines, as well as professional licensure. Check the individual role models for clarification. Overall, health staff can assist the asthma management process by providing information in a timely and accurate manner and by using the parent/guardian as an informational conduit to the health care provider. Always include the parent/guardian in the communication triangle so they may participate and understand how well (or poorly) their child's asthma is under control.

WITH OTHER SCHOOL STAFF:

By partnering with other school staff, and increasing asthma awareness throughout the school, students who have asthma are more likely to:

- ✓ Receive better support and acceptance by their peers
- ✓ Recognize emerging asthma symptoms earlier
- ✓ Have asthma episodes treated promptly and appropriately
- ✓ Feel more comfortable verbalizing their symptoms and concerns
- ✓ Feel less isolated or "different" from the other children
- ✓ Participate in all school related activities, including sports

All school staff, including coaches, should be provided information and training on how to recognize asthma symptoms and how to provide immediate "asthma first aid." The CD provided with this manual contains printable first aid posters, and internet links to web sites that offer ordering information for displayable asthma posters. If school policies allow, strategically place first aid for asthma posters in the cafeteria, schoolroom, gym and other areas where other school staff tend to spend significant time. Training PowerPoint presentations and other suggested programs are listed at the back of this manual. Each staff section in this manual has first aide and educational information that is appropriate for each discipline.

Health staff can copy an entire discipline section of this manual to provide basic asthma education and appropriate actions to each staff member.



Relevant Legislation



There are legal requirements, statutes and guidelines that regulate schools working with not only children with asthma but with children with special needs in general. The following are simplified summaries of current statutes.

See the appendix to read full statutes/laws.

FEDERAL LAWS (IDEA 1997) AND SECTION 504 OF THE REHABILITATION ACT OF 1973



These mandates require that schools promote the health, development and achievement of students with asthma when the disease interferes with their learning, and they are required to remove “disability barriers” that impede health, participation and achievement. The law requires schools and parents to work together as partners to develop and implement health plans to protect the welfare of the child.

FAMILY EDUCATION RIGHTS AND PRIVACY ACT (FERPA)



Generally prohibits schools from disclosing personally identifiable information in a student's education record, unless the school obtains the consent of the student's parent or the eligible student (a student who is 18 years old or older or who attends an institution of postsecondary education). FERPA does allow schools to disclose this information, without obtaining consent, to school officials, including teachers, who have legitimate educational interests in the information, including the educational interests of the child. Schools that do this must include in their annual notification to parents and eligible students the criteria for determining who constitutes a school official and what constitutes a legitimate educational interest. Additionally, under FERPA, schools may not prevent the parents of students, or eligible students themselves, from inspecting and reviewing the student's education records.

MINNESOTA INHALER LAW OVERVIEW

Minnesota Statutes, Section 121A.22



This law allows public elementary and secondary school students may possess and use inhalers prescribed for asthma or reactive airway disease. The following provides an overview of the requirements that must be met before a student is given permission to carry asthma medication and self-medicate in school:

1. The parent has not requested that school personnel administer the student's asthma medication; *and*
2. The school district receives annual written authorization from the student's parent for the student to self-administer; *and*
3. The inhaler is properly labeled for that student; *and*
4. The school nurse or other appropriate party assesses the student's knowledge and skills to safely possess and use his/her inhaler in a school setting and enters a plan to implement safe possession and use of the inhaler into the student's school health record; *or* for schools without a school nurse or nursing services, the student's parent or guardian submits written verification from the student's physician documenting that the physician has assessed the student's knowledge and skills to safely possess and use his/her inhaler in a school setting.

Summary, August 2001 ALAMN

SCHOOL BUS IDLING LAW

Minnesota Statutes, Section 123B.885



Diesel School bus idling:

"All operators of diesel school buses must minimize, to the extent practical, the idling of school bus engines and exposure of children to diesel exhaust fumes."

(This pertains to bus drivers lining up buses waiting for the children to exit the school and load the buses. Unless, due to inclement weather (i.e. too cold or too hot), the buses engine should be shut off until all children are loaded onto the bus.)

Parking:

"On and after July 1, 2003, diesel school buses must be parked and loaded at sufficient distance from school air-intake systems to avoid diesel fumes from being drawn into the systems, unless, in the judgment of the school board, alternative locations block traffic, impair student safety, or are not cost effective."

(IAQ can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children.)

PESTICIDE LAW

Minnesota Statutes, Section 121A.30



In the Parents Right To Know Act of 2000. Public and non-public K-12 schools that plan to apply pesticides specified in the law are required to provide notices to parents and employees. This law also requires the Minnesota Department of Health (MDH) to develop and make available model notices for schools to use, if they choose to do so.



Resources for School Health Staff

The following resources are located at the end of the manual. The policies, procedures, and forms listed are samples, which you can take and modify to use in your district. The electronic versions of most policies, procedures, and forms are provided on CD Rom and/or are downloadable off the MDH website for your convenience.

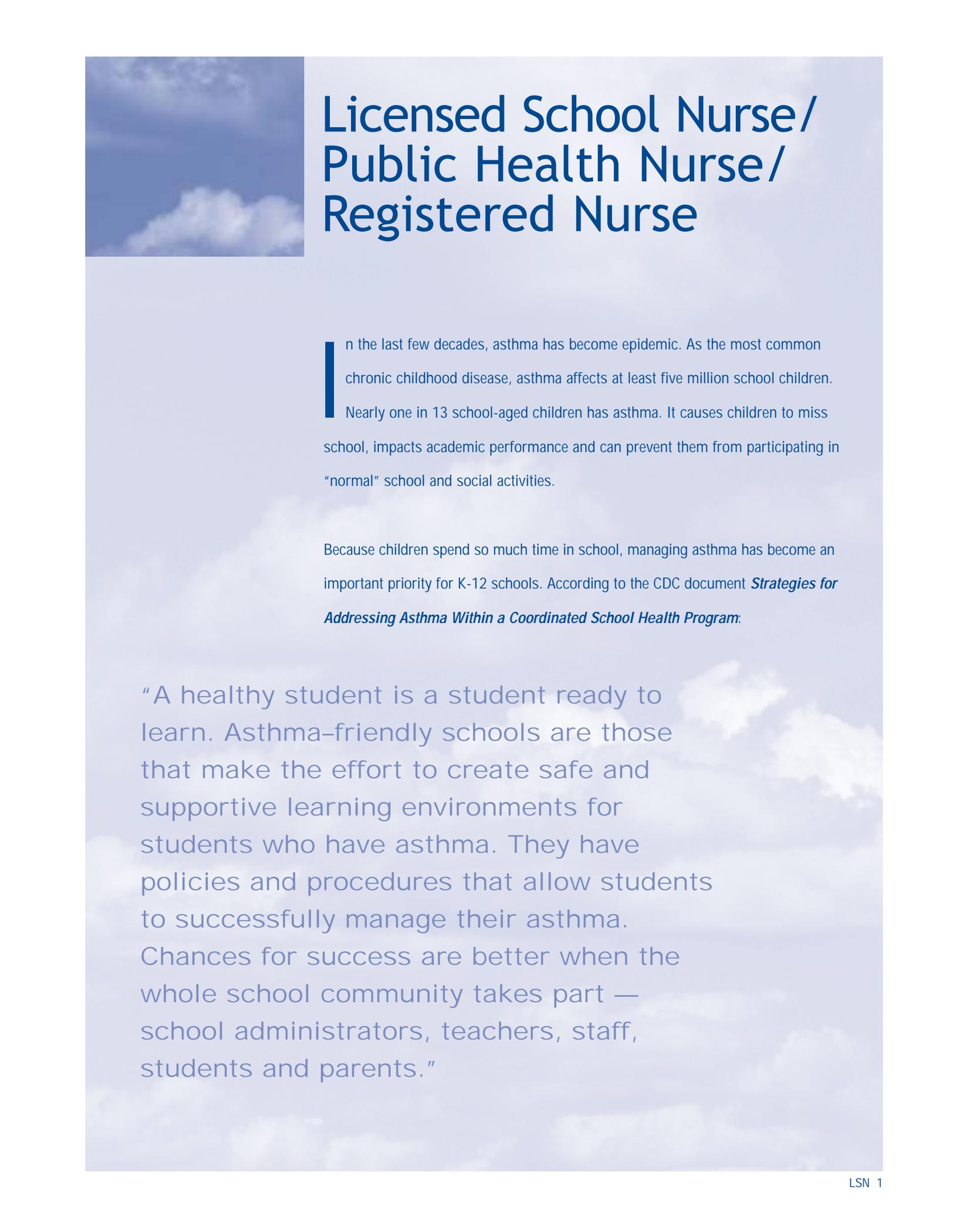
Policies, Procedures, Forms, Posters

- Parent Asthma/Breathing Questionnaire and sample instructions for use
- Student Asthma/Breathing Questionnaire and sample instructions for use
- Asthma/Breathing Problem Visit Notification and sample instructions for use
- Self-carry and administration agreement/consent and sample parent letter
- Asthma Action Plan
- Asthma Care Pathway
- Asthma First Aid 8.5x11 poster or pocket cards
- Asthma Control 8.5x11 poster
- Peak Flow Instructions 8.5x11 poster
- Predicted Peak Flow Height chart
- Metered Dose Inhaler (aerosol) with Spacer/Chamber Instructions 8.5x11 poster
- Dry Powdered Inhaler Instructions 8.5x11 poster

Curriculum, Programs, Games

- **Asthma Education: An Integrated Approach.** Ideas for elementary classrooms
MDH Health Library
(Created by MDH section of Children with Special Health Care Needs)
Email Contact: library@health.state.mn.us (612) 676-5000
<http://www.health.state.mn.us/library/library.htm>
- **Active with Asthma** Curriculum for high school students (or middle school students) developed by the Healthy Learners Asthma Initiative / Minneapolis Public Schools
<http://www.healthylearners.org/>
- **Asthma Busters** – An online club for kids ages 7 to 14 years old who have asthma and love excitement and learning new things. Earn asthma bucks that qualify you for cool prizes!
www.asthmabusters.org
- **Quest for the Code** asthma educational CD-Rom game and workbook available free from www.starbright.org.
- **Open Airways for Schools** – From American Lung Association.
Teaches students steps to take in order to prevent an asthma episode and to better manage their asthma with the assistance of parents, teachers, school nurses, and physicians. . The interactive approach utilizes group decision, stories, games, and role-play to promote children's active involvement in the learning process.
<http://www.alamn.org/prof/Educators.asp>
- **Power Breathing Program** – From Asthma and Allergy Foundation of America)
Provides a basic understanding of asthma and empowers and motivates teens to take control of their asthma on a personal level. For teenagers. www.aafa.org
- **Asthma Challenge** – Also from Asthma and Allergy Foundation of America This is an interactive board game designed to teach the basics of asthma in a group setting.
www.aafa.org (teens)

See the Resources Section at the END of this manual for a variety of asthma related web sites or other resources 



Licensed School Nurse/ Public Health Nurse/ Registered Nurse

In the last few decades, asthma has become epidemic. As the most common chronic childhood disease, asthma affects at least five million school children.

Nearly one in 13 school-aged children has asthma. It causes children to miss school, impacts academic performance and can prevent them from participating in “normal” school and social activities.

Because children spend so much time in school, managing asthma has become an important priority for K-12 schools. According to the CDC document *Strategies for Addressing Asthma Within a Coordinated School Health Program*:

“A healthy student is a student ready to learn. Asthma-friendly schools are those that make the effort to create safe and supportive learning environments for students who have asthma. They have policies and procedures that allow students to successfully manage their asthma. Chances for success are better when the whole school community takes part — school administrators, teachers, staff, students and parents.”

The CDC has identified six strategies for schools and districts to consider when addressing asthma within a coordinated school health program.



These strategies can be effective whether your program is for the entire school district or just one school.

1. Establish management and support systems for asthma-friendly schools.
2. Provide appropriate school health and mental health services for students who have asthma.
3. Provide asthma education and awareness programs for students and school staff.
4. Provide a safe and healthy school environment to reduce asthma triggers.
5. Provide safe, enjoyable physical education and activity opportunities for students with asthma.
6. Coordinate school, family, and community efforts to better manage asthma symptoms and reduce school absences among students with asthma.



While addressing asthma requires the cooperation of the entire school staff, the driving force behind asthma management is the licensed school nurse.* More than any other staff member, you're in a position to make a difference for students with asthma.

This section provides facts about "What you need to know" and "What you can do." It includes resources you can access for more information. Though this section is aimed at Licensed School Nurses (LSNs), Public Health Nurses (PHNs), and Registered Nurses (RNs), it is not meant to stand alone. It's a companion piece to the section entitled "All Health Staff." Read that section carefully as it contains topics not covered in "your" section. Taken together, these two sections complement each other with information about the vital role you play in helping to create an asthma-friendly school.

Public Health Nurses (PHNs) are eligible to be Licensed School Nurses (LSNs) and function in that role in schools. Their role is dependent on the specific contract that is negotiated between the Public Health Agency and the school or district. The amount of time that any professional nurse has in a school/district will directly impact the type and intensity of asthma care provided. In a school/district with less professional nurse time, prioritization of the most important aspects is essential.

What LSNs/PHNs/RNs Need to Know

HOW TO DETERMINE A CURRENT ASTHMA SEVERITY LEVEL. DETERMINING A CHILD'S CURRENT ASTHMA SEVERITY LEVEL CAN BE HELPFUL IN:

- Determining whether a student might benefit from starting a daily controller medication or adjusting medication(s)
- Determining whether a student needs to be referred to his/her health care provider or asthma specialist for a detailed assessment and plan of care

Current asthma severity levels can be estimated based on the frequency of daytime and nighttime symptoms, exercise tolerance, and for the purpose of school nurses, peak expiratory flow rate (also known as peak flow or PF). These factors place individuals into four different asthma severity categories:

Severity Classification	Days /w Symptoms	Nights /w Symptoms	Peak Expiratory Flow Rate (Peak Flow)	Peak Expiratory Flow Rate Variability
Severe Persistent (Step 4)	Continual	Frequent	≤ 60%	> 30%
Moderate Persistent (Step 3)	Daily	> 1 /night /week	> 60% - < 80%	> 30%
Mild Persistent (Step 2)	> 2 / week but < 1x/ day	> 2 nights/month	≥ 80%	20-30%
Mild Intermittent (Step 1)	≤ 2 days/ week	≤ 2 / nights/month	≥ 80%	< 20%

Adapted from the Stepwise Approach for Managing Asthma in Adults and Children Older than 5 years of Age, From: National Heart, Lung, and Blood Institute; National Asthma Education and Prevention Program Expert Panel Report Guidelines for the Diagnosis and Management of Asthma – Update on Selected Topics 2002



The Asthma Severity tool can be very helpful. In addition to the above information, it also reviews what type of medication would be appropriate for each level.

At every step you should provide education on self-management and controlling environmental factors (allergens and irritants) that make asthma worse.

THE STEPWISE TREATMENT APPROACH FOR MANAGING ASTHMA IN ADULTS AND CHILDREN OLDER THAN 5 YEARS OF AGE.

Note: For students who have had pulmonary function testing or spirometry—the more accurate forced expiratory volume in one-second (FEV1) value is used instead of peak flow

MILD INTERMITTENT (STEP 1)

NO DAILY CONTROLLER MEDICATION NEEDED.

Severe exacerbations may occur, separated by long periods of normal lung function and no symptoms. (In this case, a course of systemic (oral) corticosteroids is recommended.)

Daytime symptoms less than or equal to 2 days a week and/or nighttime symptoms less than or equal to 2 nights a month. Peak flow (PF) is greater than or equal to 80% of predicted and peak flow variability is less than 20% from morning compared to afternoon.

MILD PERSISTENT (STEP 2)

PREFERRED CONTROLLER TREATMENT: LOW-DOSE INHALED CORTICOSTEROIDS.

Alternative treatment (listed alphabetically): cromolyn, leukotriene modifier, nedocromil, OR sustained release theophylline to serum concentration of 5-15 mcg/mL.

Daytime symptoms greater than 2 days a week but less than 1x per day, and/or nighttime symptoms greater than 2 nights a month; peak expiratory flow (PEF) or forced expiratory volume in one second (FEV1) greater than or equal to 80% of predicted value and peak expiratory flow variability greater than 20 - 30% from morning to afternoon.

MODERATE PERSISTENT (STEP 3)

PREFERRED CONTROLLER TREATMENT: LOW-TO-MEDIUM DOSE INHALED CORTICOSTEROIDS AND LONG ACTING INHALED BETA2-AGONISTS.

Alternative treatment (listed alphabetically)

Increase inhaled corticosteroids within medium-dose range.

-OR-

PREFERRED TREATMENT: increase inhaled corticosteroids within medium-dose range, and add long-acting beta-agonists.

Low to medium dose corticosteroids and either leukotriene modifier or theophylline.

If needed (*particularly in patients with recurring severe exacerbations*)

Alternative treatment (listed alphabetically): increase inhaled corticosteroids in medium-dose range, and add either leukotriene modifier or theophylline.

Daytime symptoms every day and/or nighttime symptoms greater than 1 night a week; peak expiratory flow (PEF) or forced expiratory volume in one second (FEV1) between 60 - 80% of predicted value, and peak expiratory flow variability greater than 30% from morning to afternoon.

SEVERE PERSISTENT (STEP 4)

PREFERRED CONTROLLER TREATMENT: HIGH-DOSE INHALED CORTICOSTEROIDS AND LONG ACTING INHALED BETA2-AGONISTS.

AND if needed, corticosteroid tablets or syrup long-term (2 mg/kg/day, generally do not exceed 60 mg per day). Make repeated attempts to reduce systemic corticosteroids and maintain control with high-dose inhaled corticosteroids.

Refer to an asthma specialist.

Daytime symptoms continually and/or frequent nighttime symptoms; peak expiratory flow (PEF) or forced expiratory volume in one second (FEV1) less than or equal to 60% of predicted value and peak expiratory flow variability greater than 30% from morning to afternoon.

A key role of the LSN/PHN/RN is to encourage a student to see his/her health care provider as soon as possible if the student is in the health office more than 2 times a week, or tells you he/she has nighttime symptoms more than twice a month.

In classifying severity, assign the student to the most severe step in which any feature occurs. Refer to an asthma specialist if there are difficulties controlling asthma or if step 4 care is required. Referral may be considered if step 3 care is required depending on control. Also the stepwise approach is meant to assist, not replace, the clinical decision making required to meet individual patient needs.

Adapted from the Executive Summary of the NAEPP Expert Panel Report of the NIH / NHLBI **Guidelines for the Diagnosis and Management of Asthma – Update of selected topics – 2002.*

Asthma Medication Review



- Be aware of and follow your school/district medication policy/policies.
- In addition to the information provided in the All Health Staff Section, see more detailed information on the asthma medications handout and the Asthma Medication Review PowerPoint slide handout in the Resource Section.

Any students with mild, moderate or severe persistent asthma need anti-inflammatory or “controller” medication that they take every day to prevent asthma symptoms from starting.

1 ALL STUDENTS WHO HAVE ANY TYPE OF ASTHMA SHOULD HAVE A SHORT-ACTING BRONCHODILATOR (E.G. ALBUTEROL) OR A “RELIEVER” MEDICATION: 2-4 PUFFS SHORT-ACTING INHALED BETA2 AGONISTS AS NEEDED FOR SYMPTOMS.

- The intensity of treatment for symptoms will depend on the severity of the exacerbation — up to 3 treatments of beta2 agonists at 20-minute intervals or a single nebulizer treatment is appropriate as needed. A course of systemic (oral) steroids may be needed.
- The use of short acting inhaled beta2 agonists on a daily basis, or the increasing use of beta2 agonists, indicates the need to initiate or increase long-term control therapy.

2 STEPPING DOWN OR STEPPING UP DAILY CONTROLLER MEDICATION IS OFTEN NEEDED TO GAIN AND/OR MAINTAIN GOOD ASTHMA CONTROL.

Gain asthma control as quickly as possible: Individuals with asthma may be started on a higher dose of controller medication, and then step down to the least medication necessary to maintain control.

- Step-down: The treatment plan or Asthma Action Plan should be reviewed every 1-6 months and changes made as needed; a gradual stepwise reduction in treatment may be possible.
- Step-up: If control is not maintained, consider step up. First review patient medication technique, adherence, and environmental control.

Some students may need their daily controller therapy stepped up during the fall and spring and stepped down in the winter and summer. Some may need to be stepped up in one or two seasons, but can be stepped down during other seasons. Others may need to be stepped up following a significant virus or trigger exposure that may have caused lung irritation and inflammation. Still others may be able to be stepped down, if their home or other environment improves and triggers are eliminated.

The LSN/PHN/RN should know these guidelines and refer students who have asthma to appropriate asthma health care provider. If there are concerns that asthma medications may need to be initiated, stepped up, or stepped down.

The NIH / NAEPP asthma guidelines (published in 1991, updated in 1997 and 2002) are available online. These are the nationally recognized gold standard for clinical asthma care and education. See the Resource Section for NIH/ NHLBI/ NAEPP asthma guidelines web site information.

Key Features of the Nurse Practice Act and Delegation

(MN School Health Guide, 1996)



Delegation involves granting permission to someone else to perform a task with shared responsibility. It is important to understand these guidelines before delegating to paraprofessionals and non-health staff the care of students with asthma.

The **Minnesota Nurse Practice Act** states that, while a registered nurse may delegate, the nurse must supervise and is responsible for the outcome of that delegation. For example, if a nurse delegates a paraprofessional to give medication, she must train, supervise and monitor the paraprofessional's performance and the child's response. Failure to monitor a child's response to treatment has been the basis for successful malpractice suits against nurses. Inappropriate delegation of tasks by a nurse to a paraprofessional is a basis for disciplinary action against the nurse by the Minnesota State Board of Nursing (M.S. 148.171 to 148.285).

Whether a particular activity is a nursing activity under the Board of Nursing's definition is addressed by M.S. 148.171 - 148.285 (Laws Relating to the Minnesota State Board of Nursing, Nurse Practice Act).

This law states that:

"The practice of professional nursing means the performance for compensation or personal profit of the professional interpersonal service of:

- a) providing a nursing assessment of the actual or potential health needs of individuals, families, or communities;
- b) providing nursing care supportive to or restorative of life by functions such as skilled ministrations of nursing care, supervising and teaching nursing personnel, health teaching and counseling, case finding, and referral to other health resources; and evaluating these actions."

"The practice of professional nursing includes both independent nursing functions and delegated medical functions which may be performed in collaboration with other health team members, or may be delegated by the professional nurse to other nursing personnel. Independent nursing function may also be performed autonomously. The practice of professional nursing requires that level of special education, knowledge, and skill ordinarily expected of an individual who has completed an approved professional nursing education program as described in Section 148.211, Subd. 1."

ACTIVITIES THAT MAY NOT BE DELEGATED

According to the Nurse Practice Act, professional nurses are authorized to delegate nursing functions. However, according to the Act, "Delegating or accepting the delegation of a nursing or a prescribed health care function when the delegation or acceptance could reasonably be expected to result in unsafe or ineffective patient care," is grounds for disciplinary action by the Minnesota Board of Nursing (M.S. 148.261(7)).

Under some circumstances the age or vulnerability of the student makes it inappropriate to delegate to unlicensed staff. The nurse may decide to delegate a task to a paraprofessional when the child is older and can participate in the care, but a younger child may require more teaching or protection to avoid an adverse outcome.



What LSNs/PHNs/RNs Can Do

Suggested Actions

Your access to information, professional expertise, and ability to provide treatment make you the “go-to” person in your school. There are a number of things you can do to better the lives of students in your school who have asthma. Because of time constraints, use your judgment to set priorities when dealing with students with asthma. Some suggestions:

BE ALERT TO STUDENTS WHO MAY HAVE SYMPTOMS OF ASTHMA BUT DO NOT HAVE AN ASTHMA DIAGNOSIS.

Refer them to their health care provider and/or school-based clinic if appropriate/available for further evaluation.

WORK TO OBTAIN ASTHMA ACTION PLANS (AAP) FOR YOUR STUDENTS WITH ASTHMA.

The AAP is an important tool when dealing with students who have asthma. Ideally, each student would have one, but not all do. Focus on students with persistent asthma.

MDH has an online and desktop interactive AAP available at:

 <http://www.health.state.mn.us/divs/hpcd/cdee/asthma/>. *Click on Asthma Action Plan.*

There are sample blank AAP's available at the same web site. Request AAP's from the student's Health Care Provider.

HELP CONTROL STUDENTS' ASTHMA USING BEST PRACTICES.

Get the facts

Conduct case finding for asthma by reviewing data from a variety of sources (i.e. Health Problem List, Health forms, Emergency Cards, Medication Consents, Early Childhood Screening forms, Physical Exams, new Pupil Health Records, asthma history from parent, staff or student report, ED/hospital admissions due to asthma.)

 Send home and/or mail an asthma questionnaire to parent/guardians of younger students:

1. who are newly identified as having asthma, or
2. about whom you need more information.

 Administer an asthma questionnaire to older students:

1. who have asthma on initial visit with asthma symptoms to the school health office,
2. who take medications on a routine basis,
3. who are reported to the health office staff as absent due to asthma, or
4. about whom you need more information.

 Review asthma questionnaires and AAPs to determine a student's current level of control and/or severity based on frequency of daytime and nighttime symptoms. Document severity level.

(Adapted from the Healthy Learners Asthma Initiative / Minneapolis Public Schools)

WORK WITH STUDENTS

Assess symptoms and check peak flow on students with persistent asthma or students experiencing asthma symptoms and/or activity intolerance.

Determine if medication is needed per AAP or medication order.



Perform physical assessments/lung auscultation on students with symptoms of asthma.

Assess the social, emotional and mental health needs of students with asthma.

Administer medication according to medication orders/Asthma Action Plan and your district policy.

NOTIFY PARENTS AND HEALTH CARE PROVIDERS AS NEEDED



Notify parent/guardians via a written note or form when a student is seen in the health office with asthma symptoms and/or distress. Send home form/note along with the student, or mail/phone information to parent/guardian.

Phone parent/guardian if a student is seen in the health office 2 or more times a week with asthma symptoms.



Notify the health care provider when a student is seen in the health office two or more times a week with asthma symptoms or there are asthma control or management concerns (requires parent / guardian consent).

Document questionnaires that are sent or completed as well as notifications to parents/guardians or health care providers.

KEEP RECORDS



Complete or initiate a record that documents medication administration, asthma assessment items (e.g. lung sounds, peak flow readings, symptoms), education provided, correspondence / communication with parents/guardians and health care providers, and narrative documentation on all students taking asthma medication and/or students who need documentation of peak flow/symptoms or asthma education.

Document asthma visit on your daily log or other health office visit log, and if pertinent, in the Pupil Health Record. Document that a note/form/phone contact was made with the parent/guardian.

Review daily log/record asthma visits and any asthma symptom visits weekly. File copies of parent notification notices in the Pupil Health Record.



Complete Individualized Health Plan for Asthma and/or Emergency Care Plan for Asthma.

Note: It is often preferable to mail notices to parent/guardians of older students since if sent with student, they often do not reach the parent/guardian. If you are not the person who routinely sees students, and a health assistant or other staff member is delegated to administer medications and provide basic first aid for asthma, direct them to notify parent/guardians when a student presents with asthma symptoms and to communicate this information to you.

SPREAD THE WORD

Advocate for a healthy and asthma-friendly environment in your school/district.

EFFICIENTLY MANAGE ACUTE EPISODES



In addition to the information on the asthma and breathing problems/first aid for asthma handout, review the sample *Pathway for Acute Asthma Care for the LSN* (how to manage acute episodes of varying severities). See All Health Staff and Resource Sections.

ESTABLISH A BACK-UP PLAN.

Work with your school principal/administrator to identify back-up staff that you can train to administer asthma medications and provide first aid for asthma when a LSN/PHN/RN is not in the school building. Each building should have more than one individual trained to safely administer medications and provide first aid for asthma.

PROVIDE CARE COORDINATION TO STUDENTS WHO HAVE ASTHMA.

Students with signs indicating poor asthma control may need care coordination.

Focus on those with poorly controlled moderate to severe persistent asthma first, and if time allows, provide care coordination for students whose asthma is in the mild intermittent/mild persistent severity level.

Directly communicate with the parent/guardian and the health care provider. Strive to improve communication channels/foster good communication with health care providers, emergency departments, clinics and home visiting resources that your families utilize most often.

When able, refer students to case management programs that may be offered by the major health insurance plans, area hospitals or home visiting resources.

Participate in planning and placement teams, and 504 meetings for students who have asthma.

COLLABORATE WITH MEDICAL CONSULTANTS/ADVISORS.

If your district has a medical consultant or advisor, work with him/her to help plan educational and other programs on asthma for your school or district.



PROVIDE ASTHMA EDUCATION TO STUDENTS, STAFF AND FAMILIES.



In time-crunched settings, offering 1-5 minute key asthma education messages is a beneficial way to deliver education. This can be done in a variety of ways – on the phone, 1:1, at staff or parent/teacher association meetings, etc. Collaborate with outside agencies that provide asthma education in home and community settings (public health nurses, home visiting/care agencies, home respiratory services, hospitals, clinics, etc.) if available.

SUPPORT THE SOCIAL, EMOTIONAL AND MENTAL HEALTH OF STUDENTS WITH ASTHMA.

Promote high self-esteem and help students see their condition as manageable. Help them feel comfortable with having asthma. Be proactive instead of reactive when talking to students who have asthma.

- the student provide information about asthma to others.
- Provide positive feedback for good decisions and increase independence in the plan of care.
- Assess whether student sees him/herself as different from others.
- Assess whether he/she is avoiding taking medications or “toughing it out” during an episode.
- Assess whether he/she is reluctant to take medications at school or go to the health office and if he/she is notifying school personnel about medication needs and/or use if self-administering.
- Determine if he/she is sharing medications with other students.
- Assess whether he/she may be avoiding physical activity out of fear of asthma symptoms rather than the presence of actual symptoms.
- Refer to available in-school or community mental health providers/counselors as needed.

UTILIZE ASTHMA SKILL VALIDATIONS



If you have health assistants or paraprofessionals, consider training them on the use of the various asthma inhalers and gadgets they may need to use.



Enhance Communications



WITH STUDENTS:

Be especially attentive to students who are self-carrying their asthma medications. Make an effort to check-in or follow-up with these students.

WITH PARENTS:

Establish positive working relationships with parent/guardians of students who have asthma. Share concerns and suggestions regarding medications, asthma action plans, regular well-asthma visits to health care providers, self-carrying of medications, and any special transportation need for students who have asthma.

WITH HEALTH CARE PROVIDERS:



Ensure good communication between the school and health care provider by obtaining consents to release/share information through the use of a medical release form. Several of the new Asthma Action Plans have consents included within the form that allow the sharing/releasing of information as well as administering medications at school. Check your district policies for requirements on consents. (See MDH AAP in Resource Section).

To further enhance communication with health care providers and advocate for the optimal asthma control of students, notify students' health care providers when you have concerns that their asthma may be poorly controlled. Parent/guardians may think that having asthma symptoms, difficulty exercising, or difficulty breathing is just part of asthma and may "tune-out" a chronic cough. Students often get so used to "living in the yellow zone" or not being able to breathe to their full potential, that they think it is normal, and do not expect anything more. Students may not always tell parents/guardians when they are coughing or having breathing difficulty. Due to these factors, objective LSN/PHN/RNs observations can be extremely helpful for health care providers and families.



Since it may be difficult to easily reach health care providers on the telephone, try notifying them in writing. Again, consent to share/release information must be obtained in order to share this information. In the case of an acute life threatening emergency, it generally is acceptable to share information with emergency medical personnel even without consent.

WITH OTHER SCHOOL AND SCHOOL-BASED STAFF:

Share students' asthma diagnosis with other school staff on a "need-to-know" basis only. More importantly, all school staff should be trained to be able to recognize signs of breathing or asthma difficulty in any student and to know what to do to respond to those symptoms (first aid for asthma).



Build a collaborative relationship with the school-based health center or clinic in your school or district, if present. School-based health centers can be another source of care for students with asthma and may be able to act as a resource to nurses and other staff.

There's additional valuable communication information in All Health Staff Section.

Implement a School Asthma Management Program in your school or district

Throughout the process, feel free to contact asthma program staff at MDH who can act as a resource to you via phone or email as needed.

TO-DO CHECKLIST:

- ✓ Talk to and gain the support of your school principal and / or district superintendent.
 - ✓ Talk to and gain support of your Health Services or Nursing Manager/ Supervisor or lead nurse (if applicable).
 - ✓ Make plans to educate groups you will need to educate as part of a coordinated school health effort (PowerPoint presentations available in training section of manual). Prioritize which groups need training in your setting, and which groups are easily accessible to you.*
 - Administrators/Superintendents/Principals
 - Health Assistants/Aides
 - Administrative Assistants/Secretaries
 - Teachers / Physical Education Teachers/Educational Assistants
 - Coaches
 - Health Teachers
 - Transportation Staff/Bus Drivers
 - Environmental Health and Safety Staff/Engineers/Custodians
 - Nutrition Services Staff
 - Early Childhood Screening Staff
 - Before and After School Childcare Staff
 - School Based Clinic Staff/Community Health Care Providers
 - Parents/Guardians
- * In many settings, the key staff to target initially might be teachers, administrators, and coaches.
- ✓ Determine schedule of when these groups might already meet and ask to be put on the agendas of the various meetings/groups to introduce the program and communicate key messages (e.g. staff meetings, Parent Teacher Association meetings, coaches meetings, administrators meetings, etc.) or make arrangements to meet individually with these staff people/groups.
 - ✓ Conduct trainings.
 - ✓ Arrange for more intensive asthma training of staff that provide health services to students to include:
 - Basic medication training
 - Inhaler, nebulizer and peak flow technique demonstrations and potentially skill validations
 - Information on how to handle acute asthma episodes
 - Information on the bigger picture – long term asthma control and how to prevent episodes before they start
 - Training re: new asthma forms you plan to utilize (e.g. a record for documenting medication administration, peak flow, symptoms, and a written or other means of notifying parents/guardians/health care providers of asthma symptoms at school, etc.)
 - Communication with the LSN/RN/PHN
 - ✓ Mentor key staff on their roles and give positive feedback for improvements / compliance with plan.
 - ✓ Follow-up with appropriate groups and/or individuals to assure implementation and accountability.
 - ✓ Evaluate your progress and adjust plan as needed.

Resources for LSN/PHN/RN

In addition to resources listed in the All Health Staff section, the following resources are located at the end of the manual. The policies, procedures, and forms listed are samples, which you can take and modify to use in your district. The electronic versions of most sample policies, procedures, and forms are provided on CD Rom and/or are downloadable off the MDH website for your convenience. 

- Asthma medications handout
- AAP parent letter
- Instructions for rating current asthma severity using the Parent Asthma / Breathing Trouble Questionnaire and Student Breathing Questionnaire
- Skill Validation Tools
- Asthma Medical Referral / Request
- Individual Health Plan – Asthma
- Emergency Care Plan – Asthma
- Pathway for School Asthma Care for LSNs
- Self-carry parent letter and student agreement

ADDITIONAL LSN/PHN/RN-SPECIFIC RESOURCES:

Environmental Protection Agency: Asthma Triggers

<http://www.epa.gov/asthma/triggers/index.html>

School Nurses of Minnesota (SNOM)

<http://www.minnesotaschoolnurses.org/>

Healthy Learners Asthma Initiative: Minneapolis Public Schools

<http://www.healthylearners.org/>

Connecticut Department of Health: Manual link

http://www.dph.state.ct.us/BCH/eeoh/Asthma/asthma_ed_mat.htm

Available documents (among others):

- Tips for the School Nurse
- School Nurse checklist: Planning for care as school begins
- Asthma Terminology sheet
- Self-medication assessment
- Students with Asthma Tracking Form

National Heart Lung & Blood Institute/ National Institutes of Health Guidelines

<http://www.nhlbi.nih.gov/guidelines/asthma/>

RESOURCES FOR TRAINING SCHOOL STAFF

The Resource Section contains power point handouts which are available on the manual CD Rom and at the MDH asthma website for easy use/adaptation:

Asthma for School Staff Power Point

Asthma Basics for School Nurses Power Point

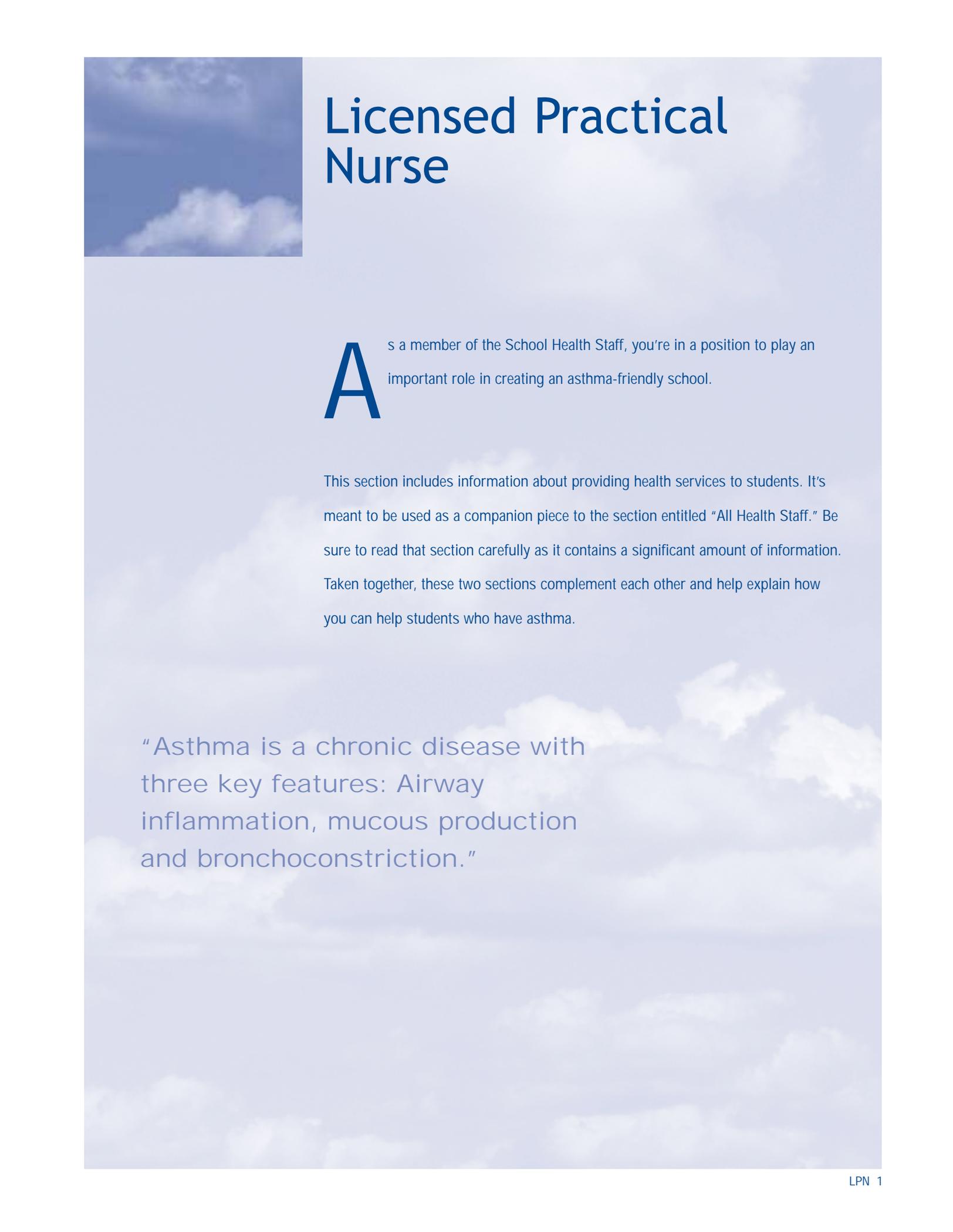
Medication Review Power Point

Asthma Basics for Coaches Power Point

Asthma Basics for Physical Education teachers Power Point

Active with Asthma – Practical tips for PE teachers, coaches and students with asthma

Indoor Air Quality / Asthma for School Engineers / Custodians Power Point



Licensed Practical Nurse

As a member of the School Health Staff, you're in a position to play an important role in creating an asthma-friendly school.

This section includes information about providing health services to students. It's meant to be used as a companion piece to the section entitled "All Health Staff." Be sure to read that section carefully as it contains a significant amount of information. Taken together, these two sections complement each other and help explain how you can help students who have asthma.

"Asthma is a chronic disease with three key features: Airway inflammation, mucous production and bronchoconstriction."



What Licensed Practical Nurses Can Do

Role in a setting with a Licensed School Nurse (LSN)/ Public Health Nurse (PHN)/ Registered Nurse (RN)

LPN's work under the direction, and for some activities delegation, training and supervision of an LSN/PHN/RN.

Some of the activities that Licensed Practical Nurses (LPNs) may be directed and/or delegated to do include:

1. Help identify students with asthma by reviewing health forms
2. Distribute and collecting communication from parents, Health Care Providers and other school staff, which may include asthma questionnaires which help obtain asthma information from students and/or parents/guardians
3. Staff the Health Office / Health Room
 - Document asthma visits on your daily log or other means of recording student visits to the health office. Document that the parent/guardian was notified of the asthma health office visit on the daily log or other document as applicable at your school.
 - Ask about symptoms and checking peak flow, especially on students with asthma symptoms
 - Listen to breath sounds and documenting findings
 - Monitor students' physical status and/or response to medications
 - Begin record keeping by completing or initiating documentation on a record that includes medication administration, peak flow readings, symptoms, and reinforcing asthma education
 - Administer medication according to medication orders / Asthma Action Plan and your district policy
 - Notify parent/guardian if a student is seen in the Health Office with asthma symptoms and/or distress
 - Notify the LSN / PHN / RN of students who have asthma symptoms more than twice a week
 - Receive orders from and/or communicating with Health Care Providers regarding students' asthma and/or medication orders



Role in a setting without a Licensed School Nurse (LSN)/Public Health Nurse (PHN)/Registered Nurse (RN)

If you are alone in a school or district and not supervised by a LSN / PHN / RN, your role will be different. It is not appropriate for Licensed Practical Nurses to develop policy or develop Individual Health Plans for students. Be sure to keep in mind your own district's policies and the limits of the care you can provide. The role of the Licensed Practical Nurse not working under the supervision of the LSN / PHN / RN is primarily: first aid, minor illness care, medication administration per school / district policy and to communicate with parents/guardians observations related to the student with asthma.

Some main points relating to your role are listed below.



■ Verify that your school/district has a policy that addresses meeting the health needs of students and any related policies (e.g. medication administration policy, establishing a consultative relationship with a medical consultant or advisor, collaborating with the Emergency Medical System, development of 504 plans, etc.) and that you are familiar with the details of any policy.



■ Be aware that MN statute 121A.22 (Administration of drugs and medicine) states that parents can request that school staff administer medications. The school must have a medication policy developed in conjunction with a medical advisor or nurse consultant.



■ Be aware that MN Statute 121A.221 (Possession and use of asthma inhalers by students with asthma) states that in schools without a school nurse or school nursing services, parent/guardians must submit written verification from the prescribing professional that documents an assessment of the students knowledge and skills to safely possess and use an asthma inhaler in a school setting.

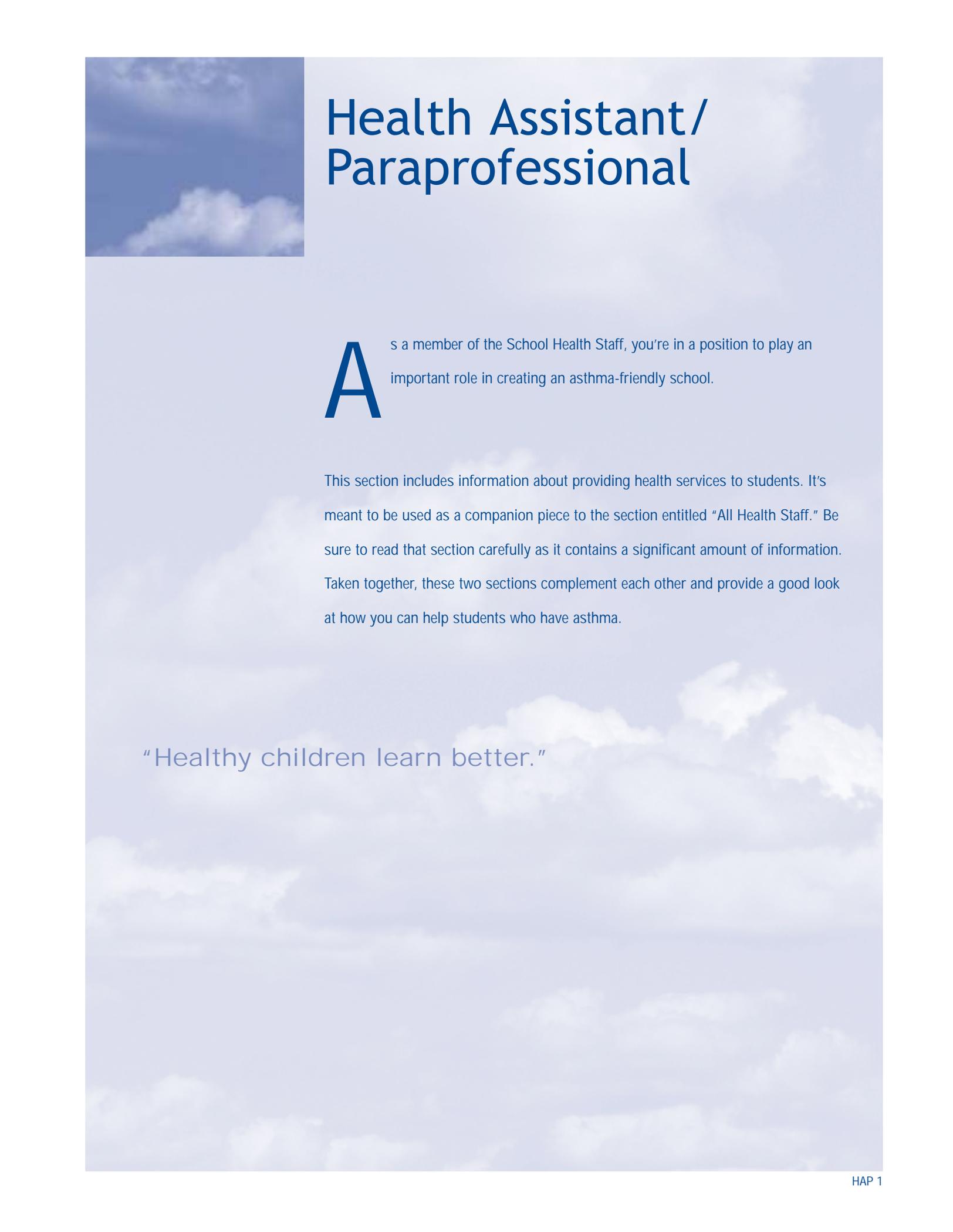
■ If you do not receive written verification of the above, go back to the parent/guardian to request this information, and also share this with your immediate supervisor.

■ Follow written instructions given to you by the parent and health care provider (on an asthma action plan, other set of orders etc.). If you have questions or concerns or are unable to follow the orders, go back to the parent for further clarification, and also share it with your immediate supervisor.



■ For the student with a 504 plan, follow the instructions on that plan. If you have questions or concerns, go to the 504 coordinator and your immediate supervisor.





Health Assistant/ Paraprofessional

As a member of the School Health Staff, you're in a position to play an important role in creating an asthma-friendly school.

This section includes information about providing health services to students. It's meant to be used as a companion piece to the section entitled "All Health Staff." Be sure to read that section carefully as it contains a significant amount of information. Taken together, these two sections complement each other and provide a good look at how you can help students who have asthma.

"Healthy children learn better."

What Health Assistants/ Paraprofessionals Can Do

Role in a setting with a Licensed School Nurse (LSN)/ Public Health Nurse (PHN)/ Registered Nurse (RN)



Some of the activities that some Health Assistants may be directed and/or delegated to do are:

1. Help identify students with asthma by reviewing health forms.
2. Distribute and collecting communication from parents, Health Care Providers and other school staff, which may include asthma questionnaires which help obtain asthma information from students and/or parents/guardians.
3. Staff the Health Office / Health Room
 - Document asthma visits on your daily log or other means of recording student visits to the health office. Document that the parent/guardian was notified of the asthma health office visit on the daily log or other document as applicable at your school (if directed by LSN / PHN / RN to do so).
 - Ask about symptoms and checking peak flow, especially on students having asthma symptoms.
 - Begin record keeping by completing or initiating documentation on a record that includes medication administration, peak flow readings, symptoms, and reinforcing asthma education.
 - Administer medication according to medication orders / Asthma Action Plan and your district policy
 - Notify parent/guardian if a student is seen in the Health Office with asthma symptoms and/or distress
 - Notify the LSN / PHN / RN of students who have asthma symptoms more than twice a week

Health Assistants work under the direction, and for some activities delegation, training and supervision of an LSN/PHN/RN.

Role in a setting without a Licensed School Nurse (LSN)/Public Health Nurse (PHN)/Registered Nurse (RN)

If you are alone in a school or district and not supervised by a LSN / PHN / RN, your role will be different. It is not appropriate for Health Assistants to develop policy or develop Individual Health Plans for students. Be sure to keep in mind your own district's policies and the limits of the care you can provide. The role of the Health Assistant not working under the supervision of the LSN / PHN / RN is primarily: first aid, minor illness care, medication administration per school / district policy and to communicate with parents/guardians observations related to the student with asthma.

Some main points relating to your role are listed below.



- Verify that your school/district has a policy that addresses meeting the health needs of students and any related policies (e.g. medication administration policy, establishing a consultative relationship with a medical consultant or advisor, collaborating with the Emergency Medical System, development of 504 plans, etc.) and that you are familiar with the details of any policy.



- Be aware that MN statute 121A.22 (Administration of drugs and medicine) states that parents can request that school staff administer medications. The school must have a medication policy developed in conjunction with a medical advisor or nurse consultant.



- Be aware that MN Statute 121A.221 (Possession and use of asthma inhalers by students with asthma) states that in schools without a school nurse or school nursing services, parent/guardians must submit written verification from the prescribing professional that documents an assessment of the students knowledge and skills to safely possess and use an asthma inhaler in a school setting

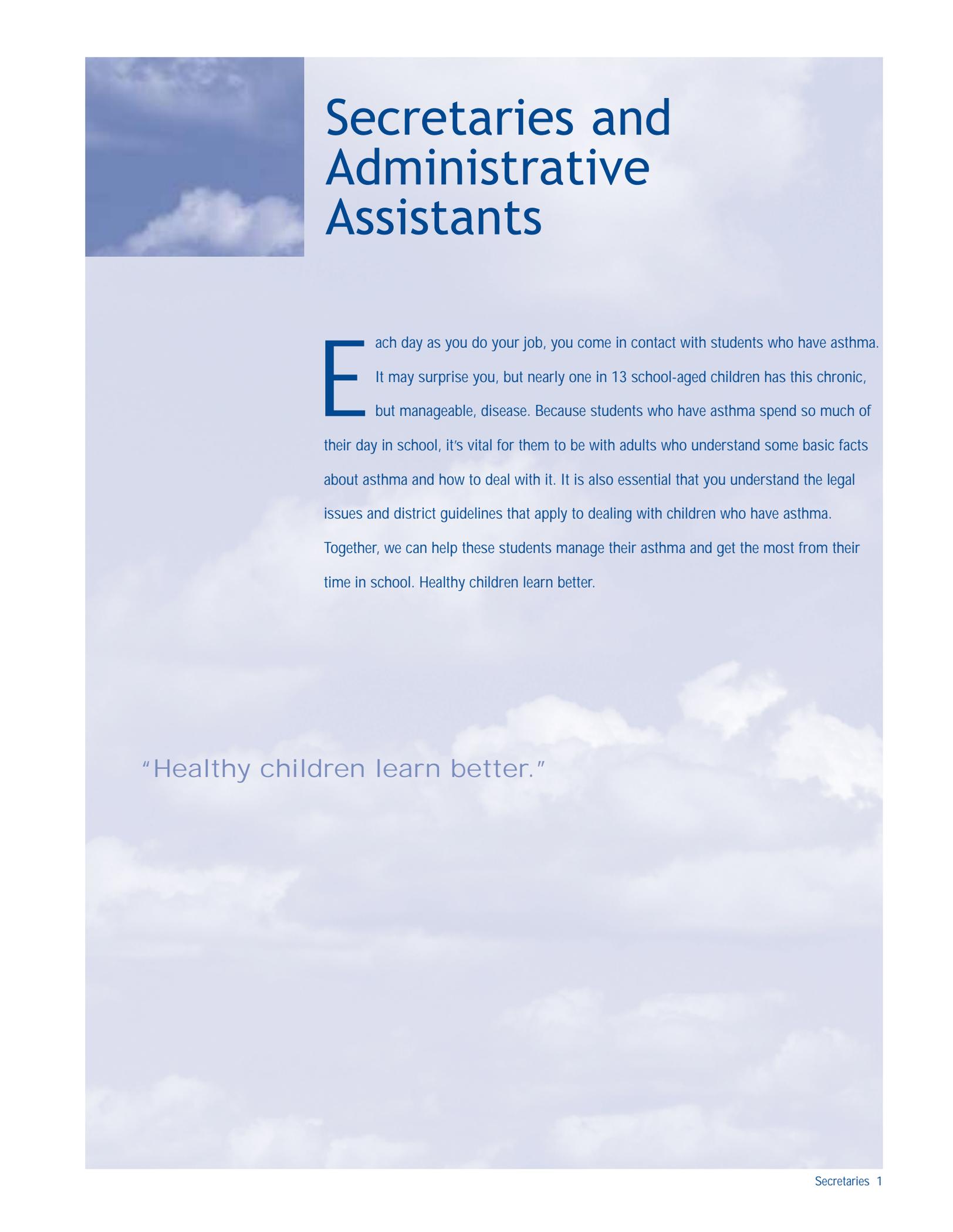
- If you do not receive written verification of the above, go back to the parent/guardian to request this information, and also share this with your immediate supervisor.

- Follow written instructions given to you by the parent and health care provider (on an asthma action plan, other set of orders, etc.). If you have questions or concerns or are unable to follow the orders, go back to the parent for further clarification, and also share it with your immediate supervisor.



- For the student with a 504 plan, follow the instructions on that plan. If you have questions or concerns, go to the 504 coordinator and your immediate supervisor.





Secretaries and Administrative Assistants

Each day as you do your job, you come in contact with students who have asthma. It may surprise you, but nearly one in 13 school-aged children has this chronic, but manageable, disease. Because students who have asthma spend so much of their day in school, it's vital for them to be with adults who understand some basic facts about asthma and how to deal with it. It is also essential that you understand the legal issues and district guidelines that apply to dealing with children who have asthma. Together, we can help these students manage their asthma and get the most from their time in school. Healthy children learn better.

“Healthy children learn better.”



Why Learning about Asthma is Important to Secretaries and Administrative Assistants

ASTHMA CAN BE DEADLY.

An asthma episode can escalate and may result in death without prompt medical attention.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

Over 10 million school days are missed due to asthma each year.

ASTHMA CAN AFFECT A CHILD'S PERFORMANCE.

It can disrupt sleep, the ability to concentrate, memorize, and, when not managed properly can prevent a student from participating in "normal" school activities. Children who miss school due to uncontrolled asthma not only miss classroom instruction but they miss out on social interactions with other children which can lead to fears of social isolation, rejection and believing they are "different" from other children. A child who has asthma may feel drowsy or tired, anxious about taking medications, or even embarrassed when disruption to school activities occurs due to an asthma episode.





What You Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling. The wheezing or whistling sound that they may hear when trying to breathe is air trying to make its way around the mucus and inflammation in the lungs. Coughing is the body’s natural response to try and get rid of the mucus. The outcome is a child experiencing an “asthma episode” or a flare up of their symptoms.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including having difficulty concentrating and participating in school.

Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs — the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis! An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.



During the initial phase of an asthma episode a child may exhibit one or more of these signs:

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with their asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

To understand how an asthma episode feels, put a straw in your mouth and, while blocking off the nasal passages, quickly move around the room. The ability to pull enough air in through a narrowed passage causes sensations of desperation and panic. A straw can be removed and the airways restored immediately, but the child experiencing an asthma episode must wait for the airways to relax and if severe, for mucus to clear before they can breath easier. **TIME IS OF THE ESSENCE!**

What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children who do not have asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child who has asthma reacts to a different set of factors.

Some common “allergens” are:

- Dust mites
- Dander from furry or feathery animals (*including pets in the classroom*)
- Mold (*moist ceiling tiles or wet sink areas and outdoor molds such as Alternaria which is common in MN in the fall*)
- Seasonal pollens (*e.g. tree pollen in the spring, grass in the summer, ragweed in the fall*)
- Cockroach droppings
- Mice/rat dander, urine and their droppings
- Some foods *
- Some medications (e.g. aspirin)

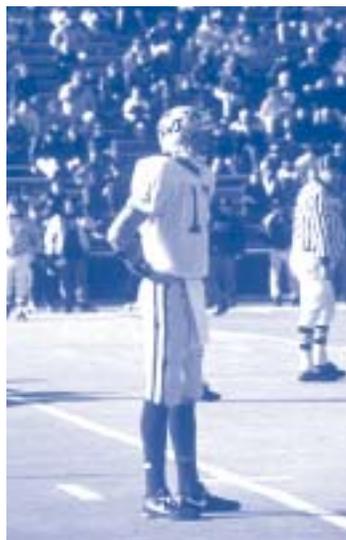
Some common “triggers” are:

- Exercise (*Exercise induced asthma or EIA*)
- Cold air
- Chalk dust
- Viral/upper respiratory infections, bronchitis, sinusitis
- Strong emotional expressions (*such as stress, anxiety, anger, crying*)
- Air pollution- both indoor and outdoor (*high ozone/high particulate matter*)
- Chemical irritants and strong smells (*cleaning supplies, perfumes, whiteboard markers, paints, pesticides, glues*)
- Tobacco smoke, secondhand smoke, smoke from burning wood and other substances

“About 6-8% of children who have asthma have food allergies that can trigger asthma symptoms.”

Exercise-Induced Asthma (EIA) and/or Exercise Induced Symptoms

Exercise is a very common trigger for asthma. However, since exercise and participating in sports are a part of healthy living, this is one trigger that should be managed and not avoided. Some students may experience symptoms only when they exercise or participate in very strenuous activity (true EIA). Other students experience symptoms that are brought on by exercise, but they also may have an underlying persistent asthma that is exacerbated by the exercise. Students with underlying persistent asthma require controller medications whereas students with true EIA frequently do not. Any child who develops asthma-like symptoms should be referred to the Health Office for evaluation and possible referral to a health care provider. For teenagers, exercise is often the most common cause of asthma symptoms. Fortunately, with better medications, monitoring and proper management, a children can participate in physical activity and sports and achieve their highest performance levels.



SYMPTOMS OF EIA AND/OR EXERCISE INDUCED SYMPTOMS

Symptoms may include coughing, wheezing, chest tightness and shortness of breath. Coughing is the most common symptom of EIA and may be the only symptom a child has at that time. The symptoms of EIA may begin during exercise and can be worse 5 to 10 minutes after stopping exercise or during the normal “cooling down” period rather than during the actual exercise. Symptoms can range from mild to severe and often resolve in 20 to 30 minutes. Occasionally, some individuals will experience “late phase” symptoms four to twelve hours after stopping exercise. These late phase symptoms are frequently less severe and can take up to 24 hours to go away. This is an important fact to remember when children are participating in school competitions that are repeated throughout the day.

CAUSES OF EIA AND/OR EXERCISE INDUCED SYMPTOMS

When a child exercises, he/she breathes faster due to increased oxygen demands. Usually, during exercise a child inhales through the mouth, causing the air to be dryer and cooler than when breathing normally and through the nasal passages. Decreases in warmth and humidity are both causes of bronchospasm or “airway constriction.” Exercise that exposes a child to cold air like skiing, skating or hockey is therefore more likely to cause symptoms than exercise involving warm and humid air such as swimming. Pollution levels, high pollen counts and exposure to other irritants such as smoke and strong fumes can also make EIA symptoms worse. A recent cold or asthma episode can cause a child to have more difficulty exercising too.

PREVENTING EIA

- ✓ If EIA is an issue with the child, check his/her asthma action plan or asthma care plan for instructions. The most common preventive action is to have the child use reliever medications 15 minutes prior to strenuous activity. If the student isn’t carrying an inhaler, then he/she will need to go to the school health office for medication administration.
- ✓ Be aware of your district and school policies and procedures for administering medications.
- ✓ Check ozone/ air quality levels for outdoor activity prior to exercise outside at: <http://aqi.pca.state.mn.us/hourly/> High pollen or high ozone levels can make EIA worse in some children.
- ✓ Never encourage a child or athlete with asthma to “tough it out” and don’t allow other children to tease or encourage another who is wheezing to continue the activity.
- ✓ Respect the child’s right to confidentiality and privacy. Discussion and questions about how he/she feels (in detail) should be asked quietly and with discretion.

Asthma Medications

The most common asthma medications most school staff will come in contact with are the quick relief (reliever) or “rescue” medications which are taken by inhalation.



Treatment for asthma is based on how severe a child's symptoms are at any given time. Typically, there are two types of medications used to treat asthma:

- quick relief (reliever) or rescue, and
- controller or preventive.

QUICK RELIEF (RELIEVER) OR “RESCUE”

These medications are taken when asthma symptoms flare up or a child is experiencing an “asthma episode.” They work fast to relieve symptoms as they happen, or to help prevent exercise-related symptoms. This is the medication you most frequently see a student use in an inhaler form when symptoms are flaring up or in the case of exercise-induced asthma (EIA) 15-30 minutes prior to strenuous physical activity. They relax the muscles surrounding the airways usually within 10-15 minutes after using the inhaler.

Typical brand names of these medications are: *Albuteral, Maxair, Proventil, Ventolin, Combivent, and Alupent.*

It is important to remember that all medications carry the potential for side effects. Some common complaints with rescue medications include *nervousness, jitteriness, nausea* and, in some cases, *drowsiness*. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.

A note about inhaled corticosteroids: When you hear the word “steroid” you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medication available.

LONG-TERM CONTROLLER OR “PREVENTIVE”

Some children require medications that are taken daily to prevent symptoms or episodes from developing. These are the *controller or “preventive”* medications. School staff may not see a child actually taking these medications, because children may only take them at home, it is important to understand that there is a difference between short acting reliever medications and long acting controller medications. These controller medications either reduce or prevent inflammation from occurring or in some cases, prevent symptoms by relaxing the muscles surrounding the bronchioles (airways) over a long period of time.

Typical controller medications are: *Advair, AeroBid, Azmacort, Beclovent, Flovent, PulmicortTurbuhaler, Pulmicort Respules Vancertil, Flovent, Rotadisc, Accolate, Singulair, Zylflo Filmta, Serevent, Foradil, Intal and Tilade.*

- Oral (pills) corticosteroids are taken when an episode becomes severe, or when a child's asthma requires very intensive treatment.

WHAT ARE THEY, HOW ARE THEY USED?



An asthma action plan (AAP) is an individualized tool that assists a caregiver in evaluating, monitoring and providing care to a child who has asthma. It is advisable for all children who have asthma to have a personalized AAP and or emergency care plan available at all times. A sample can be found in the Resource Section of this manual.

AAP's come in a number of different formats but the most common use the 3 color system: **green = go, yellow = caution and red = danger.** Under each color, there are measurements and instructions specific to that level of condition. When you match the symptoms (and Peak Flow, if available) to the correct color section, you'll find the steps to take.



A Peak Flow Meter (PFM) is simple measurement tool used to determine if a child's ability to exhale air (true asthma) is lessening. Every child's peak flow (PF) is different but a dropping level indicates reduced breathing abilities. The school nurse may have a PFM for a student who has asthma asthma. Talk to your school nurse for additional information.

The Peak Flow Meter measures the amount of air forcefully exhaled in 1 second. Using it determines how a child's large airways are performing. A dropping peak flow rate can indicate a child's asthma is becoming worse and an episode is developing. It is important to note that peak flow readings are effort-dependent, meaning if the student doesn't blow hard or use his/her best effort in blowing, the reading may not be accurate. Ask the child to take a deep breath and while standing, blow into the meter as hard as possible. This should be repeated 3 separate times. Take the best of the 3 readings as the reading that you record.



See Resources Section for specific instructions on how to use peak flow meters (PFM), Medication device inhalers (MDI), Nebulizers, Dry powder inhalers (DPI), Spacers etc. Once again, check on district/school policies regarding your role in providing care with these devices.



GREEN = GO

Contains the controller medication the child takes everyday (if he/she does in fact require a daily medication.) It will also include instructions for medicating a child who has exercise induced asthma (EIA) prior to strenuous activity. The peak flow range for that child and the normal acceptable ranges can be included.

YELLOW = CAUTION

Gives the caregiver specific instructions for medications when the child is starting to have asthma symptoms. Instructions for how much and how often the child should receive rescue medication should be found here. A peak flow range will show a drop in numbers; typically 20% or more. The yellow zone is perhaps the most important because it gives the caregiver the opportunity to take action before symptoms become life threatening.

RED = DANGER

Means the child's symptoms have progressed to the point where emergency care is needed. A description of escalating symptoms and a PF that has dropped to below 50% indicates a child's lungs are filling with mucus and that the bronchial muscles are so contracted that the lungs cannot pull in air. Caregivers should call 911 immediately!



What Secretaries and Administrative Assistants Can Do

Communicating with Students

When working with a child who may be experiencing an asthma episode, above all, don't panic! Remaining calm and reassuring the child that he/she will be okay helps alleviate the child's anxiety and may prevent symptoms from becoming worse. Remember that it is important to respect the child's right to privacy and confidentiality.

Emergency Measures for Handling an Asthma Episode or Emergency

Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Person feels short of breath
- Person feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Person feels apprehensive or fearful
- Coughing
- Speaking in clipped or short bursts of speech
- Possibly restlessness or upset stomach

Provide prompt care for students who are having breathing difficulty.

Care of asthma and breathing trouble:

- Remain calm and reassure the child.
- Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
- If an asthma episode is suspected, give a glass of room temperature water to sip.
- Elevate arms to shoulder level and provide support for the arms (desk or back of chair).
- Notify your health office nurse or responsible medical party.
- Give medication if ordered and available (some students carry their asthma inhaler with them).
- Contact parent/guardian.

Call 911 if:

- Lips are blue or nail beds are blue -or-
- Child is having difficulty talking, walking or drinking -or-
- Quick relief or reliever medication (inhaled reliever such as albuterol) is ineffective,
- unavailable, or used too recently to repeat -or-
- You see neck, throat, or chest retractions (Sucking in of the skin between ribs or at base of the neck) -or-
- There is nasal (nares) flaring when inhaling -or-
- Child is in obvious distress -or-
- There is an altered level of consciousness/confusion -or-
- Child's condition is rapidly deteriorating

REMEMBER

Secretaries who perform duties typically delegated to licensed health care personnel should be trained and evaluated in order to meet state regulations.

Non-medical personnel must be trained to administer medications properly and be overseen by an RN who has evaluated their ability to perform those tasks.

Performing these duties without proper training, licensure and supervision can put the individual as well as administrators and the school district at legal risk.

ALWAYS check school district policies and procedures.

**Actions in a setting
with Licensed
School Nurse/
Public Health Nurse/
Registered Nurse**



1. Be sure you have been properly instructed and evaluated by the school nurse for proficiency before performing caregiver tasks according to school district policies.
2. Notify the school nurse of students with asthma or symptoms of asthma.
3. Document in the Student Asthma Record all children with asthma medication and/or children who need documentation of peak flow or asthma management assistance.
4. Ask about symptoms and check peak flow (as ordered by medical provider):
 - Of children who have asthma symptoms
 - To determine if medication is needed per AAP or medication care plan
 - Of children as designated by the RN
5. Administer medication according to medication orders/Asthma Action Plan/ Medical Care plan and your district policy.
6. Notify parent if a child is seen in the health office with asthma symptoms and/or distress. Send notification home with the child or via US Mail. Retain one copy for the school nurse to review.
7. Document asthma visit and parental notification on your daily log or other means of recording the child's visit to the health office.
8. Daily Log Documentation:
 - All children seen in the health office with asthma signs or symptoms.
 - All children coming in for "as needed" asthma medication due to symptoms.

**Role in a setting
without a Licensed
School Nurse/Public
Health Nurse/
Registered Nurse**

If you are the only individual providing health services in a school or district and not supervised by a Licensed School Nurse, Registered Nurse, or Public Health Nurse, your role may be very limited. 



- Verify that your school/district has a policy that addresses meeting the health needs of students and any related policies. Make sure you are familiar with the details of any policy.
- Be aware that MN statute 121A.22 (Administration of drugs and medicine) states that parents can request that school personnel administer medications. The school must have a medication policy developed in conjunction with a medical advisor or nurse consultant.
- Be aware that MN Statute 121A.221 (Possession and use of asthma inhalers by students who have asthma) states that in schools without a school nurse or school nursing services, a parent must submit written verification from the prescribing professional that documents an assessment of the student's knowledge and skills to safely possess and use an asthma inhaler in a school setting.
- If you do not receive written verification of the above, go back to the parent to request this information, and also share this with your immediate supervisor.
- Follow written instructions given to you by the parent and health care provider. If you have questions or concerns or are unable to follow the orders, ask the parent for further clarification, and also share it with your immediate supervisor.
- Follow emergency/911 instructions (per district policy).

Relevant Legislation:



There are legal requirements and statutes that regulate schools working with not only children with asthma but with children with special needs in general. The following are simplified summaries of current statutes.

FEDERAL LAWS (IDEA 1997) AND SECTION 504 OF THE REHABILITATION ACT OF 1973



These mandates require that schools promote the health, development and achievement of students with asthma, when the disease interferes with their learning. Schools are required to remove “disability barriers” that impede health, participation and achievement. The law requires schools and parents to work together as partners to develop and implement health plans to protect the welfare of the child.

FAMILY EDUCATION RIGHTS AND PRIVACY ACT (FERPA)



Generally prohibits schools from disclosing personally identifiable information in a student’s education record, unless the school obtains the consent of the student’s parent or the eligible student (a student who is 18 years old or older or who attends an institution of postsecondary education). FERPA does allow schools to disclose this information, without obtaining consent, to school officials, including teachers, who have legitimate educational interests in the information, including the educational interests of the child. Schools that do this must include in their annual notification to parents and eligible students the criteria for determining who constitutes a school official and what constitutes a legitimate educational interest. Additionally, under FERPA, schools may not prevent the parents of students, or eligible students themselves, from inspecting and reviewing the student’s education records.

MINNESOTA INHALER LAW OVERVIEW

Minnesota Statutes, Section 121A.22



This law allows public elementary and secondary school students to possess and use inhalers prescribed for asthma or reactive airway disease. The following provides an overview of the requirements that must be met before a student is given permission to carry asthma medication and self-medicate in school:

1. The parent has not requested that school personnel administer the student’s asthma medication; *and*
2. The school district receives annual written authorization from the student’s parent for the student to self-administer; *and*
3. The inhaler is properly labeled for that student; *and*
4. The school nurse or other appropriate party assesses the student’s knowledge and skills to safely possess and use his/her inhaler in a school setting and enters a plan to implement safe possession and use of the inhaler into the student’s school health record; *or* for schools without a school nurse or nursing services, the student’s parent or guardian submits written verification from the student’s physician documenting that the physician has assessed the student’s knowledge and skills to safely possess and use his/her inhaler in a school setting.

Summary, August 2001 ALAMN

SCHOOL BUS IDLING LAW

Minnesota Statutes, Section 123B.885



Diesel School bus idling:

"All operators of diesel school buses must minimize, to the extent practical, the idling of school bus engines and exposure of children to diesel exhaust fumes.

"(This pertains to bus drivers lining up buses waiting for the children to exit the school and load the buses. Unless, due to inclement weather (i.e. too cold or too hot), the buses engine should be shut off until all children are loaded onto the bus).

Parking:

"On and after July 1, 2003, diesel school buses must be parked and loaded at sufficient distance from school air-intake systems to avoid diesel fumes from being drawn into the systems, unless, in the judgment of the school board, alternative locations block traffic, impair student safety, or are not cost effective."

(IAQ can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children).

PESTICIDE STATUTES

Minnesota Statutes, Section 121A.30



The Parents Right to Know Act requires public and non-public K-12 schools that plan to apply pesticides specified in the law, to provide notices to parents and employees. This law also requires the Minnesota Department of Health (MDH) to develop and make available model notices for schools to use, if they choose to do so.

(Secretaries or Administrative Assistants may be called upon to notify parents/guardians of planned pesticide use in the school and surrounding area. Your school custodian should be familiar with the process. Also see the Custodial Section for further information).



Resources

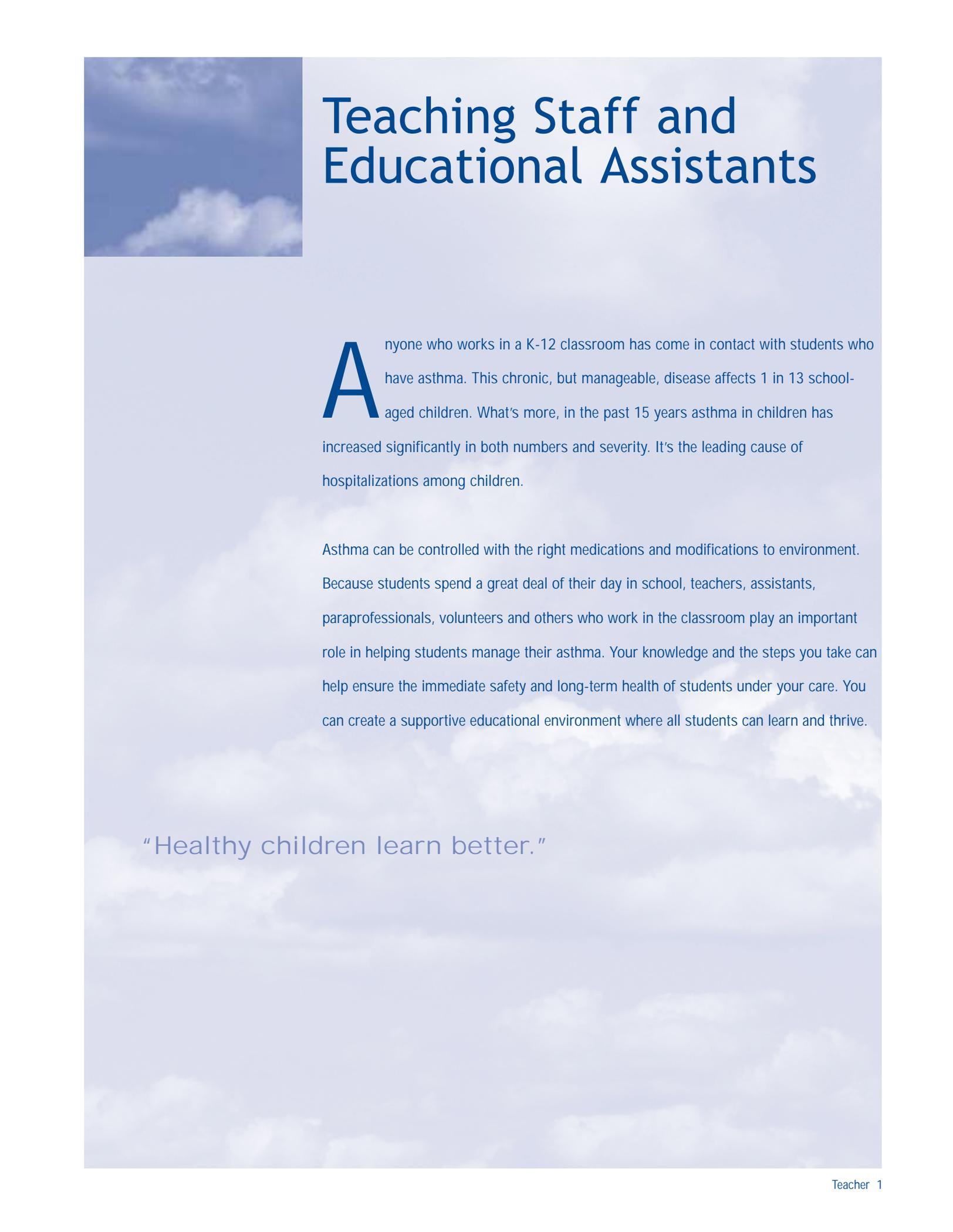
Using the preformatted forms and questionnaires provided in this manual can help school staff feel more confident when providing care for the child who has asthma.

The following forms are located in the Resource Section and on the asthma manual CD-rom. Other resources are listed with Internet link addresses at the back of this manual.

Forms/information available in Resource Section

- Student Asthma/Breathing Questionnaire
- Asthma/Breathing Problem Visit Notification
- Asthma “permanent pass” for students
- Asthma visit notification form
- Student agreement for self-carrying and administering asthma medications
- Asthma Action Plan
- Peak Flow Instructions
- Metered Dose Inhaler (aerosol) with Spacer/Chamber Instructions
- Dry Powdered Inhaler Instructions
- Nebulizer instructions





Teaching Staff and Educational Assistants

Anyone who works in a K-12 classroom has come in contact with students who have asthma. This chronic, but manageable, disease affects 1 in 13 school-aged children. What's more, in the past 15 years asthma in children has increased significantly in both numbers and severity. It's the leading cause of hospitalizations among children.

Asthma can be controlled with the right medications and modifications to environment. Because students spend a great deal of their day in school, teachers, assistants, paraprofessionals, volunteers and others who work in the classroom play an important role in helping students manage their asthma. Your knowledge and the steps you take can help ensure the immediate safety and long-term health of students under your care. You can create a supportive educational environment where all students can learn and thrive.

“Healthy children learn better.”



Why Learning about Asthma is Important to Teaching Staff

ASTHMA CAN BE DEADLY.

An asthma episode can escalate and may result in death without prompt medical attention.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

Over 10 million school days are missed due to asthma each year.

ASTHMA CAN AFFECT A CHILD'S PERFORMANCE.

It can disrupt sleep, the ability to concentrate, memorize, and, when not managed properly can prevent a student from participating in normal school activities. Children who miss school due to uncontrolled asthma not only miss classroom instruction but they miss out on social interactions with other children which can lead to fears of social isolation, rejection and believing they are "different" from other children. A child who has asthma may feel drowsy or tired, anxious about taking medications, or even embarrassed when disruption to school activities occur due to an asthma episode.





What You Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs-the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis! An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.



During the initial phase of an asthma episode a child may exhibit one or more of these signs:

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with their asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

To understand how an asthma episode feels, put a straw in your mouth and, while blocking off the nasal passages, quickly move around the room. The ability to pull enough air in through a narrowed passage causes sensations of desperation and panic. A straw can be removed and the airways restored immediately, but the child experiencing an asthma episode must wait for the airways to relax and if severe, for mucus to clear before they can breath easier. **TIME IS OF THE ESSENCE!**

What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children who do not have asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child with asthma reacts to a different set of factors.

Some common “allergens” are:

- Dust mites
- Chalk dust
- Food*
- Dander from furry or feathery animals**
- Mold (*moist ceiling tiles or wet sink areas*)
- Seasonal pollens (*e.g. tree pollen in the spring, grass in the summer, ragweed in the fall*)
- Cockroach droppings
 - Mice/rat dander, urine and their droppings
- Some medications (e.g. aspirin)

Some common “triggers” are:

- Exercise (*Exercise induced asthma or EIA*)
- Cold air
- Viral/upper respiratory infections, bronchitis, sinusitis
- Strong emotional expressions (*such as stress, anxiety, anger, crying*)
- Air pollution- both indoor and outdoor ***
- Chemical irritants (*cleaning supplies, perfumes, whiteboard markers, paints, pesticides, glues*)
- Tobacco smoke, secondhand smoke, smoke from burning wood and other substances

“About 6-8% of children who have asthma have food allergies that can trigger asthma symptoms.”



PETS IN THE CLASSROOM.

All warm-blooded animals can cause allergic reactions. Animal allergen is in dander, saliva, and urine. Allergen particles become airborne and accumulate in carpets, upholstery, and fabrics and on books, desks, and walls. Sensitive airways are affected by the odors from urine, cedar chips, room deodorizers, disinfectant sprays, and the flea powders or insecticides used to control fleas and ticks. Once furry animals are introduced into a school, removal does not immediately eliminate the exposure problem. A central ventilating system can contaminate the entire school. Even after a thorough cleaning, the allergens persist for months. Carpets in the room become a trap for animal dander and vacuuming just stirs up the particles. It is important to know what your school district policy is regarding animals in the schoolroom and to take into consideration children in the classroom who may have asthma or allergies.

INDOOR AIR QUALITY.

Indoor air quality or "IAQ" refers not only to the content of the air circulated throughout the school but also to the potential allergens and triggers that float around. Most people don't consider a light spray of perfume or cologne as a potential irritant, but for some children, strong scents (chemicals, cleaning supplies, perfumes, paste, whiteboard markers etc.) are triggers that can aggravate an asthma episode. When possible, it's best to avoid using items that have potential odor or scent producing irritants.

Mold is a problem difficult to eradicate once in place. Moist, dark environments promote mold (often called mildew) growth and cleaning areas found to contain mold should be referred to the school custodian.

Exercise-Induced Asthma (EIA) and/or Exercise Induced Symptoms

Exercise is a very common trigger for asthma. However, since exercise and participating in sports are a part of healthy living, this is one trigger that should be managed and not avoided. For teenagers, exercise is often the most common cause of asthma symptoms. Some students may experience symptoms only when they exercise or participate in very strenuous activity (true EIA). Other students experience symptoms that are brought on by exercise, but they also may have an underlying persistent asthma that is exacerbated by the exercise. Students with underlying persistent asthma require controller medications whereas students with true EIA frequently do not. Any student who develops asthma-like symptoms should be referred to the Health Office for evaluation and possible referral to a health care provider. Fortunately, with better medications, monitoring and proper management, children can participate in physical activity and sports and achieve their highest performance levels!

SYMPTOMS OF EIA AND/OR EXERCISE INDUCED SYMPTOMS

Symptoms may include coughing, wheezing, chest tightness and shortness of breath. Coughing is the most common symptom of EIA and may be the only symptom a child has at that time. The symptoms of EIA may begin during exercise and can be worse 5 to 10 minutes after stopping exercise or during the normal "cooling down" period rather than during the actual exercise. Symptoms can range from mild to severe and often resolve in 20 to 30 minutes. Occasionally, some individuals will experience "late phase" symptoms four to twelve hours after stopping exercise. These late phase symptoms are frequently less severe and can take up to 24 hours to go away. This is an important fact to remember when children are participating in school competitions that are repeated throughout the day.

CAUSES OF EIA AND/OR EXERCISE INDUCED SYMPTOMS

When a child exercises, he/she breathes faster due to increased oxygen demands. Usually, during exercise a child inhales through the mouth, causing the air to be dryer and cooler than when breathing normally and through the nasal passages. Decreases in warmth and humidity are both causes of bronchospasm or “airway constriction.” Exercise that exposes a child to cold air like skiing, skating or hockey is therefore more likely to cause symptoms than exercise involving warm and humid air such as swimming. Pollution levels, high pollen counts and exposure to other irritants such as smoke and strong fumes can also make EIA symptoms worse. A recent cold or asthma episode can cause a child to have more difficulty exercising too.

PREVENTING EIA

Do not leave a child having an asthma episode alone.

- ✓ Become familiar with the child’s asthma action plan and the symptoms of a pending asthma episode.
- ✓ Understand what to do if an asthma episode occurs during exercise and have the action plan or emergency care plan available for reference.
- ✓ If EIA is an issue with the child, check his/her asthma action plan or medical care plan for instructions. The most common preventive action is for the child use reliever medications 15 minutes prior to strenuous activity. If he/she does not carry an inhaler, the child will need to go to the school health office for medication administration.
- ✓ Warm up and cool down activities appropriate for any exercise will also help children with asthma. Give them time enough to slowly get their respiratory system warmed up.
- ✓ Permit less strenuous activities if the child has recently been ill or is having any sort of respiratory difficulty
- ✓ Refer your questions about a child’s ability to fully participate in physical activity to the school nurse for evaluation.
- ✓ Be aware of your district and school policies and procedures for administering medications.
- ✓ Check ozone/ air quality levels for outdoor activity prior to exercise outside. High pollen or high ozone levels can cause EIA in most children with asthma.
- ✓ Never encourage a child or athlete with asthma to “tough it out” and don’t allow other children to tease or encourage another who is wheezing to continue the activity.
- ✓ Respect the child’s right to confidentiality and privacy. Discussion and questions about how he/she feels (in detail) should be asked quietly and with discretion.
- ✓ Do not leave a child having an asthma episode alone. His/her ability to breathe needs to be watched for resolution or worsening.



Asthma Medications

Treatment for asthma is based on how severe a child's symptoms are at any given time.

Typically, there are two types of medications used to treat asthma:

- Quick relief (reliever) or rescue, and
- Controller or preventive.



The most common asthma medications most school staff will come in contact with are the "quick relief or reliever medications" which are taken by inhalation.

QUICK RELIEF (RELIEVER) OR "RESCUE"

These medications are taken when asthma symptoms flare up or a child is experiencing an "asthma episode." They work fast to relieve symptoms as they happen, or to help prevent exercise-related symptoms. This is the medication you most frequently see a student use in an inhaler form when symptoms are flaring up or in the case of exercise-induced asthma (EIA) 15-30 minutes prior to strenuous physical activity. They relax the muscles surrounding the airways usually within 10-15 minutes after using the inhaler.

Typical brand names of these medications are: *Albuteral, Maxair, Proventil, Ventolin, Combiven and Alupent.*



It is important to remember that all medications carry the potential for side effects. Some common complaints with rescue medications include *nervousness, jitteriness, nausea* and, in some cases, *drowsiness*. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.

A note about inhaled corticosteroids: When you hear the word "steroid" you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes and do not have the same side effects. They are the most consistently effective controller medications available.

LONG-TERM CONTROLLER OR "PREVENTIVE"

Some children require medications that are taken daily to prevent symptoms or episodes from developing. These are the controller or preventive medications. School staff may not see a child actually taking these medications, because children may only take them at home. It is important to understand that there is a difference between short acting reliever medications and long acting controller medications. These controller medications either reduce or prevent inflammation from occurring or in some cases, prevent symptoms by relaxing the muscles surrounding the bronchioles (airways) over a long period of time.

Typical controller medications are: *Advair, AeroBid, Azmacort, Beclovent, Flovent, PulmicortTurbuhaler, Pulmicort Respules Vanceril, Rotadisc, Accolate, Singulair, Zflo, Filmata, Serevent, Foradil, Intal and Tilade.*

Oral (pills) corticosteroids are taken when an episode becomes severe, or when a child's asthma requires very intensive treatment.

WHAT ARE THEY, HOW ARE THEY USED?

An asthma action plan (AAP) is an individualized tool that assists a caregiver in evaluating, monitoring and providing care to a child who has asthma. It is advisable for all children who have asthma to have a personalized AAP and or emergency care plan available at all times. While a teacher is not necessarily the person responsible to assess and care for a child who has asthma, it is essential they understand the process and tools available.

AAP's come in a number of different formats but the most common use the 3 color system: **green = go**, **yellow = caution** and **red = danger**." Under each color, there are measurements and instructions specific to that level of condition. When you match the symptoms (and Peak Flow, if available) to the correct color section and you'll find the steps to take.

A Peak Flow Meter (PFM) is a simple hand-held measurement tool used to determine if a child's ability to exhale air (true asthma) is lessening. Every child's peak flow (PF) is different but a dropping level indicates reduced breathing abilities. The school nurse may have a PFM for some children who have asthma. Talk to your school nurse for additional information.



GREEN = GO

Contains the controller medication the child takes everyday (if he/she does in fact require a daily medication.) It will also include instructions for medicating a child who has exercise induced asthma (EIA) prior to strenuous activity. The peak flow range for that child and the normal acceptable ranges can be included.

YELLOW = CAUTION

Gives the caregiver specific instructions for medications when the child is starting to have asthma symptoms. Instructions for how much and how often the child should receive rescue medication should be found here. A peak flow range will show a drop in numbers; typically 20% or more. The yellow zone is perhaps the most important because it gives the caregiver the opportunity to take action before symptoms become life threatening.

RED = DANGER

Means the child's symptoms have progressed to the point where emergency care is needed. A description of escalating symptoms and a PF that has dropped to below 50% indicates a child's lungs are filling with mucus and that the bronchial muscles are so contracted that the lungs cannot pull in air. Caregivers should call 911 immediately!

What Teaching Staff Can Do

Asthma Management - Working with the School Nurse

Most asthma episodes can be prevented through asthma management. Asthma management can be defined as “managing, preventing, treating and controlling factors (environmental, medications etc.) that affect a child’s asthma.” Proper asthma management requires collaboration and cooperation among all school personnel, the parent/guardian, medical provider and the child.

Asthma that is well managed at home can be thrown completely off track when a child is away from home. The school nurse is typically the driving force behind helping a child maintain good asthma care in school. But because children spend the majority of their day with in the classroom, teachers are usually the first adults to notice when a child’s asthma is flaring up. A teacher who is asthma “savvy” and who makes an effort to work with the school nurse, child and parent will find her student to be more cooperative, less likely to be fearful of having an asthma episode and more likely to achieve his/her own peak academic performance.



Provide prompt care for students who are having breathing difficulty.

Emergency Measures for Handling an Asthma Episode or Emergency

Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Person feels short of breath
- Person feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Person feels apprehensive or fearful
- Coughing
- Speaking in clipped or short bursts of speech
- Possibly restlessness or upset stomach

Care of asthma and breathing trouble:

- Remain calm and reassure the child.
- Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
- If an asthma episode is suspected, give a glass of room temperature water to sip.
- Elevate arms to shoulder level and provide support for the arms (desk or back of chair).
- Notify your health office nurse or responsible medical party.
- Give medication if ordered and available (some students carry their asthma inhaler with them).
- Contact parent/guardian.

CALL 911 IF:

- Lips are blue or nail beds are blue -or-
- Child is having difficulty talking, walking or drinking -or-
- Quick relief or reliever medication (inhaled reliever such as albuterol) is ineffective, unavailable, or used too recently to repeat. -or-
- You see neck, throat, or chest retractions (Sucking in of the skin between ribs or at base of the neck) -or-
- There is nasal (nares) flaring when inhaling - or -
- Child is in obvious distress -or-
- There is an altered level of consciousness/confusion -or-
- Child's condition is rapidly deteriorating.

“A child may have only one or a combination of the above but each of these symptoms is evidence of a real asthma crisis developing!”

What to Do:

1. Notify the school nurse (if in the building) that a child may be starting symptoms consistent with an asthma episode and request assistance.
2. If the child begins to wheeze, coughs, is short of breath or even appears more restless or anxious than usual, ask the child to sit quietly in an upright position. Reassure the child in a calm voice and do not leave the child alone.
3. Consult the child's asthma action plan or emergency care plan (if available).
4. If the child carries an inhaler, instruct him/her to use their rescue medication. (Even if you are not sure the symptoms are progressing or prevalent enough, it is safest to give the child a puff of their rescue medication rather than waiting. Many times, the child can tell you immediately if medication is required.)
5. Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
6. If an asthma episode is suspected, give a glass of room temperature water to sip.
7. Elevate arms to shoulder level and provide support for the arms (desk or back of chair).
8. If asthma symptoms do not improve or are progressing rapidly (and/or the nurse is not available to assess the child) call 911.
9. Above all, don't panic! Remaining calm and reassuring the child that he/she will be okay helps alleviate the child's anxiety and may prevent symptoms from becoming worse.



Do not delay administering rescue medications or calling 911 while you attempt to contact the parents/guardian. Time is critical when a severe episode is taking place. The nurse can assess and document the episode and contact the family per district guidelines once the child's symptoms have subsided.

Supporting the Student with Asthma

TIPS FOR TEACHERS

- ✓ Know which children in your class have asthma. A conference with the parent, child, and school nurse may be needed. Discuss the child's asthma, medicines, and management.
- ✓ Know the early warning signs of an asthma episode.
- ✓ Have a copy of each child's asthma action plan or emergency care plan in the classroom. Review it with the child's parents/guardian and school nurse. Know what steps to take in case an asthma episode occurs.
- ✓ If you notice a child chronically coughing in class, and who may have difficulty participating in physical activities, he/she may need to be assessed by a medical provider. Be sure to alert the school nurse about children with breathing difficulties.
- ✓ If a child is using his/her inhaler, be sure to ask about symptoms and confirm that the inhaler relieved those symptoms. Inform the school nurse if a child is using his/her inhaler more than once per day (or frequently) and always keep the child in the informational loop.
- ✓ If you notice that a child is using an inhaler without a spacer, refer that child to the school health office.
- ✓ The best way to support a child with asthma is to treat him/her like all other children while watching for the appearance of symptoms and avoiding triggers.
- ✓ Respect the child's right to privacy and confidentiality.
- ✓ Know the possible side effects of asthma medications. Refer any problem to the school nurse and parents/guardian. Be cautious of making assumptions that a child's medication is causing side effects. Look at the most obvious, common childhood issues first.
- ✓ Reduce allergens and (triggers) irritants in the classroom. This includes prohibiting children from bringing in their cats, dogs, birds or other furry, feathered pets for show and tell. This is a great opportunity to teach classmates about asthma and what triggers episodes. Be sure to explain that "no pets in the classroom" is a district policy (check policies first) and avoid singling out a child who has asthma as the reason for the restriction.
- ✓ Perfumes, body sprays and even hairspray are strong triggers for many children. Be sure to avoid wearing any scents to class and remind older students, parents, visitors and especially volunteers not to wear perfumes, cologne, or scented hair products.
- ✓ Be aware of children who have exercise-induced asthma and have them warm up and pre-treat with inhaler per policies and care plans.
- ✓ Educate classmates about asthma so they will be more understanding of students with asthma and know when to get help from an adult.
- ✓ If a child seems unusually tired, inattentive, or hyperactive, advise the school nurse and the child's parent(s)/guardians. Behavior that is out of character for that child could be related to asthma that is not being properly managed.
- ✓ Encourage parents to work with the school nurse and to provide asthma care plans and to encourage the child to take his/her medication daily (if prescribed).
- ✓ Work closely with the school nurse to support policies and procedures that help a child with asthma participate fully in school each and every day. Be proactive!

Teaching equipment, cleaning supplies and teaching aids

- Stuffed animals and toys are traps for dust and allergens. They should be made of synthetic washable material and washed several times a year.
- Chalkboards should be cleaned when children are not present and never allow children to “bang together” the erasers.
- Paints and markers often emit strong fumes. Only use odor free markers in a well-ventilated area. Replace tops when not in use. Consider writing out assignments and other information on a whiteboard when children are not in the room.
- Be cautious with chemical cleaning supplies. Small children cannot read labels and the strong odors from some products can trigger an asthma episode. It is best to avoid using any cleaning products when children who have asthma are present.
- Use natural cleaning agents when appropriate: White or apple cider vinegar can be used to remove mineral deposits and crayon marks. Baking soda is a good general cleaner than can also be used as a deodorizer. Use mild, unscented bar soap for hand washing and encourage children to wash hands frequently to avoid speaking viral/cold germs.

Working with Classroom Volunteers

It is important that people who come into the classroom understand that they play an important role when it comes to monitoring a child's asthma symptoms. Many times volunteers are working directly with children in small reading or art groups. They may perform the role of playground or lunch monitor and at times be the only adult physically interacting with the children. Just like teaching assistants and teachers, they need to know the signs and symptoms of a developing asthma episode.

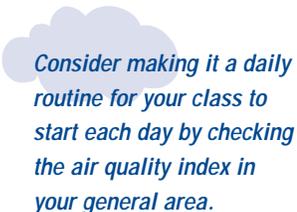
Any classroom volunteer should be given either this entire section or the Playground Assistants section for review. Both sections explain asthma basics and provide the steps necessary to determine what action(s) should be taken. Reminding them that perfumes, colognes, hairspray and many scented hair products are strong triggers/irritants for many children and should not be worn in the school.

Monitoring Outdoor Air Quality/Ozone/Pollution

People with asthma are more sensitive to air quality and poor air quality may be a trigger for an asthma episode. The Air Quality Index (AQI) is tool that can help you understand whether your air quality is good or bad on any particular day.

The AQI ranges from 0 to 500 and in Minnesota is based on measured or estimated levels of five air pollutants: ground-level ozone (smog), fine particulate matter, carbon monoxide, nitrogen dioxide and sulfur dioxide. The Minnesota Pollution Control Agency (MPCA) reports information about air quality on a daily basis on the AQI web site and AQI Information Line (651-297-1630). When the AQI exceeds or is forecast to exceed a value of 100, the MPCA issues air pollution health alerts.

Teachers should be aware that athletes with asthma may experience problems when the AQI exceeds 100. You may sign up to receive e-mail notification when air quality alerts are issued by the MPCA and check the air quality index daily for Minnesota by going to: <http://aqi.pca.state.mn.us/hourly/>



Consider making it a daily routine for your class to start each day by checking the air quality index in your general area.

Relevant Legislation:



There are legal requirements and statutes that regulate schools working with not only children with asthma but with children with special needs in general. The following are simplified summaries of current statutes.

FEDERAL LAWS (IDEA 1997) AND SECTION 504 OF THE REHABILITATION ACT OF 1973



These mandates require that schools promote the health, development and achievement of students with asthma, when the disease interferes with their learning. Schools are required to remove “disability barriers” that impede health, participation and achievement. The law requires schools and parents to work together as partners to develop and implement health plans to protect the welfare of the child.

MINNESOTA INHALER LAW OVERVIEW

Minnesota Statutes, Section 121A.22



The Minnesota legislature enacted language during the 2001 session that allows public elementary and secondary school students to possess and use inhalers prescribed for asthma or reactive airway disease. The following provides an overview of the requirements that must be met before a student is given permission to carry asthma medication and self-medicate in school:

1. The parent has not requested that school personnel administer the student's asthma medication; *and*
2. The school district receives annual written authorization from the student's parent for the student to self-administer; *and*
3. The inhaler is properly labeled for that student; *and*
4. The school nurse or other appropriate party assesses the child's knowledge and skills to safely possess and use his/her inhaler in a school setting and enters a plan to implement safe possession and use of the inhaler into the student's school health record; *or* for schools without a school nurse or nursing services, the student's parent or guardian submits written verification from the student's physician documenting that the physician has assessed the student's knowledge and skills to safely possess and use his/her inhaler in a school setting.

Summary, August 2001 ALAMN

FAMILY EDUCATION RIGHTS AND PRIVACY ACT (FERPA)



Generally prohibits schools from disclosing personally identifiable information in a student's education record, unless the school obtains the consent of the student's parent or the eligible student (a student who is 18 years old or older or who attends an institution of postsecondary education). FERPA does allow schools to disclose this information, without obtaining consent, to school officials, including teachers, who have legitimate educational interests in the information, including the educational interests of the child. Schools that do this must include in their annual notification to parents and eligible students the criteria for determining who constitutes a school official and what constitutes a legitimate educational interest. Additionally, under FERPA, schools may not prevent the parents of students, or eligible students themselves, from inspecting and reviewing the student's education records.

SCHOOL BUS IDLING LAW

Minnesota Statutes, Section 123B.885



Diesel School bus idling:

"All operators of diesel school buses must minimize, to the extent practical, the idling of school bus engines and exposure of children to diesel exhaust fumes."

(This pertains to bus drivers lining up buses waiting for the children to exit the school and load the buses. Unless, due to inclement weather (i.e. too cold or too hot), the buses engine should be shut off until all children are loaded onto the bus).

Parking:

"On and after July 1, 2003, diesel school buses must be parked and loaded at sufficient distance from school air-intake systems to avoid diesel fumes from being drawn into the systems, unless, in the judgment of the school board, alternative locations block traffic, impair student safety, or are not cost effective."

(IAQ can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children).

PESTICIDE STATUTES

Minnesota Statutes, Section 121A.30



The Parents Right to Know Act of 2000. This law requires public and non-public K-12 schools that plan to apply pesticides specified in the law, to provide notices to parents and employees. This law also requires the Minnesota Department of Health (MDH) to develop and make available model notices for schools to use, if they choose to do so.



Resources

The following resources are located in the Resource Section and on the asthma manual CD-rom. These resources are suggestions forms and programs and can be modified (CD) according to your district policies and procedures. Other resources are listed with Internet link addresses at the back of this manual.

Power Breathing Program

From Asthma and Allergy Foundation of America, provides a basic understanding of asthma and empowers and motivates teens to take control of their asthma on a personal level. Ordering information available on website. www.aafa.org (teens)

Asthma Challenge

Also from Asthma and Allergy Foundation of America, is an interactive board game designed to teach the basics of asthma in a group setting. www.aafa.org (teens)

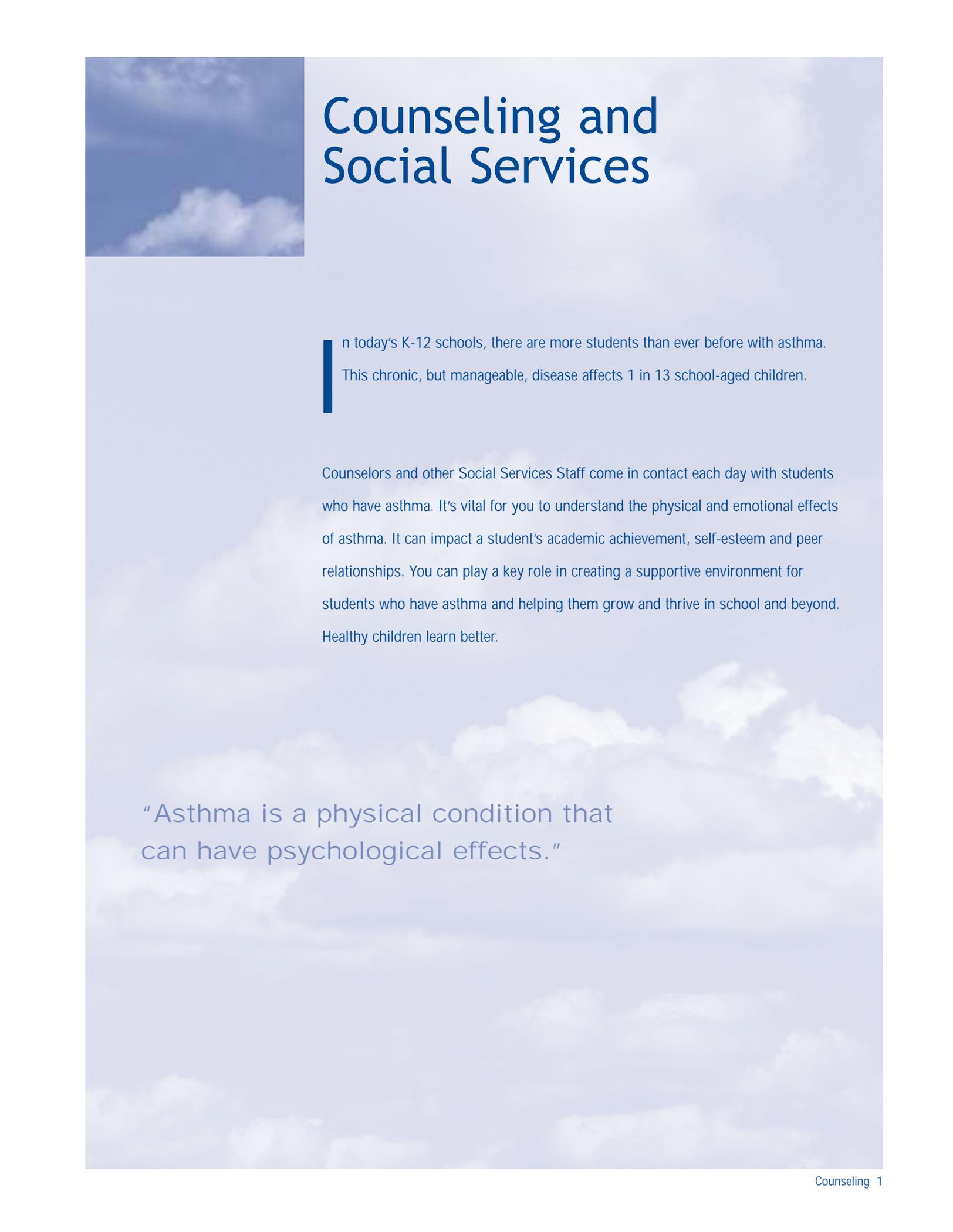
Open Airways for Schools

From American Lung Association, teaches students steps to take in order to prevent an asthma episode and to better manage their asthma with the assistance of parents, teachers, school nurses, and physicians. The interactive approach utilizes group decision, stories, games, and role-play to promote children's active involvement in the learning process. <http://www.alamn.org/prof/Educators.asp>

FORMS AND INFORMATION

Student breathing questionnaire
Asthma/ Breathing Problem Visit Notification
Emergency care plan
Asthma action plan
Asthma first aide poster





Counseling and Social Services

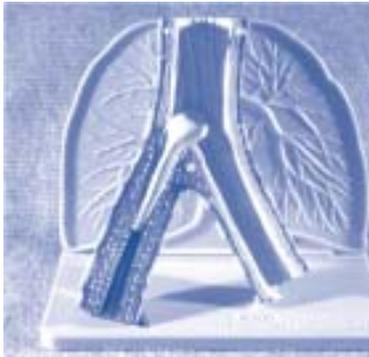
In today's K-12 schools, there are more students than ever before with asthma. This chronic, but manageable, disease affects 1 in 13 school-aged children.

Counselors and other Social Services Staff come in contact each day with students who have asthma. It's vital for you to understand the physical and emotional effects of asthma. It can impact a student's academic achievement, self-esteem and peer relationships. You can play a key role in creating a supportive environment for students who have asthma and helping them grow and thrive in school and beyond. Healthy children learn better.

"Asthma is a physical condition that can have psychological effects."



Why Learning about Asthma is Important to Counseling and Social Services Staff



ASTHMA CAN BE DEADLY.

An asthma episode can escalate and may result in death without prompt medical attention.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

Over 10 million school days are missed due to asthma each year.

ASTHMA CAN AFFECT A CHILD'S PERFORMANCE.

It can disrupt sleep, the ability to concentrate, memorize, and, when not managed properly can prevent a student from participating in "normal" school activities.

ASTHMA CAN HAVE PSYCHOLOGICAL EFFECTS

Asthma is not a psychological condition; it's a chronic lung disease. As with any chronic disease, students who have asthma may have difficulty coping with it.

Students who miss school due to uncontrolled asthma not only miss classroom instruction, they also miss out on social interactions with other children. That can lead to fears of social isolation and fears of being "different" from other children. Some students may develop low self-esteem, withdraw from activities, or have difficulty completing their schoolwork. Counseling with the student and/or parent(s) may help students handle problems more effectively.

Counseling staff should understand that a student with asthma may feel drowsy or tired, anxious about taking medications, or even embarrassed when disruption to school activities occurs due to an asthma episode. While psychological factors such as stress, anxiety and strong emotional reactions can bring on an asthma episode, the symptoms that appear are physical and require prompt management in order to avoid a crisis.



What You Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs — the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis! An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.



During the initial phase of an asthma episode a child may exhibit one or more of these signs:

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with his/her asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

To understand how an asthma episode feels, put a straw in your mouth and, while blocking off the nasal passages, quickly move around the room. The ability to pull enough air in through a narrowed passage causes sensations of desperation and panic. A straw can be removed and the airways restored immediately, but the child experiencing an asthma episode must wait for the airways to relax and if severe, for mucus to clear before they can breath easier. **TIME IS OF THE ESSENCE!**

What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children who do not have asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child with asthma reacts to a different set of factors.

Some common “allergens” are:

- Dust mites
- Chalk dust
- Food*
- Dander from furry or feathery animals**
- Mold (*moist ceiling tiles or wet sink areas*)
- Seasonal pollens (*e.g. tree pollen in the spring, grass in the summer, ragweed in the fall*)
- Cockroach droppings
- Mice/rat dander, urine and their droppings
- Some medications (e.g. aspirin)

Some common “triggers” are:

- Exercise (*Exercise induced asthma or EIA*)
- Cold air
- Viral/upper respiratory infections, bronchitis, sinusitis
- Strong emotional expressions (*such as stress, anxiety, anger, crying*)
- Air pollution- both indoor and outdoor ***
- Chemical irritants (*cleaning supplies, perfumes, whiteboard markers, paints, pesticides, glues*)
- Tobacco smoke, secondhand smoke, smoke from burning wood and other substances

“About 6-8% of children with asthma have food allergies that can trigger asthma symptoms.”



PETS IN THE CLASSROOM:

All warm-blooded animals can cause allergic reactions. Animal allergen is in dander, saliva, and urine. Allergen particles become airborne and accumulate in carpets, upholstery, and fabrics and on books, desks, and walls. Sensitive airways are affected by the odors from urine, cedar chips, room deodorizers, disinfectant sprays, and the flea powders or insecticides used to control fleas and ticks. Once furry animals are introduced into a school, removal does not immediately eliminate the exposure problem. A central ventilating system can contaminate the entire school. Even after a thorough cleaning, the allergens persist for months. Carpets in the room become a trap for animal dander and vacuuming just stirs up the particles. It is important to know what your school district policy is regarding animals in the schoolroom and to take into consideration children in the classroom who may have asthma or allergies.

INDOOR AIR QUALITY (IAQ):

Indoor air quality or “IAQ” refers not only to the content of the air circulated throughout the school but also to the potential allergens and triggers that float around. Most people don’t consider a light spray of perfume or cologne as a potential irritant, but for some children, strong scents (chemicals, cleaning supplies, perfumes, paste, whiteboard markers etc.) are triggers that can aggravate an asthma episode. When possible, it’s best to avoid using items that have potential odor or scent producing irritants. Mold is a problem difficult to eradicate once in place. Moist, dark environments promote mold (often called mildew) growth and cleaning areas found to contain mold should be referred to the school custodian.



Exercise-Induced Asthma (EIA) and/or Exercise Induced Symptoms

Exercise is a very common trigger for asthma. Since exercise and participating in sports is part of healthy living, it is one trigger that should be managed and not avoided. For teenagers, exercise is often the most common cause of asthma symptoms. Fortunately, with better medications, monitoring and proper management, children can participate in physical activity and sports and achieve the highest performance levels.

A school counselor may deal with athletes whose self worth is determined by peer approval or disapproval. Using a medication inhaler at a sporting event (or even before one) can give the perception that an athlete has a "weakness" or may not be able to compete at the same level as athletes without asthma. A school counselor can help break that perception by working with the coach to identify athletes who have asthma (keeping that confidential) and discussing their asthma management and what support they feel is necessary from the coach and other personnel. Often, an athlete (especially teens) will avoid informing the coach that he/she has asthma and "tough it out," thus reducing his/her ability to perform at their peak levels.

Counselors who encourage coaches and athletes to work together managing asthma will find that the child is a better student and athlete overall. Pointing out that there are a number of Olympic and professional level athletes that have asthma may be advantageous. Some examples include:



Tom Malchow – Olympic swimmer gold medalist

Greg Louganis – Olympic diver-USA

Jim "Catfish" Hunter – Baseball Hall of Fame

Jerome Bettis – NFL football player

Peter Maher – Olympic marathoner

Hakeem Olajuwon – NBA basketball player

Curt Harnett – Olympic cyclist and silver medalist

Charmain Crooks – Olympic runner and silver medalist

Joan Benoit – Women's marathon champion

Jackie Joyner-Kersey – Olympic double gold medalist intrack and field – heptathlete-
6 gold medals

Bill Koch – First American to win World Cup in cross-country skiing

Mark Spitz – 1972 Gold medalist in swimming - 9 golds

Paula Radcliffe – World champion marathoner

Paul Scholes – Professional soccer player- England and Manchester

Amy Van Dyken – 1996 Gold medalist in swimming – 4 golds

Donnell Bennett – Pro football player (NFL), Washington Redskins fullback

Gary Roberts – Pro hockey player (NHL), Toronto Maple Leafs

Dominique Wilkins – Pro basketball player (NBA) and currently working for the Hawks

Isiah Thomas – Pro basketball player (NBA) and currently coach of the Pacers

Asthma Medications



A note about inhaled corticosteroids: When you hear the word “steroid” you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes and do not have the same side effects. They are the most consistently effective controller medications available.

Treatment for asthma is based on how severe a child's symptoms are at any given time. Typically, there are two types of medications used to treat asthma:

- Quick relief (reliever) or rescue, and
- Controller or preventive.

The most common asthma medications most school staff will come in contact with are the quick relief or reliever medications which are taken by inhalation.

QUICK RELIEF (RELIEVER) OR “RESCUE”

These medications are taken when asthma symptoms flare up or a child is experiencing an “asthma episode.” These medications work fast to relieve symptoms as they happen, or to help prevent exercise-related symptoms. This is the medication you most frequently see a student use in an inhaler form when symptoms are flaring up or in the case of exercise-induced asthma (EIA) 15-30 minutes prior to strenuous physical activity. They relax the muscles surrounding the airways usually within 10-15 minutes after using the inhaler.

Typical brand names of these medications are: *Albuteral, Maxair, Proventil, Ventolin, Combivent and, Alupent.*

It is important to remember that all medications carry the potential for side effects. Some common complaints with rescue medications include *nervousness, jitteriness, nausea* and, in some cases, *drowsiness*. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.

LONG TERM CONTROLLER OR “PREVENTIVE”

Some children require medications that are taken daily to prevent symptoms or episodes from developing. These are the controller or preventive medications. It is important to understand that there is a difference between short acting reliever medications and long acting controller medications.

These controller medications either reduce or prevent inflammation from occurring or in some cases, prevent symptoms by relaxing the muscles surrounding the bronchioles (airways) over a long period of time.



Typical controller medications are: *Advair, AeroBid, Azmacort, Beclovent, Flovent, PulmicortTurbuhaler, Pulmicort Respules, Vanceril, Rotadisc, Accolate, Singulair, Zflo, Filmta, Serevent, Foradil, Intal and Tilade.*

Oral (pills) corticosteroids are taken when an episode becomes severe, or when a child's asthma requires very intensive treatment.



What You Can Do

Working with the School Nurse - Asthma Management

Most asthma episodes can be prevented through asthma management. Asthma management can be defined as “managing, preventing, treating and controlling factors (environmental, medications etc.) that affect a child’s asthma.” Proper asthma management requires collaboration and cooperation from all school personnel, the parent/guardian, medical provider and the child.

Asthma that is well managed at home can be thrown completely off track when a child is away from home. The school nurse is typically the driving force behind helping a child maintain good asthma care while in school. A counselor who is asthma “savvy” and who makes an effort to work with the school nurse, child and parent will find students to be more cooperative, less likely to be fearful of having an asthma episode and more likely to achieve their own peak academic performance. This is what successful asthma management is all about!

Supporting the Student with Asthma

TIPS FOR COUNSELORS

- ✓ Be aware that many children in your school have asthma and that symptoms will vary greatly from child to child.
- ✓ Understand that a student with asthma may miss both classroom instruction and social interactions with other children, which can lead to fears of social isolation, rejection, and feeling “different” from other children. He/she may feel anxious about accessing medications, embarrassed about having asthma or simply feel more tired than some children.
- ✓ Supporting the child with asthma means treating him/her like all other children while watching for the appearance of symptoms and avoiding triggers.
- ✓ Respect the child’s right to privacy and confidentiality.
- ✓ Educate classmates and other school staff about asthma so they will be more understanding of students with asthma and know when to get help from an adult.
- ✓ If a child seems unusually tired, inattentive, or hyperactive, advise the school nurse and the child’s parents/guardians. Behavior that is out of character for that child could be related to asthma that is not being properly managed.
- ✓ Encourage parents to work with the school nurse and to provide asthma care plans and to encourage the child to take his/her medication daily (if prescribed).
- ✓ Work closely with the school nurse to support policies and procedures that help a child with asthma participate fully in school each and every day. Be proactive.
- ✓ Refer children and their parents to outside counseling and support services when appropriate.

Relevant Legislation:



There are legal requirements, statutes and guidelines that regulate schools in working with children who have asthma (and with children in general). These statutes are summarized below and are presented in full in the resources section.

FEDERAL LAWS (IDEA 1997) AND SECTION 504 OF THE REHABILITATION ACT OF 1973



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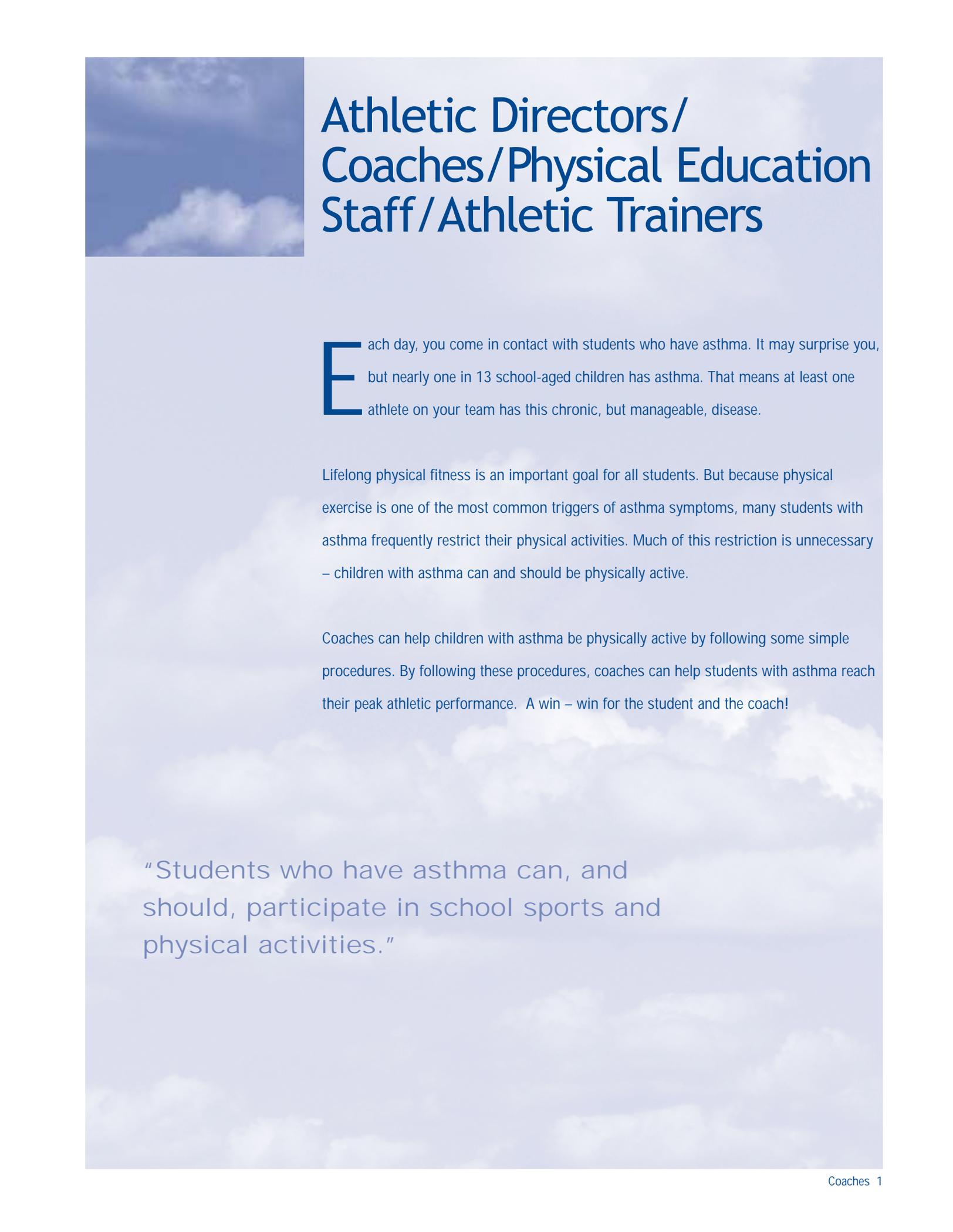
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Athletic Directors/ Coaches/Physical Education Staff/Athletic Trainers

Each day, you come in contact with students who have asthma. It may surprise you, but nearly one in 13 school-aged children has asthma. That means at least one athlete on your team has this chronic, but manageable, disease.

Lifelong physical fitness is an important goal for all students. But because physical exercise is one of the most common triggers of asthma symptoms, many students with asthma frequently restrict their physical activities. Much of this restriction is unnecessary – children with asthma can and should be physically active.

Coaches can help children with asthma be physically active by following some simple procedures. By following these procedures, coaches can help students with asthma reach their peak athletic performance. A win – win for the student and the coach!

“Students who have asthma can, and should, participate in school sports and physical activities.”



Why Learning about Asthma is Important to Athletic Directors/Coaches/Physical Education Staff/Athletic Trainers

ASTHMA CAN BE DEADLY.

An asthma episode can escalate and may result in death without prompt medical attention. Physical exercise is one of the most common triggers of asthma episodes.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

Over 10 million school days are missed due to asthma each year.

ASTHMA CAN AFFECT A CHILD'S PERFORMANCE.

It can disrupt sleep, the ability to concentrate, memorize, and can prevent a student from participating in physical activities. Well controlled asthma enhances a child's athletic performance.





What You Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Exercise-Induced Asthma (EIA)

Exercise is a very common trigger for asthma. However, since exercise and participating in sports are a part of healthy living, this is one trigger that should be managed and not avoided. For teenagers, exercise is often the most common cause of asthma symptoms. Fortunately, with better medications, monitoring and proper management, children can participate in physical activity and sports and achieve their highest performance levels!

SYMPTOMS OF EIA

Symptoms may include coughing, wheezing, chest tightness and shortness of breath. Coughing is the most common symptom of EIA and may be the only symptom a child has at that time. The symptoms of EIA may begin during exercise and can be worse 5 to 10 minutes after stopping exercise or during the normal “cooling down” period rather than during the actual exercise. Symptoms can range from mild to severe and often resolve in 20 to 30 minutes. Occasionally, some individuals will experience “late phase” symptoms four to twelve hours after stopping exercise. These late phase symptoms are frequently less severe and can take up to 24 hours to go away. This is an important fact to remember when children are participating in school competitions that are repeated throughout the day.

CAUSES OF EIA

When a child exercises, he/she breathes faster due to increased oxygen demands. Usually, during exercise a child inhales through the mouth, causing the air to be dryer and cooler than when breathing normally and through the nasal passages. Decreases in warmth and humidity are both causes of bronchospasm or “airway constriction.” Exercise that exposes a child to cold air like skiing, skating or hockey is therefore more likely to cause symptoms than exercise involving warm and humid air such as swimming (although recent studies have shown the chemicals in a pool can be detrimental to children with asthma too). Pollution levels, high pollen counts and exposure to other irritants such as smoke and strong fumes can also make EIA symptoms worse. A recent cold or asthma episode can cause a child to have more difficulty exercising too.

Asthma Medications

*A note about inhaled corticosteroids:
When you hear the word “steroid” you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medication available.*

Treatment for asthma is based on how severe a child’s symptoms are at any given time. Typically, there are two types of medications used to treat asthma:

- Quick relief (reliever) or rescue, and
- Controller or preventive.

The most common asthma medications most school staff will come in contact with are the **quick relief (reliever) or rescue** medications which are taken by inhalation. These medications are taken when asthma symptoms flare up or a child is experiencing an “asthma episode.” They work fast to relieve symptoms as they happen, or to help prevent exercise-related symptoms. This is the medication you most frequently see a student use in an inhaler form when symptoms are flaring up or in the case of exercise-induced asthma (EIA) 15-30 minutes prior to strenuous physical activity. They relax the muscles surrounding the airways usually within 10-15 minutes after using the inhaler.

Typical brand names of these medications are: *Albuteral, Maxair, Proventil, Ventolin, Combivent, and Alupent.*

Some children require medications that are taken daily to prevent symptoms or episodes from developing. These are the **controller or preventive** medications. School staff may not see a child actually taking these medications, because children may only take them at home. It is important to understand that there is a difference between short acting reliever medications and long acting controller medications. These controller medications either reduce or prevent inflammation from occurring or in some cases, prevent symptoms by relaxing the muscles surrounding the bronchioles (airways) over a long period of time.

Typical controller medications are: *Advair, AeroBid, Azmacort, Beclovent, Flovent, PulmicortTurbuhaler, Pulmicort Respules, Vanceril, Rotadisc, Accolate, Singulair, Zflo, Filmta, Serevent, Foradil, Intal and Tilade.*

Oral (pills) corticosteroids are taken when an episode becomes severe, or when a child’s asthma requires very intensive treatment.

It is important to remember that all medications carry the potential for side effects. Some common complaints with rescue medications include **nervousness, jitteriness, nausea** and, in some cases, **drowsiness**. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.



For a complete listing of asthma medications, see the Resource Section.

What You Can Do

Actions for the Physical Education Instructor and Coach



HELP CHILDREN WITH ASTHMA AND THEIR FAMILIES MANAGE ASTHMA

Support children with asthma by treating them like all other children while watching for the appearance of symptoms and avoiding triggers. They may feel anxious about accessing their medications or embarrassed that they have asthma.

Encourage exercise and participation in sports for students with asthma. When asthma is under good control, most students with asthma are able to play most sports. But also recognize and respect their limits. Plan to adjust the type, pace, or intensity of activities during extreme weather, the pollen season, poor air quality, or when a student has allergy symptoms. Permit less strenuous activities if a recent illness precludes full participation.

Know how to access a student's asthma action plan and follow it. Consult with the school nurse to learn more about asthma action plans and which students have them.

Keep students' quick relief medications (typically, an inhaler) readily available. Even with precautions, breathing problems may occur. Learn the signs of severe distress and allergic reactions.

If a child is unable to fully participate, help him/her find ways to participate in a less strenuous manner such as being the scorekeeper, equipment handler, etc. until ready to participate fully.

Never encourage a child or athlete with asthma to "tough it out" and don't allow other children to tease or encourage a child who is wheezing to continue the activity.

Respect the child's right to confidentiality and privacy. Discussion and questions about how he/she feels (in detail) should be asked quietly and with discretion.

Do not leave a child having an asthma episode alone. His/her ability to breathe needs to be watched for resolution or worsening.

Have an emergency plan for helping students during an episode.

Don't delay getting medical help for a student with severe or persistent breathing difficulty.

Tips to avoid Exercise Induced Asthma

CHILDREN WITH ASTHMA ARE OFTEN CONGESTED AND MAY WHEEZE WHEN THEY BREATHE. THINGS A COACH CAN DO TO HELP A CHILD AVOID EIA, INCLUDE:

-  ✓ Know which children in your class or team have asthma by reviewing the Parent's Permit and Health Questionnaire. The State High School League requires that parents fill this form out each year.
-  ✓ Follow the Green Zone Asthma Update and Yellow Zone Asthma Alert forms from the school nurse. The Green Zone is the go ahead to participate in recess and gym. The Yellow Zone is an alert for restricted activity for gym or recess.
- ✓ If EIA is an issue, have the child use his/her reliever medications 15 –30 minutes prior to strenuous activity. If she/he does not carry an inhaler, have the child go to the school nurse for medication administration.
- ✓ Be sure that the student's medications are available for exercise activities that take place away from school or after regular school hours. This preventive medicine enables most students with exercise induced asthma (EIA) to participate in any sport they choose.
- ✓ Make sure students with asthma do warm up and cool down activities. Give them time enough to slowly get their respiratory system warmed up.
- ✓ Check with the school nurse if you have questions about a child's ability to fully participate in physical activity.
- ✓ Check ozone/ air quality levels (<http://aqi.pca.state.mn.us/hourly>) for outdoor activity prior to exercise outside. High pollen or high ozone levels can cause EIA in most children with asthma.

LOOK FOR CHILDREN WITH UNCONTROLLED ASTHMA

When you suspect poorly controlled asthma in a student, notify the school nurse who, in turn, can discuss the situation with the student's parent(s) or guardian(s) and suggest referral to their physician for a proper diagnosis or a treatment update. Signs of poorly controlled asthma include: coughing, wheezing, chest tightness, or shortness of breath.



PROMOTE SELF ESTEEM

A coach may deal with athletes whose self worth is determined by peer approval or dis approval. Using a medication inhaler at a sporting event (or even before one) can give the perception that an athlete has a “weakness” or may not be able to compete at the same level as athletes without asthma. A coach can help break that perception by working with the athlete and discussing asthma management. Pointing out that there are a number of Olympic and professional level athletes that have asthma may be advantageous. Some examples include:



Tom Malchow – Minnesotan – Olympic swimmer and gold medalist

Greg Louganis – Olympic diver-USA

Jim “Catfish” Hunter – baseball Hall of Famer

Jerome Bettis – NFL football player

Peter Maher – Olympic marathoner

Hakeem Olajuwon – NBA basketball player

Curt Harnett – Olympic cyclist and silver medalist

Charmain Crooks – Olympic runner and silver medalist

Joan Benoit – Women’s marathon champion

Jackie Joyner-Kersey – Olympic double gold medalist in track and field – heptathlete- 6 gold medals!

Bill Koch – First American to win World Cup in cross-country skiing

Mark Spitz – 1972 Gold medalist in swimming - 9 gold medals

Paula Radcliffe – World champion marathoner

Paul Scholes – Professional soccer player- England and Manchester

Amy Van Dyken – 996 Gold medalist in swimming – 4 golds

Donnell Bennett – Pro football player (NFL), Washington Redskins fullback

Gary Roberts – Pro hockey player (NHL), Toronto Maple Leafs

Dominique Wilkins – Pro basketball player (NBA) currently working for the Hawks

Isiah Thomas – Pro basketball player (NBA) and currently coach of the Pacers

MONITOR OUTDOOR AIR QUALITY/OZONE/POLLUTION

People with asthma are more sensitive to air quality and poor air quality may be a trigger for an asthma episode. The Air Quality Index (AQI) is tool that can help you understand whether the air quality is good or bad on any particular day.

The AQI ranges from 0 to 500 and in Minnesota is based on measured or estimated levels of five air pollutants: ground-level ozone (smog), fine particulate matter, carbon monoxide, nitrogen dioxide and sulfur dioxide. The Minnesota Pollution Control Agency (MPCA) reports information about air quality on a daily basis on the AQI web site and AQI Information Line (651-297-1630). When the AQI exceeds or is forecast to exceed a value of 100 (unhealthy for sensitive groups, including people with asthma), the MPCA issues air pollution health alerts.

Coaches should be aware that athletes with asthma may experience problems when the AQI exceeds 100. You may sign up to receive e-mail notification when air quality alerts are issued by the MPCA and check the air quality index daily for Minnesota by going to: <http://aqi.pca.state.mn.us/hourly/>

Emergency Measures for Handling an Asthma Episode or Emergency

**PROVIDE PROMPT CARE FOR STUDENTS WHO ARE HAVING
BREATHING DIFFICULTY.**

Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Person feels short of breath
- Person feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Person feels apprehensive or fearful
- Coughing
- Speaking in clipped or short bursts of speech
- Possibly restlessness or upset stomach

CALL 911 IF:

- Lips are blue or nail beds are blue -or-
- Child is having difficulty talking, walking or drinking -or-
- Quick relief or reliever medication (inhaled reliever such as albuterol) is ineffective, unavailable, or used too recently to repeat. -or-
- You see neck, throat, or chest retractions (Sucking in of the skin between ribs or at base of the neck) -or-
- There is nasal (nares) flaring when inhaling - or -
- Child is in obvious distress -or-
- There is an altered level of consciousness/confusion -or
- Child's condition is rapidly deteriorating.

**A child may have only one or a combination of the above,
but each of these symptoms is evidence of a real asthma
crisis developing!**

What to do:

1. Notify the school nurse (if in the building) that a child may be starting symptoms consistent with an asthma episode and request assistance.
2. If the child begins to wheeze, coughs, is short of breath or even appears more restless or anxious than usual, ask the child to sit quietly in an upright position. Reassure the child in a calm voice and do not leave the child alone.
3. Consult the child's asthma action plan or emergency care plan (if available).
4. If the child carries an inhaler, instruct him/her to use their rescue medication. (Even if you are not sure the symptoms are progressing or prevalent enough, it is safest to give the child a puff of their rescue medication rather than waiting. Many times, the child can tell you immediately if medication is required.)
5. Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
6. If an asthma episode is suspected, give a glass of room temperature water to sip.
7. Elevate arms to shoulder level and provide support for the arms (desk or back of chair).
8. If asthma symptoms do not improve or are progressing rapidly (and/or the nurse is not available to assess the child) call 911.
9. Above all, don't panic! Remaining calm and reassuring the child that he/she will be okay helps alleviate the child's anxiety and may prevent symptoms from becoming worse.

Do not delay administering rescue medications or calling 911 while you attempt to contact the parents/guardian. Time is critical when a severe episode is taking place. The nurse can assess and document the episode and contact the family per district guidelines once the child's symptoms have subsided.



Custodial/Building Maintenance Staff

Asthma has become epidemic. It may surprise you, but nearly one in 13 school-aged children has asthma. Because children spend so much of their day in school, it's essential to manage indoor air quality and other environmental factors that affect asthma. By working together, we can help prevent asthma episodes and make sure that children with asthma get the most from their time in school.

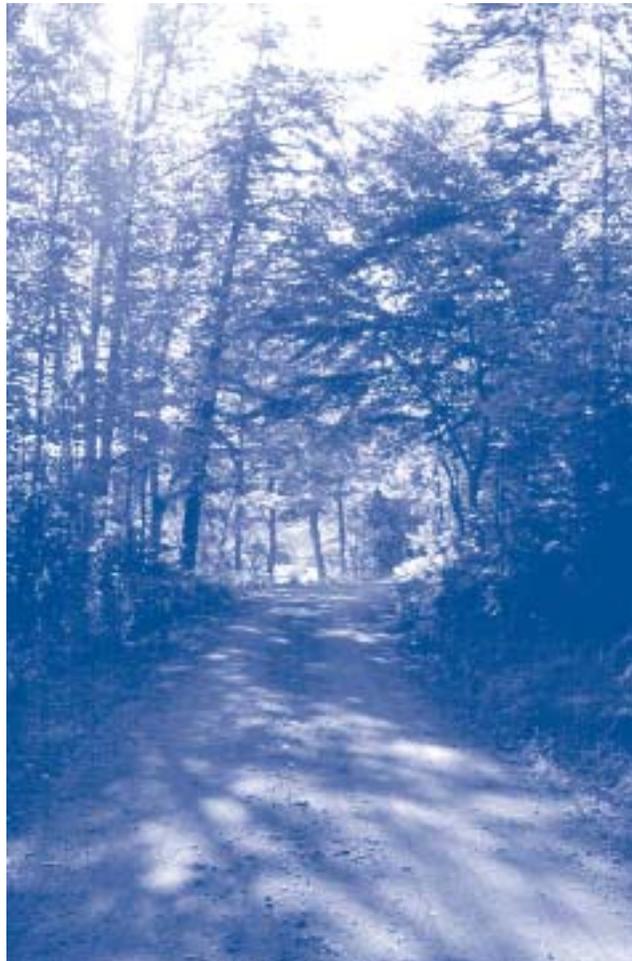
“Poor indoor air quality results from the failure to follow practices that help create and maintain a healthy indoor environment.”



Why Learning about Asthma is Important to Custodial & Building Maintenance Staff

A healthy school environment leads to healthier, more productive students and staff. There is substantial evidence that indoor environmental exposure to allergens, such as dust mites, other pests, and molds play a role in triggering asthma symptoms. These allergens are found in schools. Studies have shown that poor ventilation or higher levels of indoor air pollution negatively affect student performance and increase student absenteeism.

It is important for custodial and building staff to be aware that environmental factors can cause or trigger an asthma episode and what steps to take to reduce that exposure.





What You Need to Know

What is Asthma?

Asthma is a chronic disease that includes airway constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an asthma episode, linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode, the child may feel he/she can't inhale enough air, but actually the lungs are having trouble exhaling. The wheezing or whistling sound that is heard is air trying to make its way around the mucus and inflammation in the lungs. Coughing is the body's natural response to rid itself of the mucus. The outcome is a child experiencing an "asthma episode" or a flare up of his/her symptoms.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The asthma severity varies from child to child and may worsen or lessen depending on the child's symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentrating and participating in school.



What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children who do not have asthma and they may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.”

THERE ARE SEVERAL ENVIRONMENTAL FACTORS (TRIGGERS) THAT CAN MAKE EXISTING ASTHMA WORSE:

Mold/moisture:

Molds are found everywhere. And they can grow on almost any substance providing moisture is present.

Pets:

The most common source of animal allergens is having a pet in the classroom. Even after extensive cleaning, pet allergen levels may stay inside schools for several months after the animal has been removed.

Pests:



Cockroaches, and other pests such as rats and mice, can be found in schools. Allergens from these pests may be asthma triggers for student and staff.

Environmental tobacco smoke:

This is the smoke from the burning end of a cigarette, pipe or cigar and the smoke breathed out by a smoker. There is strong evidence that environmental tobacco smoke, also known as secondhand smoke, may cause asthma in very young children.

Dust Mites:

Allergies to dust mites are common. Dust mites live in carpets, fabric-covered furniture, stuffed animals and toys, and pillows.

Cleaning products:

Some studies suggest that children who have asthma may be affected by chemicals found in common products such as cleaning supplies.

Outdoor air quality especially ozone and particulate matter:

Outdoor air pollution can trigger asthma attacks. Concerns about levels of ozone and particulate matter in outdoor air have been increasing in both Minnesota and the rest of the US. The idling of buses near school buildings is another source of outdoor air pollution that can affect children, teachers and staff.

Other environmental issues related to asthma include:

Flooring – Floor coverings are one of many products that can affect indoor air quality. Flooring options for schools include carpet, wood, linoleum, sheet vinyl, terrazzo, and vinyl composite tile.

Air cleaners – Air cleaners are frequently mentioned as one way to improve indoor air quality.



What Custodial & Building Maintenance Staff Can Do

Work with your district's Indoor Air Quality (IAQ) Coordinator.



Each district's IAQ Coordinator is listed at the MDH web site <http://www.health.state.mn.us/divs/eh/indoorair/schools/progress.htm>.

Make sure your district has developed a district-specific IAQ Management Plan and that the recommended policies and procedures are being implemented. Your district's IAQ Management Plan should be reviewed regularly, perhaps once a year, and updated as needed.

Environmental triggers of asthma are found inside schools. Visit the US Environmental Protection Agency web site to see how managing asthma triggers can become part of your AQ Management Plan <http://www.epa.gov/iaq/schools/asthma/index.html>.

Address common environmental triggers of asthma.

MOLD/MOISTURE:

Controlling moisture is the key to controlling mold. Respond promptly when you see signs of moisture and/or mold, or when leaks or spills occur:

- ✓ Clean and dry any damp or wet building materials and furnishings within 24-48 hours of occurrence to prevent mold growth.
- ✓ Fix the source of the water problem or leak to prevent mold growth.
- ✓ Clean mold off hard surfaces with water and detergent, and dry completely. Absorbent materials such as ceiling tiles, that are moldy, may need to be replaced.
- ✓ Check the mechanical room and roof for unsanitary conditions, leaks, or spills.
- ✓ Reduce the potential for condensation on cold surfaces (i.e., windows, piping, exterior walls, roof, or floors) by adding insulation.

WHEN CLEANING FLOOR AND CARPETS.

- ✓ Remove spots and stains immediately, using the flooring manufacturer's recommended techniques.
- ✓ Use care to prevent excess moisture and make sure that cleaned areas are dried quickly.
- ✓ In areas where there is a regular moisture problem, do not install carpeting.

Examples include: by drinking fountains, by classroom sinks, or on concrete floors with leaks or frequent condensation.



PETS:

- ✓ Remove animals from the school, if possible. If removing animals from the school is not possible, then:
- ✓ Keep animals in cages or in localized areas as much as possible; do not let them roam.
- ✓ Clean cages regularly.
- ✓ Locate animals away from ventilation system vents to avoid circulating allergens throughout the room or building.
- ✓ Locate sensitive students as far away from animals and habitats as possible.
- ✓ Keep animals away from upholstered furniture and carpets.



PESTS:

Integrated Pest Management (IPM) practices are used to avoid exposure to these allergens. There are four key IPM methods for reducing exposure to pests in the school setting:

1. Look for signs of pests.
2. Do not leave food, water, or garbage exposed.
3. Remove pest pathways and shelters.
4. Use pest control products such as poison baits, traps, and pesticide sprays, as needed.

ENVIRONMENTAL TOBACCO SMOKE:

Tobacco use is prohibited in all Minnesota K-12 public schools. The best way to avoid exposure is to make sure smoking bans are enforced.



DUST MITES:

Remove dust from hard surfaces often with a damp cloth, and vacuum carpeting and fabric-covered furniture to reduce dust buildup. Allergic people should leave the area being vacuumed. Vacuums with high efficiency filters or central vacuums may be helpful. Choose washable stuffed toys; wash them often in hot water. Cover pillows in dust-proof (allergen-impermeable), zipped covers.

CLEANING PRODUCTS:

Cleaning products may be a source of air pollutants. Keep the dirt out of buildings. The less dirt in the building, the less cleaning product needed. Other suggestions include:

- ✓ Use only as much cleaning product as is needed;
- ✓ Avoid products that contain irritants or chemicals that may affect sensitive students and staff;
- ✓ Store products in areas not accessible to children;
- ✓ Don't mix cleaning products;
- ✓ Don't use products with strong fragrances or odors.

OUTDOOR AIR QUALITY (OZONE, PARTICULATE MATTER & SCHOOL BUSES).

A school's staff has little control over outdoor pollutants such as ozone and particulate matter. However, you can find out when poor outdoor air quality is expected. Sign up for the Air Quality Index alert through the Minnesota Pollution Control Agency at <http://www.pca.state.mn.us/air/aqi-subscribe.html>. You will receive email notices when there is an outdoor air quality alert in any of the areas monitored by the Pollution Control Agency.

To avoid exposure to harmful diesel emissions, post "no idling" signs and alert bus drivers, parents, and administrators that engines should be turned off when a bus (or any vehicle) is waiting or parked. Buses generally do not need to idle, except in cold weather. Redesign bus parking zones. Move bus parking areas away from school air intake vents and park buses diagonally to avoid front-to-back passing of emissions from bus to bus. Your school can reduce students' exposure to diesel emissions by good maintenance of your current bus fleet and investment in cleaner fuels and technologies, such as exhaust pipe retrofits for current buses, use of biodiesel, and the purchase of newer, cleaner buses over the long term.

Other environmental issues related to asthma include:

FLOORING

There is no one floor covering that will work in every situation. To keep the dirt out of the building, use walk-off mats at all entrances. Select floor coverings that are best for the activities of each school area. Regular vacuuming is important to reducing dust mites, pet dander and other allergens that collect in carpets. A vacuum with a high efficiency filter will provide better results. Your district may want to purchase a vacuum cleaner that has the Carpet and Rug Institute's "Green Label." Vacuum cleaners must do the following three tasks:

- Remove soil
- Keep the dust in the filtration bag and out of the air, and
- Clean without damaging the carpet.

AIR CLEANERS

Schools are sometimes advised to use air cleaners. Although properly used and maintained air cleaners may be effective for reducing air pollution, they should only be considered as an addition to other control methods. It is also important to carefully review information on the type of air cleaner used to make sure it is suitably sized and has high particle removal efficiency. In addition, some air-cleaning devices marketed as air purifiers emit ozone, which may be harmful to people who have asthma.

Relevant Legislation



MINNESOTA HAS SEVERAL LAWS REGARDING THE INDOOR ENVIRONMENT OF SCHOOLS.

School districts must develop an Indoor Air Quality (IAQ) Management Plan. To meet Minnesota Department of Education requirements, the IAQ Management Plan must include:

- A certified (trained) IAQ Coordinator;
- An overall evaluation (walk through) performed on all school district buildings;
- The evaluation of specific building systems (classrooms, ventilation system, maintenance operations), using checklists or a comparable method;
- A written set of policies and schedules that describes ways to correct the identified IAQ problems, prevent future problems from happening, and respond to emergencies and concerns;
- School board approval.

The Department of Education will not approve the use of Health and Safety funds unless a district has an approved IAQ Management Plan.

Minnesota adopted legislation to protect the health and safety of children from harmful diesel bus emissions. This law calls for schools to reduce the unnecessary idling of school buses in front of schools, and reroute bus parking zones away from air-intake vents or if necessary, relocate the air-intake vents.

The Parents Right to Know Act requires public and non-public K-12 schools to notify parents and employees when they plan to apply pesticides specified in the law. This law also required the Minnesota Department of Health (MDH) to develop and make available model notices that schools may use.



Resources

The Minnesota Department of Health (MDH) web site has additional information about Indoor Air Quality Management Plans including the status of specific districts and the Indoor Air Quality Coordinator for each district.

Here is the link to learn more about IAQ Management Plans
<http://www.health.state.mn.us/divs/eh/indoorair/schools/index.html>.

To find out about your district, go to
<http://www.health.state.mn.us/divs/eh/indoorair/schools/progress.htm>.

The Minnesota Office of Environmental Assistance has additional information about the school bus idling law at <http://www.moea.state.mn.us/ee/noidle.cfm>.

MDH has more information about pesticides and the Parents Right to Know Act, at <http://www.health.state.mn.us/divs/eh/pesticide/notices/index.html>. 

Here is the link to the MDH model pesticide notices
<http://www.health.state.mn.us/divs/eh/pesticide/notices/index.html#memorandum>.

The US Environmental Protection Agency web site for information on managing asthma triggers <http://www.epa.gov/iaq/schools/asthma/index.html>.

The Carpet and Rug Institute provides information on carpets and vacuum cleaners at <http://www.carpet-rug.com/>.

EPA-Indoor Environments Division Fact Sheet "Mold in Schools"
<http://www.epa.gov/iaq/school/index.html>





Nutrition Services Staff

Each day, as you do your job, you come in contact with students who have asthma. It may surprise you, but nearly one in 13 school-age children has this chronic, but manageable, disease. Because children who have asthma spend so much of their day in school, it's vital for them to be with adults who understand some basic facts about asthma and how to deal with it. It is also essential for you to understand how food allergens and common pests can impact asthma and what you can do to help protect students with asthma.

“Approximately 6-8% of children who have asthma have food allergies that can trigger asthma symptoms.”



Why Learning about Asthma is Important to Nutrition Services Staff

ASTHMA AND REACTION TO FOODS

Nutrition services staff need to be aware that food allergens can cause or trigger an asthma episode. Of course, anyone can have an allergic reaction to food and not have asthma, and not all asthma episodes are caused by allergies. Approximately 6-8% of children who have asthma have food allergies that can cause breathing problems.





What You Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs — the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis. An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.

During the initial phase of an asthma episode a child may exhibit one or more of these signs:

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with his/her asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children without asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child with asthma reacts to a different set of factors.

What is a Food Allergy?

A food allergy is an adverse reaction or a negative response to a food or a food additive that is eaten. Both raw and cooked foods can cause allergic reactions. Allergic reactions to foods can occur within seconds to a few hours of eating the specific food. When a true food allergy occurs, a person’s immune system will react to food that would normally be harmless. The body’s immune system reacts to food proteins called allergens and tries to protect the person’s body from this ‘harmful’ food by producing increasing amounts of antibodies. Antibodies cause the person’s blood vessels to enlarge, smooth muscles to contract and affected skin areas to become red, itchy and swollen.

In children, eggs, milk, peanuts, soy and wheat are the main offenders. Children typically outgrow their allergies to milk, egg, soy and wheat while allergies to peanuts, tree nuts, fish, and shrimp usually are not outgrown.



What is Anaphylaxis?

Anaphylaxis is a sudden, severe, potentially life threatening, widespread allergic reaction that can involve many areas of the body (such as the skin, respiratory tract, digestive tract, and cardiovascular system). Symptoms occur within minutes to two hours after contact with the allergy-causing substance, but in rare instances may occur up to four hours later. Anaphylactic reactions can be mild to life-threatening and can include:

- 
- Hives
 - Swelling of lips, throat, tongue or around the eyes
 - Difficulty swallowing or breathing
 - Redness of skin
 - Increased heart rate
 - Decreased blood pressure
 - Weakness
 - Anxiety
 - Collapse
 - Loss of consciousness

The Importance of Controlling Pests

The use of pesticides in schools has generated considerable debate about how to manage pests while preventing unnecessary pesticide exposures. Children may be especially vulnerable to exposures to pesticides and other contaminants because their bodies are still growing and developing. Pests in schools also are a concern because they may spread disease, trigger asthma, and cause damage to school buildings and property. Pests (cockroaches, mice, rats, ants etc.) can invade school kitchens and lunchrooms when food droppings and crumbs are left out. The feces and leavings from these pests can also cause a child to develop asthma symptoms. Foods that are poorly covered when stored invite infestation and contamination. See the Custodial Section for further information.

Integrated Pest Management (IPM) practices are used to avoid exposure to these allergens. There are four key IPM methods for reducing exposure to pests in the school setting:

- 
- Look for signs of pests.**
 - Do not leave food, water, or garbage exposed.**
 - Remove pest pathways and shelters.**
 - Use pest control products such as poison baits, traps, and pesticide sprays, as needed.**

Asthma Medications

Asthma is treated based on how severe the child's symptoms are at any given time. Two types of medications are typically used to treat asthma: *quick relief (reliever) or rescue and controller or preventive medications.*

The most common asthma medications most school staff will come in contact with are the **quick relief or rescue medications**. These medications are taken when asthma symptoms flare up or a child is experiencing an "asthma episode." They quickly relieve symptoms, or help prevent exercise-related symptoms. You most frequently see a student use this medication in an inhaler form when symptoms are flaring up.

A note about inhaled corticosteroids: Inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medications available for asthma.

Remember that all medications have potential for side effects. Some common complaints with rescue medications are: *nervousness, jitteriness, nausea* and, in some cases, *drowsiness*.

If side effects are excessive or the child complains of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.





What Nutrition Services Staff Can Do

Tips for Nutrition Services Staff

- ✓ Work with the school nurse to set up an emergency plan for caring for a child who develops an allergic reaction.
- ✓ Familiarize yourself with school district and FDA's requirements for food preparation, maintenance and Integrated Pest Management (IPM) policies.
- ✓ Partner with the school custodian to evaluate and repair/clean up areas that may allow pest infiltration. Cleaning supplies should be evaluated for potential allergen causing chemical substances and to make sure they meet FDA requirements for use in schools.
- ✓ Carefully read labels for hidden ingredients that may appear harmless.
- ✓ Talk with teachers about children who avoid certain foods and plan (when possible) healthy alternatives for those children.
- ✓ Respect confidentiality and privacy when children who have asthma and allergies are identified.

Anaphylaxis Care

Epinephrine is the drug of choice for treating an anaphylactic reaction. It works to reverse the symptoms of an anaphylactic reaction and helps prevent the progression of it. It is available via prescription as an EpiPen® or EpiPen® Jr. Epinephrine Auto-Injector. It is important to administer epinephrine as soon as one detects the symptoms of anaphylaxis. Children who have been prescribed epinephrine must carry it with them at all times because accidents are never planned.

The school nurse or other trained individual should administer medication for an allergic reaction.

Antihistamines, such as Benadryl, and steroids are often used to further improve the recovery of a person with an anaphylactic reaction. Antihistamines and asthma medications may be administered with epinephrine, but never instead of epinephrine because they cannot reverse many of the symptoms of anaphylaxis.

Consult your district schools policy regarding the administration of epinephrine via EpiPen.

FDA's policy on Allergens



Products that contain an allergenic ingredient by design must comply with section 403(i)(2) of the Federal Food, Drug, and Cosmetic Act (the Act), which requires each ingredient in a food to be declared. Processing aids that contain allergenic ingredients must be declared in accordance with 21 CFR 101.4(a)(1). Production practices that lead to unintentional addition of allergens to food may be considered unsanitary conditions that may render the food injurious to health and cause the food product to be adulterated under section 402(a)(4) of the Act.

The only exemption to labeling requirements is found in section 403(i)(2) of the Act and provides that spices, flavors, and certain colors used in food may be declared collectively without naming each. In some instances, these ingredients contain sub-components that are allergens. Therefore, FDA strongly encourages the declaration of any allergenic ingredient contained in a spice, flavor, or color.

Nutrition service staff should be aware of FDA requirements for additive and ingredient labeling. Note that some spices and colorings may not actually be labeled yet still be present in a food product. These types of omissions could potentially expose a child to a product or additive they may be allergic to. Read labels carefully and if you are unsure what a product actually contains, seek clarification of information.



Playground Assistants

Each day, you come in contact with students who have asthma. It may surprise you, but nearly one in 13 school-aged children has asthma. That means at least one or two children per class have this chronic, but manageable, disease.

Lifelong physical fitness is an important goal for all students. But because physical exercise is one of the most common triggers of asthma symptoms, many students with asthma frequently restrict their physical activities. Much of this restriction is unnecessary – children with asthma can and should be physically active.

When you know the facts about asthma you can play a vital part in keeping the children under your care safe, healthy and active.

“Students with asthma can, and should, participate in school sports and physical activities.”



Why Learning about Asthma is Important to Playground Assistants

ASTHMA CAN BE DEADLY.

An asthma episode can escalate and may result in death with out prompt medical attention. Physical exercise is one of the most common triggers of asthma episodes. As the adult responsible for monitoring children's play outside of the classroom, you can be called upon to decide if a child requires medical attention or not.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

Over 10 million school days are missed due to asthma each year.

EXERCISE INDUCED ASTHMA (EIA).

Exercise is a very common trigger for asthma. However, since exercise and participating in sports is part of healthy living, it is one trigger that should be managed and not avoided. For teenagers, EIA is often the most common cause of asthma symptoms. Fortunately, with better medications, monitoring and proper management, children with asthma can participate in physical activity and sports and achieve their highest performance level.





What You Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling. The wheezing or whistling sound that they may hear when trying to breathe is air trying to make its way around the mucus and inflammation in the lungs. Coughing is the body’s natural response to try and get rid of the mucus. The outcome is a child experiencing an “asthma episode” or a flare up of their symptoms.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs — the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis! An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

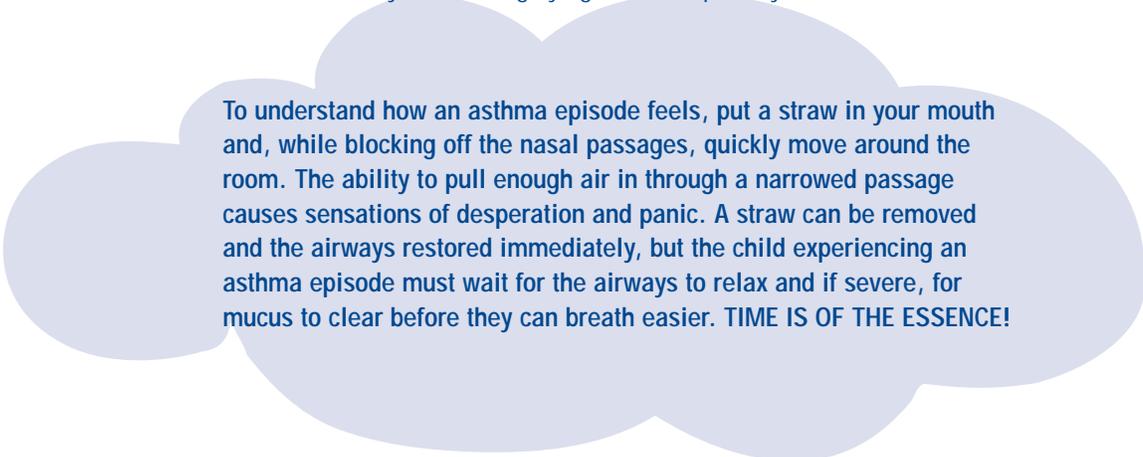
There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.

During the initial phase of an asthma episode a child may exhibit one or more of these signs:

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with his/her asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.



To understand how an asthma episode feels, put a straw in your mouth and, while blocking off the nasal passages, quickly move around the room. The ability to pull enough air in through a narrowed passage causes sensations of desperation and panic. A straw can be removed and the airways restored immediately, but the child experiencing an asthma episode must wait for the airways to relax and if severe, for mucus to clear before they can breath easier. **TIME IS OF THE ESSENCE!**

What Causes Asthma Episodes?

Children who have asthma have airways that narrow more easily than children who do not have asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child with asthma reacts to a different set of factors. **Exercise, cold air, pollution and pollen** are the most common triggers/allergens a child would most likely be exposed to on the playground.

Causes of Exercise Induced Asthma (EIA) and/or Exercised Induced Symptoms

When a child exercises, he/she breathes faster due to increased oxygen demands. Usually, during exercise a child inhales through the mouth, causing the air to be dryer and cooler than when breathing normally and through the nasal passages. Decreases in warmth and humidity are both causes of airway tightening or “airway constriction.” Exercise that exposes a child to cold air like skiing, skating or hockey is therefore more likely to cause symptoms than exercise involving warm and humid air such as swimming. Pollution levels, high pollen counts and exposure to other irritants such as smoke and strong fumes can also make EIA symptoms worse. A recent cold or asthma episode can cause a child to have more difficulty exercising too.

SYMPTOMS OF EIA/AND OR EXERCISE INDUCED SYMPTOMS

Symptoms may include coughing, wheezing, chest tightness and shortness of breath. Coughing is the most common symptom of EIA and may be the only symptom a child has at that time. The symptoms may begin during exercise and can be worse 5 to 10 minutes after stopping exercise or during the normal “cooling down” period rather than during the actual exercise. Symptoms can range from mild to severe and often resolve in 20 to 30 minutes.

Asthma Medications

Treatment for asthma is based on how severe a child's symptoms are at any given time.

Typically, there are two types of medications used to treat asthma:

- Quick relief (reliever) or rescue, and
- Controller or preventive.

The most common asthma medications most school staff will come in contact with are the *quick relief or rescue medications* which are taken by inhalation.

A note about inhaled corticosteroids: When you hear the word "steroid" you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medications available.

It is important to remember that all medications carry the potential for side effects. Some common complaints with rescue medications include *nervousness, jitteriness, nausea* and, in some cases, *drowsiness*. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.



What You Can Do

Fortunately, most asthma episodes can be prevented.



IT'S IMPORTANT TO FOLLOW THESE TIPS:

- ✓ Encourage exercise and participation in sports for children who have asthma. When asthma is under good control, most children who have asthma are able to play most sports.
- ✓ Check the student's Asthma Action Plan or medical care plan to see if exercise is an issue. If so, the student should use his/her reliever medication 15-30 minutes prior to strenuous activity. A child who does not carry an inhaler will require medication administration from the school health office.
- ✓ Encourage children who have asthma to participate actively in sports, but also recognize and respect their limits. Allow the child to adjust the type, pace, or intensity of activities during extreme weather, the pollen season, poor air quality, or when a child has allergy symptoms. Permit less strenuous activities if a recent illness prevents full participation.
- ✓ Warm-up and cool-down activities appropriate for any exercise will help the child who has asthma.
- ✓ If a child is unable to fully participate, help him/her find ways to participate in a less strenuous manner such as being the scorekeeper, equipment handler, etc. until he/she is ready to participate fully.
- ✓ Check ozone/air quality levels (<http://aqi.pca.state.mn.us/hourly>) for outdoor activity prior to exercise outside. High pollen or high ozone levels can cause EIA in most children with asthma.
- ✓ Never encourage a child or athlete with asthma to "tough it out" and don't allow other children to tease or encourage another who is wheezing to continue the activity.
- ✓ Respect the child's right to confidentiality and privacy. Discussion and questions about how he/she feels (in detail) should be asked quietly and with discretion.
- ✓ Do not leave a child having an asthma episode alone. His/her ability to breathe needs to be watched for resolution or worsening.
- ✓ Keep a child's quick relief medications readily available. Even with precautions, breathing problems may occur. Learn the signs of a developing asthma episode and allergic reactions. Be familiar with emergency care plans. Don't delay getting medical help for a child with any breathing difficulties.
- ✓ Be certain that you understand the importance of administering the medicine in a timely manner.

Contact the school nurse or health office immediately and if a child has an asthma action plan or an asthma care plan, refer to those documents for instructions.

Emergency Measures for Handling an Asthma Episode or Emergency

Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Person feels short of breath
- Person feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Person feels apprehensive or fearful
- Coughing
- Speaking in clipped or short bursts of speech
- Possibly restlessness or upset stomach

Care of asthma and breathing trouble:

- Remain calm and reassure the child.
- Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
- If an asthma episode is suspected, give a glass of room temperature water to sip.
- Elevate arms to shoulder level and provide support for the arms (desk or back of chair).
- Notify your health office nurse or responsible medical party.
- Give medication if ordered and available (some students carry their asthma inhaler with them).
- Contact parent/guardian.

CALL 911 IF:

- Lips are blue or nail beds are blue -or-
- Child is having difficulty talking, walking or drinking -or-
- "Quick relief" or "reliever" medication (inhaled reliever such as albuterol) is ineffective, unavailable, or used too recently to repeat. -or-
- You see neck, throat, or chest retractions (Sucking in of the skin between ribs or at base of the neck) -or-
- There is nasal (nares) flaring when inhaling - or -
- Child is in obvious distress -or-
- There is an altered level of consciousness/confusion -or
- Child's condition is rapidly deteriorating

Provide prompt care for students who are having breathing difficulty.

"A child may have only one or a combination of the above but each of these symptoms is evidence of a real asthma crisis developing!"

What to Do:

1. Notify the school nurse (if in the building) that a child may be starting symptoms consistent with an asthma episode and request assistance.
2. If the child begins to wheeze, coughs, is short of breath or even appears more restless or anxious than usual, ask the child to sit quietly in an upright position. Reassure the child in a calm voice and do not leave the child alone.
-  3. Consult the child's asthma action plan or emergency care plan (if available).
4. If the child carries an inhaler, instruct him/her to use rescue medication. (Even if you are not sure the symptoms are progressing or prevalent enough, it is safest to give the child a puff of their rescue medication rather than waiting. Many times, the child can tell you immediately if medication is required).
5. If asthma symptoms do not improve or are progressing rapidly (and/or the nurse is not available to assess the child) call 911.
6. Above all, don't panic! Remaining calm and reassuring the child that he/she will be okay helps alleviate the child's anxiety and may prevent symptoms from becoming worse.

Monitoring Outdoor Air Quality Ozone/ Pollution

People who have asthma are more sensitive to air quality and poor air quality may be a trigger for an asthma episode. The Air Quality Index (AQI) is a tool that can help you understand whether the air quality is good or bad on any particular day.

The AQI ranges from 0 to 500 and in Minnesota is based on measured or estimated levels of five air pollutants: ground-level ozone (smog), fine particulate matter, carbon monoxide, nitrogen dioxide and sulfur dioxide. The Minnesota Pollution Control Agency (MPCA) reports information about air quality on a daily basis on the AQI web site and AQI Information Line (651-297-1630). When the AQI exceeds or is forecast to exceed a value of 100 (unhealthy for sensitive groups, including people with asthma), the MPCA issues air pollution health alerts.

School personnel should be aware that students with asthma might experience problems when the AQI exceeds 100. You may sign up to receive e-mail notification when air quality alerts are issued by the MPCA and check the air quality index daily for Minnesota by going to: <http://aqi.pca.state.mn.us/hourly/>

Do not delay administering rescue medications or calling 911 while you attempt to contact the parents/guardian. Time is critical when a severe episode is taking place. The nurse can assess and document the episode and contact the family per district guidelines once the child's symptoms have subsided.

Resources:

A resource listing of Internet websites are provided at the back of this manual. Forms and other documents to assist school staff in helping children with asthma manage their asthma can also be found in the Resources Section in the back of this manual. 





School Bus Drivers

Nearly one in 13 school-age children has asthma. So, it's very likely that students with this chronic, but manageable, disease ride your bus each day. Because you're in daily contact with students who have asthma, it's vital for you to understand some basic facts about asthma and how to deal with it. You're also in a position to help them manage their asthma by taking steps to limit exposure to one of the "triggers" that can cause an asthma episode.

"Diesel fumes are a potent asthma trigger for some children."

Why Learning About Asthma is Important to School Bus Drivers

Children who have asthma are very sensitive to respiratory irritants. You can help promote the health of the children under your care by turning off your engine whenever you can

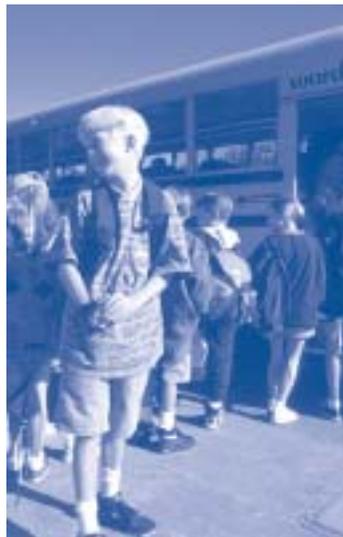
DIESEL EXHAUST AND IDLING:

More than 24 million children in the U.S. ride a bus to and from school each day. On average, students spend an hour and a half each weekday in a school bus. Diesel exhaust from idling school buses poses a health risk to both drivers and children. Idling buses emit exhaust fumes, which concentrate at ground level and enter both the passenger compartments of the buses and school classrooms through ventilation systems. Children are more susceptible because their respiratory systems are not fully developed. Bus idling, bus queuing and open windows increase the level of diesel exhaust inside a school bus 5 to 15 times higher than outside monitoring sites.

COSTS OF IDLING:

Idling wastes fuel and money and is harder on a diesel engine than restarting or driving. School buses typically use about half a gallon for each hour. If a school bus fleet has 50 buses and each bus reduces its idling time by 30 minutes per day, at \$1 per gallon of diesel fuel, the fleet would save \$2,250 per school year in reduced fuel costs.

Turning off the engine reduces wear and tear on the engine, saving additional money on maintenance and increasing the life of the engine.





What You Need to Know

What is Asthma?

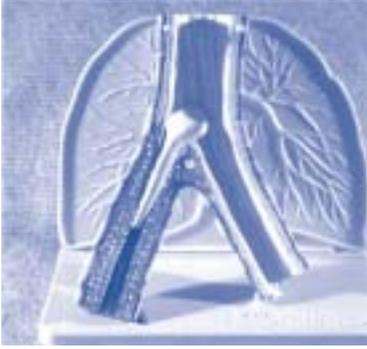
Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling. The wheezing or whistling sound that is heard is air trying to make its way around the mucus and inflammation in the lungs. Coughing is the body’s natural response to rid itself of the mucus. The outcome is a child experiencing an “asthma episode” or a flare up of his/her symptoms.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs — the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis. An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.



During the initial phase of an asthma episode a child may exhibit one or more of these signs:

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with his/her asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include “dry mouth” or a more general “I don’t feel well” or “I’m scared.”

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children without asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult) and exposure to allergens or “triggers.” Each child with asthma reacts to a different set of factors.

Diesel fuel (fumes) is considered an “irritant” trigger that causes a child’s sensitive airways to spasm causing painful coughing and swelling. Indoor air quality can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children.

Exercise-Induced Asthma (EIA)

EIA occurs when a child has participated in strenuous physical activity and his/her lungs are reacting to environmental (cold/hot/humid/dry) changes. Exercise that exposes a child to cold air like skiing, skating or hockey or even exercise involving warm and humid air such as swimming can lead to an asthma episode.

EIA many times begins after the activity has finished (sometimes hours afterward). Since children typically ride a school bus home from an athletic event, the potential for a child to develop EIA is high. Any child who has asthma and participates in sports should carry his/her rescue inhaler to the athletic field. Or, if not previously approved through the school nurse, the coach should carry the inhaler.



Asthma Medications

Asthma is treated based on how severe the child's symptoms are at any given time. Two types of medications are typically used to treat asthma:

- Quick relief (reliever) or rescue and
- Controller or preventive.

The most common asthma medications most school staff will come in contact with are the *quick relief or rescue medications*. These medications are taken when asthma symptoms flare up or a child is experiencing an "asthma episode." They quickly relieve symptoms, or help prevent exercise-related symptoms. You most frequently see a student use this medication in an inhaler form when symptoms are flaring up.

A note about inhaled corticosteroids: Inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medication available for asthma.

Remember that all medications have potential for side effects. Some common complaints with rescue medications are: *nervousness, jitteriness, nausea* and in some cases, *drowsiness*.

If side effects are excessive or the child complains of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.





What School Bus Drivers Can Do

Tips for School Bus Drivers

- ✓ When arriving at loading areas to drop off or pick up children, buses should be turned off as soon as possible to eliminate idling time and reduce harmful emissions. The school bus should not be restarted until it is ready to depart.
- ✓ If buses need the engine to run the flashing lights, consider changing the circuit configurations so that the battery can power the flashing lights without the engine running.
- ✓ Limit the idling time during early morning warm-up to what is recommended by the manufacturer (generally 3 to 5 minutes). In colder climates, block heaters can help warm the engine to avoid starting difficulties and shorten warm-up time.
- ✓ If you arrive early during the winter, ask to wait inside the school.

CERTAIN EXCEPTIONS TO IDLING POLICIES MAY BE MADE (CONSISTENT WITH STATE REGULATIONS) UNDER THE FOLLOWING CONDITIONS:

- ✓ It is necessary to run the engine in order to operate safety equipment.
- ✓ The outside temperature is between +32 and –10 degrees (F), idling is allowed for up to 15 minutes.
- ✓ The outside temperature is below –10 degrees, idling is allowed without time restrictions.
- ✓ You need to maintain a safe temperature for students with special needs.



“CLEAN SCHOOL BUS USA”

School buses are the safest way for children to get to school. However, pollution from diesel vehicles has health implications for everyone, especially children. By working together, we can reduce pollution from public school buses and make buses a very clean way for children to get to school. Clean School Bus USA brings together partners from business, education, transportation, and public health organizations to work toward these goals:

Encouraging policies and practices to eliminate unnecessary public school bus idling

Upgrading (“retrofitting”) buses that will remain in the fleet with better emission control technologies and/or fueling them with cleaner fuels.

Replacing the oldest buses in the fleet with new, less polluting buses.

For more information or to participate in the “Clean School Bus USA” program, go to the Environmental Protection Agency (EPA) website. <http://www.epa.gov/cleanschoolbus/>
Or the Office of Environmental Assistance (OEA) <http://www.moea.state.mn.us/ee/noidle.cfm>

Relevant Legislation

MINNESOTA SCHOOL BUS IDLING LAW

Minnesota Statutes, Section 123B.885



"All operators of diesel school buses must minimize, to the extent practical, the idling of school bus engines and exposure of children to diesel exhaust fumes."
(This pertains to bus drivers lining up buses waiting for the children to exit the school and load the buses. Unless, due to inclement weather (i.e. too cold or too hot), the buses engine should be shut off until all children are loaded onto the bus).

Parking:

"On and after July 1, 2003, diesel school buses must be parked and loaded at sufficient distance from school air-intake systems to avoid diesel fumes from being drawn into the systems, unless, in the judgment of the school board, alternative locations block traffic, impair student safety, or are not cost effective."

(IAQ (indoor air quality) can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children.)





Asthma Basics

This section provides essential facts about asthma and how school staff can identify and respond to an asthma episode. The information in this section may be useful when preparing presentations or hand-outs on asthma.

“Healthy children learn better.”



What is Asthma?



Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child, and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g., after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.



Asthma in K-12 Schools



ASTHMA CAN BE DEADLY.

An asthma episode can escalate and may result in death without prompt medical attention.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

Over 14 million school days are missed due to asthma each year.

ASTHMA CAN AFFECT A CHILD'S PERFORMANCE.

It can disrupt sleep, the ability to concentrate, memorize, and, when not managed properly can prevent a student from participating in "normal" school activities. Children who miss school due to uncontrolled asthma not only miss classroom instruction but they miss out on social interactions with other children which can lead to fears of social isolation, rejection and believing they are "different" from other children. A child who has asthma may feel drowsy or tired, anxious about taking medications, or even embarrassed when disruption to school activities occurs due to an asthma episode.

Recognizing the Signs of an Asthma Episode

Children themselves are often the best source for identifying an asthma episode. Children who have asthma often learn to identify their own unique early warning signs — the physical changes that occur as their airways begin to close. These early warning signs usually begin long before the more serious symptoms appear and taking action quickly is paramount to preventing an asthma crisis! An asthma episode is easier to subdue if a child and school staff are aware of significant changes and the child is able to take medication quickly.

During the initial phase of an asthma episode a child may exhibit one or more of these signs:

Changes in breathing: Coughing, wheezing (a high pitched sound heard on exhalation), shortness of breath, breathing through the mouth, and or rapid breathing.

Verbal complaints: Often a child who is familiar with his/her asthma symptoms will know that an episode is about to happen. The child may tell school staff that his/her chest is tight, or hurts, or that he/she cannot catch a breath. Complaints may include "dry mouth" or a more general "I don't feel well" or "I'm scared."

Behavior changes and other signs: Clipped speech — a child may speak in very short, choppy sentences and appear to be gulping at air as he/she speaks. Some children may become very quiet (trying to control their breathing or simply out of fear) and subdued, while others may become highly agitated and panicky.

There should not be any delay once a child has notified school staff of a possible problem or developing asthma episode.

What Causes Asthma Episodes?

Children with asthma have airways that narrow more easily than children who do not have asthma. They may be allergic or sensitive to inhaled (or even some ingested) irritants. A variety of factors can set off an asthma episode including viral infections (cold and flu season is especially difficult), exposure to allergens or “triggers” and even exercise. Each child with asthma reacts to a different set of factors.

Common allergens:

- Dust mites
- Dander from furry or feathery animals
- Mold (e.g. from moisture from a leaky roof or plumbing, leaky/moist foundations/walls, wet sink/bathroom areas, and outdoor molds such as *Alternaria* which is common in MN in the fall)
- Seasonal pollens (e.g. tree pollen [spring], grasses [summer], ragweed [fall])
- Cockroach droppings
- Mice/rat dander, urine, and/or droppings
- Some foods*
- Some medications (e.g. aspirin)

Common irritants:

- Cold air
- Chalk dust
- Tobacco smoke, secondhand smoke and smoke from burning wood and other substances
- Air pollution - both indoor and outdoor (high ozone/high particulate matter)
- Chemicals and strong smells (cleaning supplies, perfumes, whiteboard markers, paint, pesticides, glues)
- Gastroesophageal reflux (acid from the stomach that gets into the airways can be an irritant)

“About 6-8% of children with asthma have food allergies that can trigger asthma symptoms.”

Common infections:

- Viral upper respiratory infections
- Sinusitis

Other triggers:

- Strong emotions (laughter, crying, stress, anxiety, anger)
- Exercise

Exercise-Induced Asthma (EIA) and/or Exercise Induced Symptoms

Exercise is a very common trigger for asthma. However, since exercise and participating in sports is part of healthy living, it is one trigger that should be managed and not avoided. Some students may experience symptoms only when they exercise or participate in very strenuous activity (true EIA). Other students experience symptoms that are brought on by exercise, but they also may have an underlying persistent asthma that is exacerbated by the exercise. Students with underlying persistent asthma require controller medications whereas students with true EIA frequently do not. Any child who develops asthma-like symptoms should be referred to the Health Office for evaluation and possible referral to a health care provider. Fortunately, with better medications, monitoring, and proper management, a child can participate in physical activity and sports and achieve his/her highest performance levels.

Asthma Medications

Treatment for asthma is based on how severe a child's symptoms are at any given time. Typically, there are two types of medications used to treat asthma:

- Quick relief (reliever) or rescue, and
- Controller or preventive.

The most common asthma medications most school staff will come in contact with are the quick relief or rescue medications which are taken by inhalation.

A note about inhaled corticosteroids: When you hear the word "steroid" you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medications available.

It is important to remember that all medications carry the potential for side effects. Some common complaints with rescue medications include **nervousness**, **jitteriness**, **nausea** and, in some cases, **drowsiness**. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.

Asthma Action Plans

WHAT ARE THEY, HOW ARE THEY USED?

An asthma action plan (AAP) is an individualized tool that assists a caregiver in evaluating, monitoring and providing care to a child who has asthma. It is advisable for all children who have asthma to have a personalized AAP and/or emergency care plan available at all times.



A Peak Flow Meter (PFM) is a simple hand-held measurement tool used to determine if a child's ability to exhale air (true asthma) is lessening. Every child's peak flow (PF) is different but a dropping level indicates reduced breathing abilities. The school nurse may have a PFM for students with asthma. See your school nurse for additional information.

AAP's come in a number of different formats but the most common use the 3 color system: **green = go**, **yellow = caution**, and **red = danger**. Under each color, there are measurements and instructions specific to that level of condition. When you match the symptoms (and Peak Flow, if available) to the correct color section you'll find the steps to take.

GREEN = GO

Contains the controller medication the child takes everyday (if he/she does in fact require a daily medication.) It will also include instructions for medicating a child who has exercise induced asthma (EIA) prior to strenuous activity. The peak flow range for that child and normal acceptable ranges can be included.

YELLOW = CAUTION

Gives the caregiver specific instructions for medications when the child is starting to have asthma symptoms. Instructions for how much and how often the child should receive rescue medication should be found here. A peak flow range will show a drop in numbers; typically 20% or more. The yellow zone is perhaps the most important because it gives the caregiver the opportunity to take action before symptoms become life threatening.

RED = DANGER

Means the child's symptoms have progressed to the point where emergency care is needed. A description of escalating symptoms and a PF that has dropped to below 50% indicates a child's lungs are filling with mucus and that the bronchial muscles are so contracted that the lungs cannot pull in air. Caregivers should call 911 immediately!



Emergency Measures for Handling an Asthma Episode or Emergency

IN THE ABSENCE OF AN AAP, THE FOLLOWING ARE GENERAL
GUIDELINES FOR HANDLING AN ASTHMA EPISODE.

Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Person feels short of breath
- Person feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Person feels apprehensive or fearful
- Coughing
- Speaking in clipped or short bursts of speech
- Possibly restless or upset stomach

Care of asthma and breathing trouble:

- Remain calm and reassure the child.
- Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
- If an asthma episode is suspected, give a glass of room temperature water to sip.
- Elevate arms to shoulder level and provide support for the arms (desk or back of chair.)
- Notify your health office nurse or responsible medical party.
- Give medication if ordered and available (some students carry their asthma inhaler with them.)
- Contact parent/guardian.

Call 911 if:

- Lips are blue or nail beds are blue -or-
- Child is having difficulty talking, walking or drinking -or-
- Quick relief or reliever medication (inhaled reliever such as albuterol) is ineffective, unavailable, or used too recently to repeat -or-
- You see neck, throat, or chest retractions (Sucking in of the skin between ribs or at base of the neck) -or-
- There is nasal (nares) flaring when inhaling -or-
- Child is in obvious distress -or-
- There is an altered level of consciousness/confusion -or-
- Child's condition is rapidly deteriorating.

Provide prompt care for students who are having breathing difficulty.

Relevant Legislation:



There are legal requirements and statutes that regulate schools working with not only children with asthma but with children with special needs in general. The following are simplified summaries of current statutes.

FEDERAL LAWS (IDEA 1997) AND SECTION 504 OF THE REHABILITATION ACT OF 1973



These mandates require that schools promote the health, development and achievement of students with asthma, when the disease interferes with their learning. Schools are required to remove “disability barriers” that impede health, participation and achievement. The law requires schools and parents to work together as partners to develop and implement health plans to protect the welfare of the child.

FAMILY EDUCATION RIGHTS AND PRIVACY ACT (FERPA)



Generally prohibits schools from disclosing personally identifiable information in a student’s education record, unless the school obtains the consent of the student’s parent or the eligible student (a student who is 18 years old or older or who attends an institution of postsecondary education). FERPA does allow schools to disclose this information, without obtaining consent, to school officials, including teachers, who have legitimate educational interests in the information, including the educational interests of the child. Schools that do this must include in their annual notification to parents and eligible students the criteria for determining who constitutes a school official and what constitutes a legitimate educational interest. Additionally, under FERPA, schools may not prevent the parents of students, or eligible students themselves, from inspecting and reviewing the student’s education records.

MINNESOTA INHALER LAW OVERVIEW

Minnesota Statutes 2001, Section 121A.22



The Minnesota legislature enacted language during the 2001 session that allows public elementary and secondary school students to possess and use inhalers prescribed for asthma or reactive airway disease. The following provides an overview of the requirements that must be met before a student is given permission to carry asthma medication and self-medicate in school:

1. The parent has not requested that school personnel administer the student’s asthma medication; *and*
2. The school district receives annual written authorization from the student’s parent for the student to self-administer; *and*
3. The inhaler is properly labeled for that student; *and*
4. The school nurse or other appropriate party assesses the student’s knowledge and skills to safely possess and use his/her inhaler in a school setting and enters a plan to implement safe possession and use of the inhaler into the student’s school health record; *or* for schools without a school nurse or nursing services, the student’s parent or guardian submits written verification from the student’s physician documenting that the physician has assessed the student’s knowledge and skills to safely possess and use his/her inhaler in a school setting.

Summary, August 2001 ALAMN

SCHOOL BUS IDLING LAW

Minnesota Statutes, Section 123B.885



Diesel School bus idling:

"All operators of diesel school buses must minimize, to the extent practical, the idling of school bus engines and exposure of children to diesel exhaust fumes."

(This pertains to bus drivers lining up buses waiting for the children to exit the school and load the buses. Unless, due to inclement weather (i.e. too cold or too hot), the buses engine should be shut off until all children are loaded onto the bus).

Parking:

"On and after July 1, 2003, diesel school buses must be parked and loaded at sufficient distance from school air-intake systems to avoid diesel fumes from being drawn into the systems, unless, in the judgment of the school board, alternative locations block traffic, impair student safety, or are not cost effective."

(IAQ can suffer greatly when diesel fuel fumes are pulled into the building and circulated via the ventilation system. These fumes/odors are potent asthma triggers for some children).

PESTICIDE STATUTES

Minnesota Statutes, Section 121A.30



The Minnesota Legislature passed a new law called the Parents Right To Know Act of 2000. Public and non-public K-12 schools that plan to apply pesticides specified in the law are required to provide notices to parents and employees. This law also requires the Minnesota Department of Health (MDH) to develop and make available model notices for schools to use, if they choose to do so.





Resources



Allergy and Asthma Network/Mothers of Asthmatics, Inc. (AANMA)

2751 Prosperity Avenue, Suite 150
Fairfax, VA 22031
(800) 878-4403 or (703) 641-9595
Internet: www.aanma.org

American Academy of Allergy, Asthma, and Immunology (AAAAI)

Pediatric Asthma: Promoting Best Practice -A Guide for Managing Asthma in Children
Food allergies fact sheets also available
611 East Wells Street
Milwaukee, WI 53202
(800) 822-ASMA or (414) 272-6071
Internet: www.aaaai.org

American Academy of Pediatrics (AAP)

141 Northwest Point Boulevard
Elk Grove Village, IL 60007
(800) 433-9016 or (847) 228-5005
Internet: www.aap.org

American Association for Respiratory Care (AARC)

11030 Ables Lane
Dallas, TX 75229-4593
(972) 243-2272
Internet: www.aarc.org

American Association of School Administrators

School Governance & Leadership – Spring 2003 Edition
Asthma Wellness: Keeping Children with Asthma in School and Learning
801 N. Quincey St., Suite 700
Arlington, VA 22203
(703) 528-0700
<http://www.aasa.org/publications/sgl/index.htm>
Cleaning the Air: Engaging School Leaders in Improving Children's Health
http://www.aasa.org/issues_and_insights/healthy/epa.htm

American College of Allergy, Asthma, and Immunology

85 West Algonquin Road, Suite 550
Arlington Heights, IL 60005
(800) 842-7777 or (847) 427-1200
www.allergy.mcg.edu

American Industrial Hygiene Association (AIHA)

(703) 849-8888
Information on industrial hygiene and indoor air quality issues including mold hazards and legal issues.
<http://www.aiha.org>

American Lung Association

Asthma Busters offered by ALA of Nebraska @ www.asthmabusters.com
(800) LUNG USA
Internet: www.lungusa.org



American Lung Association of Minnesota

Open Airways for Schools (elementary curriculum)

490 Concordia Avenue
St. Paul, MN 55103-2441
(651) 227-8014 or 800-LUNG-USA
Fax: (651) 227-5459

Greater Minnesota:
424 West Superior Street, Suite 203
Duluth, MN 55802
(218) 726-4721, Fax: 218-726-4722
<http://www.alamn.org/index.asp>

Association of Specialists in Cleaning and Restoration (ASCR)

(800)272-7012 or (410) 729-3603

Carpet and Upholstery Cleaning Institute, Mechanical Systems Hygiene Institute, National Institute of Disaster Restoration, National Institute Rug Cleaning, Water Loss Institute referrals to professionals.

<http://www.ascr.org/institutes>

Asthma – An Emerging Epidemic (Book)

Author: Paul J. Hannaway, M.D.

Lighthouse Press
P.O. Box 602
Marblehead, MA 01945
(800) 225-9886 or (975) 740-0648
Fax: (978) 745- 6208

Asthma and Allergy Foundation of America (AAFA)

1125 15th Street, N.W., Suite 502
Washington, DC 20005
(800) 7-ASTHMA or (202) 466-7643
Internet: www.aafa.org

Centers for Disease Control and Prevention

Strategies for Addressing Asthma Within a Coordinated School Health Program

http://www.cdc.gov/nccdphp/dash/00_pdf/asthma.pdf

Main CDC Page:
<http://www.cdc.gov>

Children's Hospitals and Clinics

Educational Handouts: What is Asthma, Asthma Trigger Control, Asthma Medicines, Inhalers

Nebulizer Treatments, Peak Flow Meter, Asthma Action Plan

Available in: English, Hmong, Spanish, Somali

<http://www.childrenshc.org/Manuals/PFS/Alphabetical.asp>

Healthy Kids: The Key to Basics

(617) 965-9637
Educational Planning for Students with Asthma and Other Chronic Health Conditions
79 Elmore Street
Newton, MA 02159-1137



Indoor Environmental Remediation Board (IERB)
 (215) 387-4097
 Information on best practices in building remediation.
<http://www.ierb.org>

**Minnesota
 Department of
 Health Programs:**



Asthma Program
 (612) 676-5226 or (877) 925-4189
www.health.state.mn.us/divs/hpcd/cdee/asthma/

Coordinated School Health
<http://www.mnschoolhealth.com/index2.html>

Indoor Air Program
<http://www.health.state.mn.us/divs/eh/indoorair/schools/plan/index.html>

Environmental Health
 (651) 215-0700
<http://www.health.state.mn.us/divs/eh/index.html>
Pest management information & Model notices
<http://www.health.state.mn.us/divs/eh/pesticide/notices/index.html>

Health Library
 Publication: *Asthma Education: An Integrated Approach, Ideas for Elementary Classrooms*
 (Created by MDH section of Children with Special Health Care Needs)
 Email Contact: library@health.state.mn.us
 (612) 676-5000
<http://www.health.state.mn.us/library/library.htm>

Maternal and Child Health
Email: mchweb@health.state.mn.us
 (612) 281-9900
<http://www.health.state.mn.us/divs/fh/mch/index.html>



National Association of School Nurses
 PO Box 1300
 Scarborough, ME 04070-1300
 (877) 627-6467 or (877) NASN4SN
www.nasn.org

National Asthma Education and Prevention Program (NAEPP)
 National Heart, Lung, and Blood Institute Information Center
 P.O. Box 30105
 Bethesda, MD 20824-0105
 (301) 592-8573
NAEPP materials include:

- Managing Asthma: A Guide for Schools
- Asthma Awareness Curriculum for the Elementary Classroom
- Asthma and Physical Activity in the School
- Making a Difference: Asthma Management in the School (video)

Internet: www.nhlbi.nih.gov/about/naepp or www.nhlbi.nih.gov



National Pesticide Information Center (NPIC)

(800)858-7378

Information on pesticides/antimicrobial chemicals, including safety and disposal information.

<http://npic.orst.edu>

National School Boards Association

School Health Programs

1680 Duyke Street

Alexandria, VA 22314-3493

(703) 838-NSBA

Fax: (703) 783-7590

www.nsba.org

New York Department of Health Bureau of Environmental and Occupational Disease Epidemiology,

Guidelines on assessment and remediation of fungi in indoor environments.

(212)788-4290

<http://www.ci.nyc.ny.us/html/doh/html/epi/moldrpt1.html>

Pedipress Publications

Publications:

Dr. Tom Plaut's Asthma Guide

One-Minute Asthma

El asma en UN minuto

Asthma Peak Flow Diary

Asthma Signs Diary

Asthma Charts and Forms CD-ROM (Windows and Mac)

Winning Over Asthma

Fax (413) 549-4095

www.pedipress.com

Sierra Club North Star Chapter

2327 East Franklin Ave. Suite 1

Mpls, MN 55406-1024

(612) 659-9124

Fax 612-659-9129

Environmental information, i.e. Air quality and School Bus Idling

<http://www.northstar.sierraclub.org/>

SchoolAsthmaAllergy.com

Schering-Plough Cares website featuring useful tools and information to empower all those caring for school-aged children with asthma and allergies.

www.schoolasthmaallergy.com

Sustainable Resource Center

SRC operates programs in the Twin Cities metropolitan area and throughout Minnesota.

Contact Megan Curran for further information.

(612) 870-4255

http://www.src-mn.org/SRC_HOME_Absolute.htm

University of Minnesota, Department of Environmental Health and Safety

(612)626-5804

Managing water infiltration into buildings.

<http://www.dehs.umn.edu/iaq/flood.html>



University of Wisconsin Extension Service

Help Yourself to a Healthy Home: Protect Your Children's Health

English Version:

<http://www.uwex.edu/healthyhome/book.html>

Spanish Version:

<http://www.uwex.edu/healthyhome/bookespanol.html>

U.S. Department of Education

Office for Civil Rights, Customer Service Team

Mary E. Switzer Building

330 C Street, S.W.

Washington, DC 20202-1328 (800) 421-3481 or (202) 205-5413

[Www.ed.gov/offices/OCR/](http://www.ed.gov/offices/OCR/)

U.S. Environmental Protection Agency (EPA)



Indoor Environments Division

401 M Street, S.W. (6604J)

Washington, DC 20460

(202) 233-9370

Indoor Air Quality Information Clearinghouse

Phone: (800) 438-4318 or (703) 356-4020

Fax: (703) 356-5386

Email: iaqinfo@aol.com

Indoor air related documents, answers to Indoor Air Quality (IAQ) questions, maintain listing of State IAQ contacts, and regional EPA Contacts.

www.epa.gov/children/asthma.htm

Tools for Schools

<http://www.epa.gov/iaq/schools/tools4s2.html>.

Indoor Air Quality (IAQ) Home Page

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

Mold Resources

<http://www.epa.gov/iaq/molds/moldresources.html>

Mold Remediation in Schools and Commercial Buildings

http://www.epa.gov/iaq/molds/mold_remediation.html

Triggers : Clear your home of Asthma Triggers

English Version: <http://www.epa.gov/asthma/images/asthma.trifold.pdf>

Spanish Version: <http://www.epa.gov/asthma/images/asthma.trifold.spanish.pdf>

Children's Books

Available to order through bookstores:

- *The ABC's of Asthma* by Kim Gosselin, JayJo Books (ages 5 – 7)
- *All About Asthma* by William Ostrow and Vivian Ostrow (ages 7 – 11)
- *The Babysitter's Club: Welcome to the BSC, Abby* by Ann M. Martin (ages 11 – 15)
- *I'm Tougher Than Asthma* by Alden R. carter and Siri M. Carter (ages 5 – 10)
- *Jackie Joyner-Kersee: Champion Athlete* (ages 13 – 17)
- *Kids Breathe Free: A Parent's Guide for Treating Children with Asthma* Prichett & Hull Associates, Inc. (Parents and Children ages 5 – 9)
- *The Lion Who Had Asthma* by Jonathan London (ages 5 – 7)
- *Once Upon a Breath: the story of a wolf, 3 pigs and asthma* by Aaron Zevy, Tumbleweed Press
- *The Respiratory System* by Darlene Stille, Children's Press
- *Sportercise!* By Iim Gosselin (Teachers and Children ages 6 – 9)
- *Taking Asthma to School* by Kim Gosselin, JayJo Books (Teachers and Children ages 6 – 9)
- *ZooAllergy* by Kim Gosselin, JayJo Books (ages 6 – 9)

Medical Equipment Suppliers:

Respironics

Asthma and allergy products:

- Peak Flow Meters
- Peak Flow Flexible mouthpieces one-way valve safety mouthpieces (#REF HS714-200)
- Valved Holding Chambers and spacers

41 Canfield Rd

Cedar Grove, NJ 07009-1201

(800) 962-1266

www.respironics.com

Resources, including websites, are mentioned in this guide as suggestions and examples and are only a few of the many resource materials available. Listings of materials and resources in this guide should not be construed or interpreted as an endorsement by the Minnesota Department of Health or of any private organization or business listed herein.



Glossary



airways - Common term used to describe the passages in the lungs that move air into and out of the body. Sometimes called bronchial tubes, bronchi or respiratory system.

allergen - A substance which causes an allergic response in sensitive individuals. Allergens can be either natural (e.g., pollen, dust) or man made (e.g., perfume, cleaning agents).

allergy/allergies - An overreaction by the body's immune system to a specific substance called an allergen. An allergy occurs only in people sensitive to a particular allergen(s).

allergic reaction - Response in children sensitive to specific allergens. An allergic reaction can occur in different parts of the body. Common areas include the skin, the eyes, the respiratory system and the gastrointestinal tract. Symptoms often include itching, sneezing, runny nose, coughing, wheezing or shortness of breath.

anaphylactic shock/anaphylaxis - The most severe or extreme type of allergic reaction, creating a potentially life-threatening medical emergency. Most common cause is reaction to a medication. Other causes include insect stings and foods.

asthma - A lung disease which is usually ongoing or continuous (chronic). Symptoms may include wheezing, coughing, feeling of "tightness" in the chest, difficulty breathing, itching neck, throat and ears. Symptoms vary greatly from person to person, and usually, individuals with asthma also experience "ups and downs" with symptoms. No cause or cure is yet known. Symptoms can be well managed and stabilized for most people who have asthma. Certain substances or conditions may trigger asthma symptoms.

asthma action plan - A document which outlines the treatment approach for a child who has asthma; developed in consultation with the health care provider, family members and caregivers. Effective action plans help children control their asthma and live healthy active lives.

asthma episode/attack/exacerbation - A time when asthma symptoms flare up or intensify, requiring immediate adjustments in treatment and medication to get symptoms under control. Asthma episodes may occur suddenly, with few warning signs, or build slowly over a period of hours or even days. Most asthma episodes can be handled by following the child's asthma action plan. Often called "asthma attacks," the more appropriate term is "asthma episode."

asthma management - can be defined as "managing, preventing, treating and controlling factors (environmental, medications etc.) that affects a child's asthma.

asthma management plan - Detailed guidelines for schools to use in working with all children and staff to manage asthma.

brittle asthma - This is a rare form of asthma where a child gets little or no warning of an asthma episode. They can go from being perfectly well to having a severe life-threatening attack in the space of a few minutes.

bronchial tubes - The major airways of the respiratory system that carry air from the trachea (windpipe) to the microscopic air sacs (alveoli) in the lungs.

bronchitis - An infection or inflammation in the bronchial tubes caused by bacteria, a virus, an allergy or other irritants. Typical symptoms may include coughing, wheezing, shortness of breath, chills, fever, fatigue and excessive phlegm.

bronchodilator - A medication used by many children who have asthma to relax bronchial muscles, and in turn, open up the bronchial tubes.



bronchospasm; bronchoconstriction - The tightening in the airways of the respiratory system that occurs with asthma or allergies. Caused when the muscles around the bronchial tubes contract in response to specific triggers.

Centers for Disease Control and Prevention - CDC serves as the national focus for developing and applying disease prevention and control, environmental health, and health promotion and education activities designed to improve the health of the people of the United States.

Controller or long-term acting medication - The standard treatment of asthma for most children who need regular, or ongoing, medicine. These kinds of medications provide “long-term relief,” by acting in a preventive way to make airways less sensitive, minimizing or reducing symptoms before they even appear.

Corticosteroid – Steroidal anti-inflammatory medication useful for children who have asthma. Considered the most effective “controller” medication available today. Delivered as an inhaler, in pill or liquid form. Not the same as anabolic steroids.

dander – Scaly or shredded dry skin that comes from animals or bird feathers. Dander may be a cause of an allergic response in susceptible persons.

diurna - Variation In the context of asthma, this is the difference between how wide the airways in the lungs are if measured twelve hours apart. Our airways narrow and open naturally over each 24 hour period even in people who do not have asthma. In children who have asthma, the variation is much greater. Generally, the greater the diurnal variation, the more unstable the child’s asthma. Diurnal variation is usually measured in asthma by taking morning and evening peak flow readings. There are a number of ways of calculating diurnal variation.

eczema - This is an allergy of the skin, which shows patches of red, itchy inflammation which may weep or blister.

environmental control measures - Specific procedures undertaken to remove known allergens or irritants from a designated area.

EPI-PEN - The trade name, or manufacturer’s name, for a device used to deliver epinephrine, a medication used to bring quick relief by improving breathing and heart function in life-threatening medical emergencies.

exercise-induced asthma – (EIA)- Asthma symptoms which appear following strenuous exercise. Symptoms may be minimal or severe enough to require emergency treatment. About one in 10 students experience exercise-induced asthma.

hidden ingredients - Some prepared food products contain derivatives or “by products” of other foods. These “hidden ingredients” may or may not be shown on the food label.

inhaler/metered-dose inhaler (MDI) – A device used to deliver a variety of commonly prescribed asthma medications which help ease breathing by opening up the airways.

Integrated Pest Management (IPM) - Procedures developed by the Environmental Protection Agency to reduce exposure to cockroaches, rats, mice, and other pests that may invade a school setting.

intrinsic asthma - Children whose symptoms do not seem to be brought on by anything external are said to have non-allergic or intrinsic asthma. It is more common in children who develop asthma for the first time in adulthood. Symptoms are more likely to be triggered by, for example, exercise, emotion or some drugs such as aspirin.



irritant - Any substance which causes inflammation or an adverse reaction on the skin or in the body. An irritant may trigger asthma or allergy symptoms, but they may not be considered an allergen. Examples of irritants include tobacco smoke, chemical fumes, insecticides or air pollution.

long-term acting medication or controller medication - The standard treatment of asthma for most children who need regular, or ongoing, medicine. These kinds of medications provide "long-term relief," by acting in a preventive way to make airways less sensitive, minimizing or reducing symptoms before they even appear.

mucus - Often called phlegm or sputum, this slippery fluid is produced by the membranes lining the airways to aid in various body functions. Exposure to certain triggers can increase mucus production for asthma patients. The increased amount of mucus makes breathing more difficult.

National Institutes of Health (NIH) – Founded in 1887, the National Institutes of Health today is one of the world's foremost medical research centers, and the federal focal point for medical research in the United States. The NIH, comprising 27 separate Institutes and Centers, is one of eight health agencies of the Public Health Service, which, in turn, is part of the U.S. Department of Health and Human Services. NHLBI (National Heart, Lung and Blood Institute) is part of the NIH.

nebulizer - A small, portable machine used to deliver certain asthma medications. The nebulizer is plugged into an electrical outlet. A nebulizer treatment usually takes 10-15 minutes to complete. Children requiring regular nebulizer treatments may need access to a nebulizer at school.

peak flow meter (PFM) - A small, portable hand-held device which measures how well the lungs are able to expel air, allowing children who have asthma to detect airway narrowing and adjust medications accordingly.

quick relief medication or rescue medication - Medicine taken to relieve asthma symptoms. Called "quick relief" because they can act immediately to reduce symptoms that appear suddenly.

respiratory virus - Illnesses affecting the airways caused by a virus. Symptoms of respiratory virus are similar to asthma symptoms. Children who have asthma may experience increased asthma symptoms for some time following a respiratory virus.

sensitivity/sensitization - Refers to a person's response when exposed to an allergen. For some people, repeated exposure to certain substances makes them more likely to develop an allergic reaction.

spacer - A short tube device which can be attached to an inhaler to help the child use the inhaler more effectively.

trigger/triggers - A substance or environmental condition that cause asthma or allergy symptoms to appear.

wheezing/wheeze - The whistling sound which occurs when air moves through narrowed or tightened airways. May be heard on exhalation. Wheezing is a classic symptom of asthma. Not all wheezing can be heard by the ears; a stethoscope may be needed to detect levels of wheezing within the lungs.

Forms Folder



- F-1 Asthma Action Plan - English (*Spanish available on MDH Asthma website*)
- F-2 Asthma Action Parent Letter
- F-3 Asthma Severity Tool

- F-4 School Health Office Asthma Record (SHOAR)
- F-5 School Health Office Asthma Record Instructions (SHOAR)
- F-6 Peak Flow Zones

- F-7 Asthma Visit Notification (AVN) – English (*Hmong, Somali, Spanish on CD/Website*)
- F-8 Asthma Visit Notification (AVN) - Instructions

- F-9 Asthma Medical Referral / Request (AMR)
- F-10 Asthma Medical Referral/ Request Instructions (AMR)

- F-11 Asthma Parent Questionnaire – English (*Hmong, Somali, Spanish on CD/Website*)
- F-12 Asthma Parent Questionnaire – Instructions
- F-13 Asthma Parent Questionnaire Severity Rating - Instructions

- F-14 Student Breathing Questionnaire (SBQ)
- F-15 Student Breathing Questionnaire Instructions
- F-16 Student Breathing Questionnaire Severity Rating - Instructions

- F-17 Individualized Health Plan for Asthma
- F-18 Emergency Health Plan for Asthma
- F-19 Student Agreement for Self-Carrying & Administering Asthma Medications
- F-20 Self carry Parent Letter
- F-21 Minnesota State High School Parent Permission and Questionnaire
- F-22 Peak Flow Zones
- F-23 Green Zone Notice
- F-24 Yellow Zone Notice
- F-25 Permanent Health Office Pass

SKILL VALIDATIONS

- F-26 Lung Assessment
- F-27 MDI with holding chamber/spacer
- F-28 Dry Powdered Inhaler
- F-29 Maxair autoinhaler
- F-30 Nebulizer
- F-31 Peak Flow Meter

ENVIRONMENTAL

- F-32 Model Pesticide Notice#1 "General Notice for Parents"
- F-33 Model Pesticide Notice#2 "Individual Notice for Parent"
- F-34 Model Pesticide Notice#3 "General Notice for School Employees"

Information/ Educational Materials Folder



- Controllers/Relievers –Laminated poster
- E-1 Asthma Awareness handout – English
- E-2 Components of Asthma Care in the School Health Office (Minneapolis Public Schools)
- E-3 Components of Asthma Care in the School Health Office (St. Paul Public Schools)
- E-4 Asthma and Breathing Trouble – (First Aid) Poster
- E-5 Asthma and Breathing Trouble – (First Aid) Cards
- E-6 Pathway for School Asthma Care (Acute) – RN
- E-7 Pathway –Acute Instructions RN
- E-8 Asthma Medications (MDH)
- E-9 (EPA) Fact Sheet: Mold in Schools
- E-10 Peak Flow Meter

Regulations & Government Folder



- R-1 Animals in Schools guidelines
- R-2 MN Bus Idling Statute
- R-3 MN School Bus School Board Policy –Sierra Club – Bus Idling
- R-4 MN School Bus Idling Policy Notification- News article
- R-5 Individuals with Disabilities Act (IDEA) & Section 504
- R-6 MN School Nurse licensure/ Rules
- R-7 MN IAQ Management Plan
- R-8 MN Medication Administration statutes
- R-9 MN Inhaler use Statute
- R-10 MN Health Services Statute

**Resources available
ONLY on CD and/or
MDH Website**

Asthma Awareness handout: Spanish, Somali, Hmong
Parent Questionnaire: Spanish, Hmong, Somali
Asthma Visit Notification: Spanish, Hmong, Somali
Learn to Control Asthma
Stay Healthy / Avoid colds
Yearly flu shot?
Make your home asthma-friendly
Control dust
Pests make asthma worse
Quit Smoking
Dry Powder Inhaler Instructions
Peak Flow Instructions
MDI/Inspirease Instructions
How to use a Diskus
How to use MDI w/Spacer
How to use Maxair
How to use Nebulizer
How to use MDI w/Inspirease
How to use Turbuhaler

**Power Point
Presentations —
(Training Folder
Contents)**

Available on the manual CD and MDH Asthma Website

Asthma and the School Environment
Asthma Basics for School Nurses
Asthma: How School Staff can help kids
Practical Tips for Physical Education Teachers and Coaches
Exercise Induced Asthma (EIA)

