

# **ASTHMA MANAGEMENT**

## **A RESOURCE MANUAL FOR SCHOOLS**



**Division of Community Health  
and Prevention  
Office of Family Health  
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# ASTHMA MANAGEMENT

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# INTRODUCTION

## School Issues and Asthma

"Asthma Management: A Resource Manual for Schools" was compiled by The Illinois Department of Human Services (DHS) School Health Program to provide basic information about asthma and to provide asthma resources for school health personnel. The unique needs of each individual child with asthma must be evaluated by a physician and an **Asthma Action Plan** should be developed to address those needs.

Several efforts have been made over the past two years to increase awareness of asthma as a serious public health problem in Illinois. In 1999, PA91-0515 directed the Illinois Department of Public Health (IDPH) to develop and implement an asthma information program targeting high risk groups. To comply with the mandate, the IDPH turned to other resources and partners for assistance. In October, 1999, the Centers for Disease Control (CDC) chose Illinois as one of four state public health agencies nationally to receive asthma funding to develop strong public-voluntary-private collaboration to plan ways to address identified statewide priorities and to pilot local initiatives. The Illinois Asthma task force was formed to develop the Strategic Plan for Addressing Asthma in Illinois. DHS, as an active member of that Task Force, is working in collaboration with IDPH to provide asthma case management for the high risk populations and to provide additional resources to schools to ensure that students with asthma get the support they need.

The Task Force identified six recommendations to facilitate Asthma Friendly Schools:

1. Adopt a unified school medication policy that allows elementary and secondary school students with asthma to have unobstructed access to their medication with parental/guardian and physician authorization. Students who know how to properly manage their asthma should have ready access to lifesaving, prescribed asthma medications. In many schools, medications are locked in an office that may not always be staffed, creating a very dangerous situation. Children who are not responsible with their medications should not be allowed to carry them.
2. Ensure that asthma is added to school physical forms and conduct asthma screening during school physicals.
3. Include asthma awareness as part of school health curricula.
4. Ensure that school staff are educated about asthma, asthma management plans and medications.
5. Provide additional funding for school nurses, especially in high-risk communities with a goal of at least one nurse for every 750 students.
6. Require all schools to have an emergency plan for taking care of a severe asthma attack.

In response to these recommendations, DHS has created the Manual and will provide training workshops throughout the state to school health professionals.

# WHAT IS ASTHMA?

## A Bill of Rights for Children with Asthma

### ***A child with asthma and his/her family have the right to:***

- \* Be presented with the proven scientific facts of asthma in a manner which raises appropriate concerns and avoids needless anxiety
- \* Be cared for by a supportive physician who provides preventive management of asthma as well as treatment for acute wheezing episodes
- \* Live in a smoke-free home where reasonable attempts at eliminating relevant allergens are made
- \* Have full access to appropriate medications and devices so that potential scholastic, athletic, and social achievements are not limited by uncontrolled asthma
- \* Learn self-management skills to minimize dependence on medical personnel, emergency clinics and hospitalizations
- \* Expect teachers, school nurses, coaches, camp counselors and other adults entrusted with their care to understand the appropriate handling of asthmatic children

Mothers of Asthmatics, Inc. and American Academy of Pediatrics

## Glossary of Terms

**"Source: American Academy of Allergy, Asthma and Immunology."**

**Allergy** - reactions of the immune system to substances that, in most people, cause no symptoms.

**Allergy skin test** - injection of a small quantity of allergen into the skin to produce visible redness; used to identify allergens that invokes a patient's response.

**Allergen** - a foreign substance that leads to allergies by starting an immune response.

**Allergic reaction** - an adverse immune response following repeated contact with otherwise harmless substances such as pollen, mold spores, animal dander, dust, foods, cosmetics and drugs.

**Allergic rhinitis (seasonal and perennial)** - inflammation of the nasal mucous membranes due to an allergic response.

**Anaphylaxis** - medical emergency which involves an acute systemic (affecting the entire body) allergic reaction. It occurs after exposure to an antigen (allergen) to which a person was previously sensitized.

**Antibody** - protein (also called an immunoglobulin) that is manufactured by lymphocytes (a type of white blood cell) to neutralize an antigen or foreign protein. When the body forms a type of antibody called IgE (immunoglobulin E), an allergic response may result when the patient is again exposed to the substance which caused IgE antibody formation (allergen).

**Antigen** - substance that can trigger an immune response, resulting in production of an antibody as part of the body's defense against infection and disease. Many antigens are foreign proteins (those not found naturally in the body).

**Antihistamines** - group of medications that block the effects of histamine, a chemical released in body fluids during an allergic reaction. Antihistamines reduce itching, sneezing, and runny nose.

## **Glossary of Terms**

**Anti-inflammatory Medications** - medications that reduce the symptoms and signs of inflammation. Although not a drug, immunotherapy ("allergy shots") reduces inflammation in both allergic rhinitis and allergic asthma.

**Asthma** - chronic, inflammatory lung disease characterized by recurrent breathing problems. Episodes of asthma are triggered by allergens, infection, exercise, cold air and other factors.

**Atopic dermatitis** - sometimes called eczema, characterized by itching, lesions, scaling and flaking. If bacterial or viral infection is introduced by scratching, the affected lesions will ooze.

**B-Cells** - white blood cells that are derived from bone marrow and are involved in the immune system's production of antibodies; they are also called B-lymphocytes.

**Bronchitis** - inflammation of the bronchi (lung airways), resulting in persistent cough. Bronchitis is more common in smokers and in areas with high atmospheric pollution.

**Bronchodilator Medications** - a group of drugs that widen the airways in the lungs.

**Bronchus** - any of the larger air passages that connect the trachea (windpipe) to the lungs. The plural form of "bronchus" is "bronchi."

**Cilia** - hair-like projections in the mucous membrane of the nose that help nasal passages remain clear.

**Contact dermatitis** - reaction which occurs after skin comes in contact with certain substances. The reaction may be an immunologic response or a direct toxic effect of the substance.

**Corticosteroid drugs** - anti-inflammatory drugs similar to the natural corticosteroid hormones produced by the cortex of the adrenal glands. Among the disorders that often improve with corticosteroid treatment are asthma, allergic rhinitis, eczema and rheumatoid arthritis.



## **Glossary of Terms**

**Cytokines** - a diverse group of protein molecules released by cells in response to activation or injury

**Dander** - small scales from animal skin; dander is a common allergen.

**Eczema** - an inflammation of the skin, usually causing itching and sometimes accompanied by crusting, scaling or blisters. A type of eczema often made worse by allergen exposure is termed "atopic dermatitis."

**Eosinophil** - a type of white blood cell important in modulating immune responses. High levels of these cells signal the presence of asthma or an ongoing allergic reaction.

**Epinephrine** - a naturally occurring hormone, also called adrenaline. It is one of two chemicals (the other is norepinephrine) released by the adrenal gland. Epinephrine increases the speed and force of heart beats and thereby the work that can be done by the heart. It dilates the airways to improve breathing and narrows blood vessels in the skin and intestine so that an increased flow of blood reaches the muscles and allows them to cope with the demands of exercise. Epinephrine has been produced synthetically as a drug since 1900, and is the drug of choice for treatment of anaphylaxis.

**Extrinsic asthma** - asthma that is triggered by an allergic reaction, usually something that is inhaled.

**Hay fever** - inflammation of the mucous membranes of the nose due to an allergic response; also known as allergic rhinitis.

**Histamine** - a chemical present in cells throughout the body that is released during an allergic reaction. Histamine is one of the substances responsible for the symptoms of inflammation and is the major cause for running of the nose, sneezing, and itching in allergic rhinitis. It also stimulates production of acid by the stomach and narrows the bronchi or airways in the lungs.

**Histamine blocking agents** - drugs which impede the stimulation of cells by histamine. These agents act by interfering with the action of histamine rather than by preventing its secretion.

**Hives** - See Urticaria.

## **Glossary of Terms**

**Hypersensitivity** - a condition in a person previously exposed to a particular antigen, in which tissue damage results from an immune reaction to a further dose of that antigen.

**Immune system** - collection of cells and proteins that work to protect the body from potentially harmful, infectious microorganisms (microscopic life-forms), such as bacteria, viruses and fungi. The immune system plays a role in the control of cancer and other diseases, but also is the culprit in allergies, hypersensitivity and the rejection of transplanted organs, tissues and medical implants.

**Immunoglobulins** - proteins found in blood and in tissue fluids (also known as antibodies). Immunoglobulins are produced by cells of the immune system called B-lymphocytes. Their function is to bind to substances in the body that are recognized as foreign antigens (often proteins on the surface of bacteria and viruses). This binding is a crucial event in the destruction of the microorganisms that bear the antigens. Immunoglobulins also play a central role in allergies when they bind to antigens that are not necessarily a threat to health and provoke an inflammatory reaction.

**Immunoglobulin E (IgE)** - a class of antibody normally present in very low levels in humans but found in larger quantities in people with allergies and certain infections. Evidence suggests that it's the primary antibody responsible for the classic allergic reaction.

**Immunotherapy** - "allergy shots" -a form of preventive and anti-inflammatory treatment of allergy to substances such as pollen, house dust mites, fungi, and stinging insect venom. Immunotherapy involves gradually increasing doses of the substance, or allergen, to which the person is allergic. The incremental increases of the allergen cause the immune system to become less sensitive to the substance, perhaps by causing production of a particular "blocking" antibody, which reduces the symptoms of allergy when the substances is encountered in the future.

**Inflammation** - redness, swelling, heat and pain in a body tissue due to chemical or physical injury or to infection. It is a characteristic of allergic reactions in the nose, lung, and skin.

**Intrinsic asthma** - asthma that has no apparent external cause.

## **Glossary of Terms**

**Leukotrienes** - a group of chemical mediators of inflammation that stimulate the constriction of smooth muscle in the bronchioles.

**Lymphocyte** - white blood cells of crucial importance to the adaptive part of the body's immune system. The adaptive portion of the immune system mounts a tailor-made defense when dangerous invading organisms penetrate the body's general defenses.

**Mast cell** - play an important role in the body's allergic response. Mast cells are present in most body tissues, but are particularly numerous in connective tissue, such as the dermis (innermost layer) of skin. In an allergic response, an allergen stimulates the release of antibodies, which attach themselves to mast cells. Following subsequent allergen exposure, the mast cells release substances such as histamine (a chemical responsible for allergic symptoms) into the tissue.

**Mediators of inflammation** - chemical substances that attract or activate other cells or chemicals in the immune response of allergy.

**Monoclonal antibody** - an antibody that is able to selectively recognize a single protein, peptide or chemical and interfere with their function.

**Nonallergic occupational asthma** - more common than allergic occupational asthma, it involves the release of chemical mediators to provoke an allergy-like response, in reaction to constant exposure to vapors, gases, or chemicals.

**Pharmacology** - the science and action of medicines, their nature, preparation, administration, and effects.

**Pollen** - male fertilizing agent of flowering plants, trees, grasses, and weeds. Pollen is a central cause of many allergic reactions.

**Radioallergosorbent RAST Test** - a laboratory test used to detect IgE antibodies to specific allergens. RAST is a trademark of Pharmacia Diagnostics, which originated the test.

**Respiratory system** - the group of organs responsible for carrying oxygen from the air to the bloodstream and for expelling the waste product carbon dioxide.

## **Glossary of Terms**

**Rhinitis** -inflammation of the mucous membrane that lines the nose, often due to an allergy to pollen, dust or other airborne substances. Seasonal allergic rhinitis also is known as "hay fever," a disorder which causes sneezing, itching, a runny nose, and nasal congestion.

**Sensitization** - Repeated exposure to a foreign substance (antigen) that results in IgE production and makes the patient susceptible to an allergic reaction.

**Sinus** - air cavities within the facial bones (paranasal sinuses). They are lined by mucous membranes similar to those in other parts of the airways.

**Sinusitis** -inflammation of the membrane lining the facial sinuses, often caused by bacterial or viral infection.

**Syndrome** - a group of traits or concurrent symptoms; indicates the presence and nature of a condition or disease.

**Theophylline** - a bronchodilator drug, given by mouth, that widens the airways to the lung. It also is used to prevent attacks of apnea (cessation of breathing) in premature infants and to treat heart failure because it stimulates heart rate and increases urine excretion.

**Urticaria** - an allergic reaction of the skin or a skin condition commonly known as hives, characterized by the development of itchy, raised white lumps surrounded by an area of red inflammation.

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## What Is Asthma?

Asthma is a chronic lung condition characterized by airway inflammation, hyper-responsiveness, and obstruction. Although more people are suffering from asthma and symptoms appear more severe than they were 10 years ago, the cause is not well understood.

An estimated 14.9 million persons in the United States have asthma. Healthy People 2010 reports that nationwide, asthma is responsible for 5000 deaths and 134 million days of restricted activity a year. The rate of asthma among preschool-aged children is rising more rapidly than any other age group. <sup>1</sup>

A 1997 survey by the Illinois Health Care Cost Containment Council (IHCCCC) revealed that 43 percent (10,972) of those hospitalized for asthma in 1997 were children from birth to 17 years of age. Asthma is the leading cause of school absence due to chronic illness and missed work for parents who must stay home to care for the sick child. <sup>2</sup>

### Healthy People 2010 objectives include:

- \* Reducing the death rate from asthma for children aged 5 to 14 years from 3.2 per million to 1.0 per million,
- \* Reducing asthma related hospitalizations for children and adults aged 5 to 64 years from 13.8 per 10,000 to 8 per 10,000, and
- \* Reducing asthma related hospital emergency department visits for children and adults aged 5 to 64 years from 71.1 per 10,000 to 50 per 10,000.

### Effective management of asthma includes four major components:

- \* Controlling exposure to factors that trigger asthma episodes,
- \* Adequately managing asthma with medication,
- \* Monitoring the disease using objective measures of lung function, and
- \* Educating asthma patients to become partners in their own care.

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<sup>1</sup> Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. (2000). Healthy People 2010: Healthy People in Healthy Communities. <http://www.health.gov/healthypeople>

<sup>2</sup> Miller, Kelly. Back to School with Allergies and Asthma. (1998). Allergy and Asthma Network, Mothers of Asthmatics Inc.. <http://aanma.org/backtoschool.html>

Children may spend between 6-8 hours of a day in the school setting. School health personnel can play a vital role in fostering the effective management of asthma by establishing a school-wide asthma management plan which includes: staff, student, and parent/guardian education, monitoring of the school environment to reduce factors that trigger asthma, and establishing and implementing individual management plans for their students.

## Normal Breathing

A person normally breathes in (inspiration) and out (expiration) without even thinking about how our respiratory system works. The process of air moving in and out of the lungs is called ventilation.

Air enters the respiratory system through the nose and mouth. The air is humidified (moistened), filtered, and temperature controlled in the nasal cavity and pharynx. The air travels through the larynx (voice box) and enters into the lower airways through the trachea (windpipe).

Think for a minute about the structure of a tree. In a tree, nutrients are distributed from the base of the tree, up the trunk, through the limbs, and out to the smaller branches, twigs and leaves. The lower airways resemble an upside-down or inverted tree. In the lower airways, oxygen travels down the trachea where it can enter either the right or left lung through the mainstem bronchi. In each lung, the conducting tubes called bronchi continue to divide and get progressively smaller. The trachea and bronchi have a lining that serves to filter, trap and help remove particles from the lower airways. The small bronchi are called bronchioles. In total, each mainstem bronchi branches and divides into over twenty-five successively smaller generations and ends in balloon-like air sacs called alveoli. From the alveoli, oxygen enters the blood and carbon dioxide is removed from the blood to be exhaled. The exchange of gases between the lungs and blood is called external respiration.

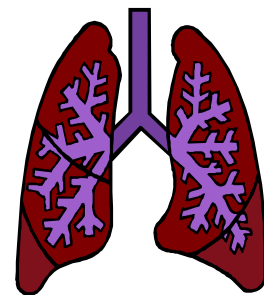
### **INVERTED TREE**

Trunk  
Main Limb  
Large Limbs  
Smaller Branches  
Leaves



### **LUNGS**

Trachea  
Mainstem Bronchi  
Bronchi  
Bronchioles  
Alveoli



In a healthy adult there are:

- ❖ over 300 million alveoli
- ❖ thousands of bronchi and bronchioles
- ❖ a total surface area for gas exchange equal to a doubles tennis court

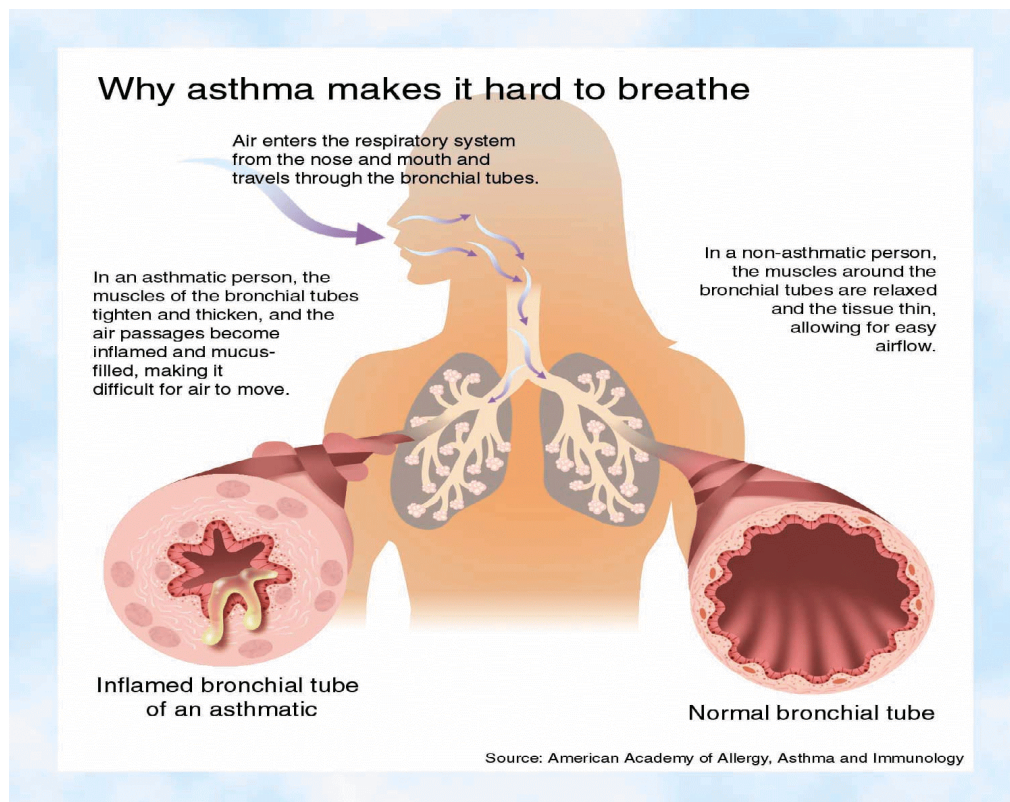
The primary muscle used in breathing is the diaphragm, the large muscle that separates the abdominal cavity from the thoracic (chest) cavity. When breathing becomes more labored due to added work such as in exercise or with lung disease, the body uses accessory muscles in the neck, chest, and abdomen to assist in breathing.

Created by Trudy Watson, American Lung Assn. of Illinois



## Asthma Breathing

In the child with asthma, the bronchi and bronchioles are more sensitive. They become unstable and produce an increase in mucus which causes irritation and results in cough. The bronchial muscles tighten and contract. This is called bronchospasm. The diameter of the bronchus narrows and the chest feels tight. The mucosa becomes swollen and inflamed which narrows the bronchus diameter even more. The bronchial glands produce large amounts of sticky mucus that is difficult to cough out and forms plugs in the bronchus. This further blocks the flow of air.



During an asthma episode greater pressure is needed to push air through the bronchus. This results in the increased use of accessory muscles to breathe. These muscles are attached to the ribs, shoulders and neck. This extra work results in sweating, fatigue and irritability. Vibrations caused by forcing air through narrowed, uneven bronchial tubes, past mucus and the bronchus itself results in wheezing, squeaking or whistling sounds with each breath. Left untreated, airways can further constrict, resulting in greatly diminished or absent breath sounds. The excessive amount of sticky mucus caught in the bronchi becomes irritating and results in a persistent cough. This cough is not contagious. Asthma is not contagious even though many of the signs of asthma are similar to those of an upper respiratory infection.

As the difficulty of forcing air into and out of the lungs progresses, the lack of oxygenation results in anxiety, inability to speak in full sentences, headache and ultimately loss of consciousness and occasionally death. This can usually be prevented by early recognition of symptoms and early intervention based on an **asthma management plan**.

## Asthma Symptoms

Early signs of an asthma episode may include changes in breathing pattern such as rapid breathing, shortness of breath and breathing through the mouth. In addition, cough and wheezing sounds may be present. Some children may rub their chin or neck in response to their "neck feeling funny". The child's speech pattern may change and he/she may not be able to speak in a complete sentence.

The child may complain about the chest hurting or feeling tight. Some will say, "I cannot catch my breath". Other complaints include "my mouth is dry" or the child may simply say, "I don't feel well". It is important to remember that each child may have a different early sign of asthma and any complaints should be taken seriously.

### **The child may have or complain of one or more of these symptoms of asthma:**

- \* Restlessness - fidgeting, rocking
- \* Feeling tired
- \* Nasal flaring
- \* Headache
- \* Wheezing
- \* Unable to sit up straight
- \* Dark circles under the eyes
- \* Suprasternal or chest retractions
- \* Pursed lips breathing
- \* Cough - especially at night
- \* Cough -that does not go away  
(viral cold infection will usually improve after 10 - 14 days)
- \* Cough - upon exercise
- \* Chest feels "tight"
- \* Difficulty breathing
- \* Decrease in Peak Flow reading
- \* Increased respiratory rate  
(without exercise)

Obtaining a good medical history including a pattern of symptoms and listening to and believing parents is important. A child's physical condition can change quickly. It is very helpful to understand how an asthma attack progresses for each child. This allows for prompt intervention and helps with the evaluation and assessment of the effectiveness of your intervention.

#### Case Presentation:

Some children have specific early indicators of an asthma episode. One of the mothers in the clinic stated that her child's early sign of asthma was a stuffy nose. She called shortly after that and said the child's nose was stuffy. It was suggested she activate her child's asthma management plan by giving the child a nebulized treatment. She did and called again to say there was no improvement. An emergency department evaluation was recommended. The ER physician evaluated the child and sent them home saying there was no problem. The child was in the intensive care unit the next morning. After this experience, the child's management plan included aggressive treatment and use of prednisone any time he had a stuffy nose.

#### **Some questions to ask the parent/guardian and incorporate into the asthma management plan:**

- How do you know when your child is having problems?
- What is the first sign your child has when an asthma attack is starting?
- What do you do when you see your child is having asthma symptoms?
- What do you do when that does not help?

# PRECIPITATING FACTORS




## Possible Causes of Asthma Symptoms


When the child becomes symptomatic events or exposures to consider as possible triggers include:

- ◆ Was the weather changing? Hot? Cold? Humid? Windy?
- ◆ Do other family members/friends have upper respiratory symptoms, colds or flu?
- ◆ Any medication taken?
- ◆ New carpet? Furniture? Bedding?
- ◆ Change in cleaning products used in the home? School?
- ◆ Cleaning, sweeping, vacuuming in home or school?
- ◆ New pet in the home? Visited a friend or relative with a pet? Friend or relative who has a pet came to visit?
- ◆ Exercise or playing just before symptoms?
- ◆ Playing in the grass, weeds or leaves?
- ◆ New or different food eaten?
- ◆ Other symptoms present - fever, hives, cough, etc.?
- ◆ Construction at home? School?
- ◆ Air quality?
- ◆ Emotional episode - laughing/crying/stress?
- ◆ Pesticide spraying or use?



Note anything that may be significant or different. Write down date, time and child's specific response.

## Common Triggers and Controls

| Agent   | Source   | Possible Exposure   | Control   |
|---|--|---|---|
| <b>Animal Dander</b><br>   | <b>Dander</b> -<br>(dead skin cells of furry animals)<br><br><b>Feathers</b> | Classroom Mascots<br>Field Trips, Nature Walks<br>Petting Zoos<br>Laboratory Animals<br>Show and Tell<br>Clothing of Animal owners  | Keep animals out of child's room.<br>Avoid pets.<br><br>Avoid feather pillows and bedding.  |
| <b>Aerosol Sprays</b><br><br><b>Fumes</b><br><b>Strong Odors</b> | <b>Irritant</b>  | Perfumes, Hair Spray<br>Paint<br>Cleaning Products<br>Room Deodorizers<br>Insecticides<br>Art/Craft Supplies<br>Markers, Glue<br>Science Materials<br>Auto Exhaust<br>Kerosene/Propane<br>Burners | Use pump sprays or liquid.<br>Avoid spraying around children.<br>Use in well ventilated areas.<br>Clean or paint school rooms when children are not present.                          |
| <b>Chalk Dust</b>   | <b>Irritant</b>  | Chalk Erasers<br>Chalkboard Cleaning<br>Cleaning Cloths/Rags<br>Art Classrooms  | Clean erasers outside.<br>Clean boards when children are not present.   |
| <b>Cockroach</b>  | <b>Parts of skin and excrement</b>   | Infested Buildings<br>Kitchens<br>Garbage<br>Leaky Faucets & Pipes<br>Damp Areas  | Eliminate trash, food and water sources.<br>Eat food in designated areas.<br>Clean eating area promptly.<br>Seal opened food packages.<br>Do not leave pet food or water sitting out. |
| <b>Colds &amp; Viral Infections</b><br>                        | <b>Airway Irritation</b>   | Colds<br>Upper Airway Infections<br>Influenza   | Avoid exposure to ill persons.<br>Flu shots as ordered by physician.<br>Medications as ordered by physician.<br>Fluids/rest   |

| <b>Agent</b>  | <b>Source</b>   | <b>Possible Exposure</b>   | <b>Control</b>  |
|---|---|--|---|
| <b>Dust Mite</b>  | <b>Microscopic Organism</b>   | Mattresses, Pillows<br>Upholstered Furniture<br>Stuffed Animals<br>Carpeting<br>Draperies<br>Ventilation Systems | Use plastic, zippered mattress and pillow covers.<br>Change furnace filters frequently.<br>Avoid clutter.<br>Close closet doors.<br>Damp mop and dust regularly.<br>Wash bed linens/stuffed animals every 1-2 weeks in hot water. |
| <b>Emotions</b>   | <b>Irritant Hyperventilation</b>  | Crying or Laughing<br>Stressful Situations   | Educate child in stress reduction techniques.<br>Refer to counseling as needed.<br>Use medications as ordered.  |
| <b>Exercise</b><br> | <b>Irritant Hyperventilation</b>  | Physical Education Class<br>Recess<br>Stair Climbing<br>Athletics  | Pre-medication as prescribed.<br>Gradual conditioning as allowed by physician.<br>Avoid exercise in extreme temperatures.<br>Rest as needed.<br>Allow alternative activities as needed.   |
| <b>Foods</b><br><b>Additives</b>  | <b>Various Foods</b><br><b>Sulfites</b><br><b>Preservatives</b><br><b>Food Dyes</b> | Peanuts<br>Soy Products<br>Eggs<br>Dairy Products<br>Fish/Shellfish  | Read ingredients on food labels.<br>Emergency medication should be available as prescribed.   |
| <b>Medications</b><br><b>Miscellaneous</b>  | <b>Prescription Medications</b><br><b>Over the Counter Medications</b>              | Aspirin, NSAIDs,<br>Antibiotics<br>GERD -<br>(gastroesophageal reflux)   | Be aware of common medication allergies.<br>Read labels on over the counter medications.<br>Seek medical treatment as needed.   |



| <b>Agent</b>  | <b>Source</b>                                      | <b>Possible Exposure</b>   | <b>Control</b>   |
|---|--|--|--|
| <b>Molds &amp; Yeast</b>  | <b>Dark, Damp Areas</b>                            | Locker/Shower Room<br>Restroom<br>Laundry Room<br>Basement<br>Leaks in Ceilings/Walls<br>Swimming Pool<br>Aquariums<br>Old Books and Papers<br>Vaporizers/Humidifiers<br>Indoor Plants<br>Leaves and Decaying Plants | Keep areas clean, dry and well ventilated.<br>Repair leaks.<br>Clean moldy areas with bleach solution.<br>Avoid clutter.<br>Use dehumidifier and avoid vaporizers and humidifiers. |
| <b>Pollen</b>   | <b>Trees<br/>Grasses<br/>Weeds<br/>Flowers</b>     | Travel To/From School<br>Recess<br>Open Windows<br>Science Classrooms<br>Seasonal Decorations<br>Field Trips   | Avoid plants or flowers in the classroom.<br>Monitor pollen count and remain indoors as needed.<br>Keep windows closed.  |
| <b>Smoke<br/>Smog</b><br>           | <b>Irritant</b>                                    | Cigarettes, Pipes, Cigars<br>Candles<br>Leaf Burning<br>Fireplace<br>Automobile Exhaust<br>Air Pollution   | Avoid exposure.<br><b>NO SMOKING in home or car.</b><br>Be aware of ozone levels.<br>Remain indoors when necessary.  |
| <b>Weather and Temperature</b><br> | <b>Cold Air<br/>High Humidity<br/>Extreme Heat</b> | Travel To/From School<br>Recess<br>Physical Education Class<br>Outdoor Activities<br>Field Trips   | Indoor activities as needed.<br>Cover mouth and nose with scarf.<br>Bus child to school as needed.   |

**National Heart, Lung, and Blood Institute  
National Asthma Education and Prevention Program  
School Asthma Education Subcommittee**

## **How Asthma-Friendly Is Your School?**

### **Checklist**

Children with asthma need proper support at school to keep their asthma under control and be fully active. Use the questions below to find out how well your school assists children with asthma:

- Yes No 1. Is your school free of tobacco smoke at all times, including during school-sponsored events?

Yes No 2. Does the school maintain good indoor air quality? Does it reduce or eliminate allergens and irritants that can make asthma worse? Check if any of the following are present:

Cockroaches

Dust mites (commonly found in humid climates in pillows, carpets, upholstery, and stuffed toys)

Mold

Pets with fur or feathers

Strong odors or fumes from art and craft supplies, pesticides, paint, perfumes, air fresheners, and cleaning chemicals

Yes No 3. Is there a school nurse in your school all day, every day? If not, is a nurse regularly available to help the school write plans and give the school guidance on medicines, physical education, and field trips for students with asthma?

Yes No 4. Can children take medicines at school as recommended by their doctor and parents? May children carry their own asthma medicines?

Yes No 5. Does your school have a written, individualized emergency plan for each child in case of a severe asthma episode (attack)? Does the plan make clear what action to take? Whom to call? When to call?

Yes No 6. Does someone teach school staff about asthma, asthma management plans, and asthma medicines? Does someone teach all students about asthma and how to help a classmate who has it?

Yes No 7. Do students have good options for fully and safely participating in physical education class and recess? (For example, do students have access to their medicine before exercise? Can they choose modified or alternative activities when medically necessary?)

If the answer to any question is "no," students in your school may be facing obstacles to asthma control. Uncontrolled asthma can hinder a student's attendance, participation, and progress in school. School staff, health professionals, and parents can work together to remove obstacles and promote students' health and education. Contact the organizations listed for information about asthma and helpful ideas for making school policies and practices more asthma-friendly. Federal and State laws are in place to help children with asthma.

**Asthma can be controlled; expect nothing less.**

**Resource Organizations for Parents and School Staff National Asthma Education and Prevention Program**

National Heart, Lung and Blood Institute Information Center

P.O. Box 30105

Bethesda, MD 20824-0105

Telephone: (301) 592 - 8573

Internet: <http://www.nhlbi.nih.gov/>

**National Heart, Lung, and Blood Institute  
National Asthma Education and Prevention Program  
School Asthma Education Subcommittee**

## How Asthma-Friendly Is Your School?

Children with asthma need proper support at school to keep their asthma under control and be fully active. Use the questions below to find out how well your school assists children with asthma:

- Is your school **free of tobacco smoke** all of the time, including during school-sponsored events?
- Does the school maintain **good indoor air quality**? Does it **reduce or eliminate allergens and irritants** that can make asthma worse?  
Allergens and irritants include pets with fur or feathers, mold, dust mites (for example, in carpets and upholstery), cockroaches, and strong odors or fumes from such products as pesticides, paint, perfumes, and cleaning chemicals.
- Is there a **school nurse** in your school all day, every day? If not, is a nurse regularly available to the school to help write plans and give guidance for students with asthma about medicines, physical education, and field trips?
- Can children take **medicines at school** as recommended by their doctor and parents? May children carry their own asthma medicines?
- Does your school have an **emergency plan** for taking care of a child with a severe asthma episode (attack)? Is it made clear what to do? Who to call? When to call?
- Does someone **teach school staff** about asthma, asthma management plans, and asthma medicines? Does someone teach all students about asthma and how to help a classmate who has it?
- Do students have **good options** for fully and safely participating in physical education class and recess? (For example, do students have access to their medicine before exercise? Can they choose modified or alternative activities when medically necessary?)

If the answer to any question is **no**, students may be facing obstacles to asthma control. Asthma out of control can hinder a student's attendance, participation, and progress in school. School staff, health professionals, and parents can work together to remove obstacles and to promote students' health and education.

Contact the organizations listed below for information about asthma and helpful ideas for making school policies and practices more asthma-friendly. Federal and State laws are there to help children with asthma.

Asthma can be controlled; expect nothing less.

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# **MEDICAL MANAGEMENT OF ASTHMA**

# **Asthma Management**

The goals of therapy for the child with asthma include a desire to:

- \* Maintain normal activity levels for the child including exercise and participation in classroom activities,
- \* Prevent chronic and troublesome symptoms such as cough and loss of sleep,
- \* Prevent recurrent asthma attacks so that school is not missed and emergency department use is decreased,
- \* Maintain near normal pulmonary function rates for the child. The therapy should enhance use of medication with the least amount of adverse side effects, and
- \* Allow for the child's maximum level of growth and development and normal classroom participation.

The essential elements of asthma management include:

- \* Education (including an asthma self-management plan as well as an emergency management plan),
- \* Environmental control,
- \* Medication
  - controller medicine - used to prevent asthma episodes
  - reliever medicine - used to relieve symptoms
- \* Peak flow measurement, pulmonary function testing,
- \* Communication and collaboration between the child, family, healthcare provider, nurse, teacher and other school staff. It is important to consider educational level when working with the family.

## **Asthma Management Plan**

The asthma management plan is jointly developed by the patient, family, health care provider and school health professional. Other school staff should be made aware of the plan and should understand their responsibilities. Most plans are based on the peak flow zone system with a recommended response to each zone.

Management plans for asthma include education of the child and family by the healthcare provider about asthma and include topics such as:

- ◆ what happens during an asthma attack
- ◆ the triggers of asthma
- ◆ early recognition of warning signs and symptoms
- ◆ avoidance of triggers
- ◆ activity level
- ◆ use of the peak flow meter and what the numbers mean
- ◆ medications and medication policies
- ◆ the importance of medication pretreatment or early treatment in response to asthma symptoms
- ◆ prompt communication between school and home

When developing the Asthma Management Plan for the child, it is important to understand what happens to the child during an asthma attack. Be sure to have the parent/guardian describe what symptoms their child has when he/she starts to have an attack. Each child is unique. It is very important to understand and recognize early symptoms since early intervention helps to avoid severe episodes.

Question the parent/guardian about how the child's asthma progresses. For example: The child's early sign of asthma is a cough. As the attack progresses, the cough becomes a wheeze and the child starts to become irritable. This child may become lethargic and/or sleepy. Some children have asthma that progresses very quickly from the first sign to severe symptoms, while others may progress slowly. Any and all information on the individual child's asthma characteristics can be helpful in minimizing severe episodes. Include in the plan those interventions that help the child feel better. Small children may like to hold a favorite toy. Some are helped by sipping water.

The Asthma Management Plan should be included in the child's IEP or 504 plan.

## Asthma Alert®

\_\_\_\_\_ has asthma.

Asthma is a chronic inflammatory disorder of the lungs that may be characterized by intermittent cough, wheeze, shortness of breath, and tightness in the chest.

Asthma may be triggered by exposure to allergens/irritants such as animal dander, dust mites, pollens, molds and yeast spores, strong odors, aerosol sprays, foods, changes in weather, exercise, smoke, and many other factors.

### Medication Schedule

- |   |  |
|---|--|
| <input type="checkbox"/> Send student to office at _____                | <input type="checkbox"/> Send student to nurse/clinic at _____           |
| <input type="checkbox"/> Allow student to self-administer meds at _____ | <input type="checkbox"/> Allow student to self-administer meds as needed |

| Restricted Activities | Special Instructions |
|-----------------------|----------------------|
|                       |                      |
|                       |                      |
|                       |                      |
|                       |                      |

### Emergency Contacts

| Parent/Guardian              | Daytime Phone |
|------------------------------|---------------|
|                              |               |
|                              |               |
| Primary Health Care Provider | Phone         |
|                              |               |
|                              |               |

### School Information

| School Name/Address | Office Phone | Nurse/In-School Clinic Phone |
|---------------------|--------------|------------------------------|
|                     |              |                              |

### Asthma Emergency

An asthma emergency may be characterized by a student struggling to breathe, having difficulty talking or being unable to speak, having retractions (space between ribs sinks in with each breath), or if the lips or nail beds turn blue or gray. Should an asthma emergency occur, take the following action:

# Peak Flow Monitoring

**Use of peak flow** meters has greatly improved the ability to determine the child's respiratory status. It provides an objective measure rather than relying on subjective assessments. In addition, it helps to determine the effectiveness of interventions such as medications.

## How to use a peak flow meter

1. Discard gum, candy or food in mouth.
2. Place the indicator at the base of the numbered scale.
3. Stand up.
4. Take a deep breath.
5. Place the meter in mouth and close lips around the mouth piece.  
(Do not put tongue inside the hole.)
6. Blow out as hard and fast as possible.
7. Note the number.
8. Repeat steps 2 through 7 two more times.
9. Write down the highest of the three numbers.



## How to use the RED, YELLOW, GREEN ZONE SYSTEM

Once you have obtained the child's current peak flow reading you should determine which of the three zones he/she is currently at by following the steps outlined:

1. Record the highest of the three current peak flow readings\_\_\_\_\_.
2. Obtain the child's "Personal Best" from the Asthma Management Plan\_\_\_\_\_.  
(The child's "Personal Best" should be determined when the child is symptom free, in cooperation with the healthcare provider, and should be re-determined regularly.)
3. Calculate the peak flow percentage as outlined below. Compare the result from line 3 to the child's zone chart to determine course of action.

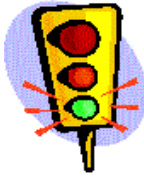
### Calculating the Peak Flow Percentage

- i Divide the current peak flow reading by the Child's "personal best".
- i Multiply by 100.
- i Record the result as a percentage.

### Example:

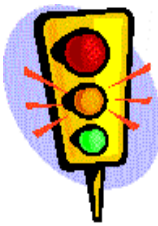
- i Current Reading: 250
- i Personal Best: 300
- i Current/Personal Best:  $250 / 300 = .83$
- i Multiply by 100: 83% of personal best





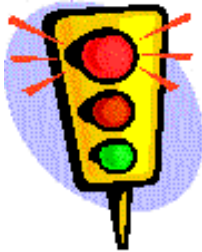
The **Green Zone** (80-100% of personal best number) **ALL CLEAR**

1. No asthma symptoms are present.
2. Take medicine as usual.



The **Yellow Zone** (50-80% of personal best number) **CAUTION**

1. May be having an episode of asthma requiring an increase in medication.
2. Overall asthma may not be under control.
3. May need to communicate with healthcare worker to adjust medication.
4. School, parent/guardian and child should communicate and be aware of possible asthma problems.
5. Activity level should be adjusted to accommodate compromised lung functioning.
6. Healthcare provider should be notified if peak flow 'stuck' in yellow zone.



The **Red Zone** (below 50% of personal best number) **MEDICAL ALERT**

1. Child should take or be given an inhaled reliever medication (Ventolin, Proventil, Breathaire, Alupent, Maxair) immediately if prescribed by the physician and documented on the asthma management plan.
2. **Notify parent/guardian and healthcare provider immediately if peak flow number does not return to the yellow or green zone and stay in that zone within 10-15 minutes after me**

| 1             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
|---------------|----|----|----|----|----|----|----|----|----|
|               |    |    |    |    |    |    |    |    |    |
|               |    |    |    |    |    |    |    |    |    |
|               |    |    |    |    |    |    |    |    |    |
| Comments      |    |    |    |    |    |    |    |    |    |
| 11            | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|               |    |    |    |    |    |    |    |    |    |
|               |    |    |    |    |    |    |    |    |    |
|               |    |    |    |    |    |    |    |    |    |
| Comments      |    |    |    |    |    |    |    |    |    |
| Peak Flow Log |    |    |    |    |    |    |    |    |    |

|                              |    |    |    |                   |    |                         |    |                              |    |       |  |
|------------------------------|----|----|----|-------------------|----|-------------------------|----|------------------------------|----|-------|--|
| Primary Health Care Provider |    |    |    | Phone             |    | Parent/Guardian         |    |                              |    | Phone |  |
|                              |    |    |    |                   |    |                         |    |                              |    |       |  |
| Green Zone/Range             |    |    |    | Yellow Zone/Range |    | Red Zone/Range          |    | Nurse/In School Clinic Phone |    |       |  |
| 21                           | 22 | 23 | 24 | 25                | 26 | 27                      | 28 | 29                           | 30 | 31    |  |
|                              |    |    |    |                   |    |                         |    |                              |    |       |  |
|                              |    |    |    |                   |    |                         |    |                              |    |       |  |
|                              |    |    |    |                   |    |                         |    |                              |    |       |  |
| Comments                     |    |    |    |                   |    |                         |    |                              |    |       |  |
|                              |    |    |    |                   |    |                         |    |                              |    |       |  |
| Special Instructions         |    |    |    |                   |    |                         |    |                              |    |       |  |
|                              |    |    |    |                   |    |                         |    |                              |    |       |  |
| Student                      |    |    |    | Grade/Homeroom    |    | Peak Flow Personal Best |    | Month                        |    |       |  |
|                              |    |    |    |                   |    |                         |    |                              |    |       |  |

## Use of Inhaled Medications

The use of inhaled medication has been popular because absorption of and response to medication is immediate. Medication taken by mouth must be digested and taken into the blood stream before it becomes effective. The chance of having side effects is increased. If there are any digestive problems or other medication is being taken, the effect may be altered. Inhalation devices deliver the medication directly to the lungs. Side effects are diminished because the medications do not become systemic.

Inhaled medication is ineffective when it is used improperly. The medication is delivered rapidly and must be inhaled immediately or it is not absorbed properly. This results in the child not receiving the correct dose of medication.

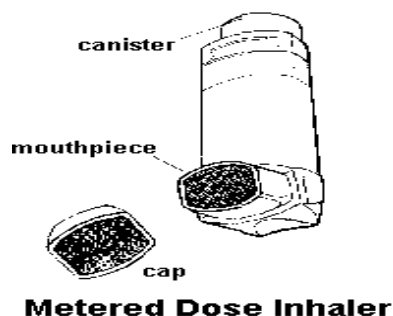
If the canister is held just 2 inches away from the lips it slows the medication down and allows the inhalation to be timed more accurately. The medication does not feel as cold and is less likely to bounce off the back of the throat or cause bronchospasm. This allows the inhalation to deliver a more complete dose of medication. Nevertheless, this maneuver is difficult for adults and almost impossible for children to perform.

Spacers facilitate a more uniform dose of medication by making it easier to inhale. The holding chamber allows medication to remain suspended longer and the one way valve opens only when an inhalation occurs. Examples of spacers include Inspirease, Aerochamber, Aerochamber with Mask, and a variety of others. Unfortunately these devices are not always covered by third party payers and may be difficult for the family to obtain. The device can get lost or broken or may not be available at school.

## **MDI (Metered Dose Inhaler)**

### **Instructions for use:**

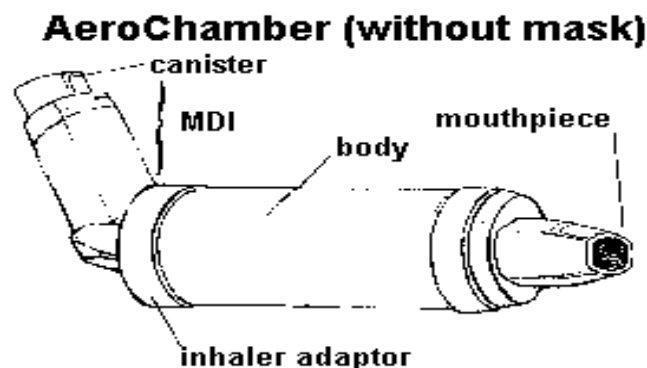
1. Remove cap and hold the inhaler upright.
2. Shake the inhaler.
3. Instruct the child to breathe out completely.
4. Instruct the child to open his/her mouth and place the inhaler 1-2 inches away from lips (approximately 2 finger widths).
5. Press down on the cartridge to release one puff of medication as the child breathes in.
6. Instruct the child to hold the breath for several seconds (while you count slowly to five) before exhaling.
7. Wait for time period recommended by doctor and repeat according to prescription.
8. Take apart and clean MDI according to package instructions.
9. Replace the cap over mouthpiece.
10. Record each dose of medication in the child's individual medication record.



# **MDI and Spacer (Metered Dose Inhaler)**

## **Instructions for use:**

1. Remove cap(s) and connect MDI to spacer.
2. Hold upright and shake the inhaler.
3. Instruct the child to exhale completely.
4. Instruct the child to place mouthpiece into his/her mouth and seal lips around the mouthpiece.
5. Press the cartridge to release one puff of medication into the chamber.
6. Instruct the child to inhale slowly and pause (while you count slowly to five) before exhaling.
7. Remove mouthpiece from mouth and wait for time recommended by doctor and repeat according to prescription.
8. Take apart and clean according to package instructions.
9. Record each dose of medication in the child's individual medication record.



# **Dry Powder Inhaler**

## **DPI**

### **Instructions for use:**

1. Instruct the child to exhale completely.
2. Instruct the child to place mouthpiece into his/her mouth and seal lips around the mouthpiece.
3. Instruct the child to rapidly inhale and pause (while you count to five) before exhaling.
4. Repeat according to prescription.
5. Take apart and clean according to package instructions.
6. Record each dose of medication in the child's individual medication record.

# Nebulizer

## Instructions for use:

1. Prepare and assemble the equipment.
2. Attach unit to power source (may be a portable compressor).
3. Measure prescribed medication and insert into medication cup.
4. Attach medication cup to T piece.
5. Attach mouthpiece to T piece. A mask may be used for young children.
6. Attach small tubing from the nebulizer to the medication cup.
7. Turn the unit on.
8. Instruct the child to seal lips around the mouthpiece or place the mask over child's nose and mouth.
9. Instruct the child to breathe in and out through the mouth.
10. Continue until the medication cup is empty.
11. Turn off the compressor and store with small tubing.
12. Take apart and clean the T piece and medication cup according to package instructions.
13. Record each dose of medication in the child's individual medication record.



## Medications

The following overview of medications is obtained from the “Expert Panel Report: Guidelines for the Diagnosis and Management of Asthma”, published under the auspices of the National Asthma Education and Prevention Program (NAEPP).

Medication is used to prevent and control asthma symptoms, reduce the frequency and severity of asthma attacks, and alleviate airflow obstruction.

Asthma medications are generally categorized into two general classes:

### **Long-term-control medications**

- Taken daily on a long-term basis
- Used to achieve and maintain control of persistent asthma
- Known as long-term preventive, controller or maintenance medications

### **Quick-relief medications**

- Taken to relieve acute symptoms
- Used to provide prompt reversal of acute airflow obstruction/relief of accompanying bronchoconstriction
- Known as reliever or acute rescue medications

NAEPP asserts that patients with persistent asthma require treatment with both classes of medication.

**Current Medication Information is available from:**

**National Asthma Education and Prevention Program Expert Panel Report 2:  
Guidelines for the Diagnosis and Management of Asthma**

State-of-the-art clinical practice guidelines for diagnosing and managing asthma that update the 1991 expert panel report and incorporate the most recent scientific information available on the care of patients with asthma. Provides information on treating asthma at all severity levels and stresses both clinical and self-management strategies. Also provides a comprehensive discussion of current medications and their appropriate use. 146 pages. NIH Publication No. 97-4051

For more information contact NHLBI:

**Internet** <http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm>

**Phone** Call the NHLBI Health Information Center, 301-592-8573.

**Fax** 301-592-8563

**Mail** NHLBI Health Information Center  
P.O. Box 30105  
Bethesda, MD 20824-0105

ILLINOIS EMS FOR CHILDREN  
EMERGENCY CARE PROTOCOLS FOR THE NURSE IN THE SCHOOL SETTING  
***ACUTE ASTHMA ATTACK/REACTIVE AIRWAY DISEASE***

- Assess ABCs
- Assess Vital Signs
- Obtain history including medication use and exposure to trigger(s)
- Conduct initial assessment

**Focused physical exam:**

Assess for:

- Respiratory rate
- Nasal flaring
- Use of accessory muscles
- Retractions: sternal/sub-sternal/intercostal
- Respiratory difficulty with cough, wheeze, adventitious breath sounds, prolonged expiration. May have continued cough with no wheeze.
- Symptoms of impending respiratory collapse: Cyanosis, tachycardia, shallow respirations, decreasing consciousness or restlessness, decreased blood pressure, decreased breath sounds
- R/O obstructed airway (infectious or foreign body in etiology)

**Initial interventions:**

- Maintain position of comfort
- Utilize peak flow meter, if available
- Obtain peak expiratory flow reading before administering bronchodilator, and 20 minutes following medication, or per physician instructions.
- Administer prescribed bronchodilator via MDI/nebulizer or other medication
- Utilize spacer/holding chamber with bronchodilator if available

**EMERGENT**

Cyanosis, retractions, nasal flaring, inability to talk, symptoms worsening

- Support ABCs
- Prepare to ventilate if necessary.
- Activate EMS if symptoms are not relieved and/or medication is not available or ineffective.
- Administer bronchodilator (and/or other medications) as ordered
- If available, administer high flow O<sub>2</sub>
- Contact parent/guardian
- Continuous direct observation
- Consult individual health plan

← Triage →

**URGENT**

Intolerant of normal activity, unresponsive to bronchodilator within 15-30 minutes. Bronchodilator unavailable.

**NON-URGENT**

Symptoms responsive to bronchodilator, student able to maintain normal level of activity

- Administer bronchodilator and/or other medications as ordered
- Consult individual health plan
- Monitor
- If comfortable, return to class
- Contact parent/guardian if necessary
- Follow-up, including parent/student asthma education as indicated

The School Nurse Task Force of the Illinois Emergency Medical Services for Children has exercised extreme caution that all information presented is accurate and in accordance with professional standards in effect at the time of publication. The information does not serve as a substitute for the professional advice of a physician; does not dictate an exclusive course of treatment; and should not be construed as excluding other acceptable methods of treatment. It is recommended that care must be based on the child's clinical presentation and on authorized policies.

## VITAL SIGNS FOR INFANTS & CHILDREN

| Age      | Weight | Heart Rate | Resp. Rate | B.P. (Systolic) |
|----------|--------|------------|------------|-----------------|
| Newborn  | 3 kg   | 100-160    | 30-60      | 70              |
| 6 month  | 7 kg   | 90-120     | 24-36      | 60-120          |
| 1 year   | 10 kg  | 90-120     | 22-30      | 66-126          |
| 3 years  | 15 kg  | 80-120     | 20-26      | 75-125          |
| 5 years  | 20 kg  | 70-100     | 20-24      | 80-120          |
| 10 years | 30 kg  | 60-90      | 16-20      | 90-120          |
| 12 years | 40 kg  | 85-90      | 16-22      | 95-135          |
| 14 years | 50 kg  | 75-85      | 14-20      | 100-140         |

Indicators of hypoperfusion:

- Tachycardia
- Bradycardia (late sign)
- Decreasing consciousness
- Truncal pallor/cyanosis and coolness
- Weak, thready, or absent peripheral pulses
- Hypotension (ominous sign)

AVPU Scale

|  |  |
|--|--|
| A = Alert - Indicates the highest level of consciousness | The student will be awake and verbal or spontaneously interacts with the examiner and/or others who are present.                                   |
| V = Responds to verbal stimulus                          | The student may respond to a specific command or exhibit behavioral signs such as opening of the eyes, quieting to a verbal command or loud voice. |
| P = Responds to painful stimulus                         | The student only responds to a painful stimulus. The student should withdraw from the stimulus. Moaning or crying may also be elicited.            |
| U = Unresponsive to any stimulus                         | The student shows no spontaneous responses and no responses to verbal or painful stimuli.  |

## How Asthma Affects the Child

Chronic illness affects all areas of the child's life. School health personnel are in a position to institute a variety of interventions that can minimize the negative effects of chronic illnesses such as asthma and improve the child's quality of life.

### **The following are areas of concern for the child and family with asthma:**

#### **1. Social**

The child is affected by asthma not only physically but socially. The child may feel different from friends because of not being able to participate fully in activities. Sometimes she may feel that she is not like other children because medication is required in school regularly. Some children are embarrassed if other children see them taking medication.

- ❖ Involve the child in alternative group activities with non-asthmatic children.
- ❖ Develop an asthma support group to enable the child to talk with other asthmatics.
- ❖ Provide age appropriate classroom asthma education to increase understanding of the disease.
- ❖ Refer the child to the school counselor if he/she seems depressed.

#### **2. Attendance**

Another issue is frequent absenteeism. The feeling of belonging is important to all of us, especially to a school-aged child. It is difficult to join a group that has already formed. Each time the child is absent from school, he must rejoin his group. He may find that he has missed out on the fun activities that the rest of the group may be talking and joking about. In addition, he must make up classroom work and activities.

- ❖ Institute activities as recommended above.
- ❖ Provide a tutor or enroll the child in homebound services when needed.
- ❖ Some schools have "continuous part-time homebound" which allows a child to receive homebound services whenever they miss more than one day of school, eliminating the need to enroll each time a child is ill.

### 3. Side Effects of Medication

Medications can cause side effects including nervousness, tremors, irritability, insomnia, depression and other symptoms. The presence of any of these side effects can impact school performance and behavior.

- ❖ Educate school personnel about asthma including the side effects of medication.
- ❖ Inform the parent/guardian and medical provider if side effects are persistent. A change in medication may be needed.

### 4. Fear/Confusion

Learning to recognize and respond to the symptoms of asthma can be confusing. In addition, asthma episodes can be very frightening to the child who is choking and cannot catch his/her breath. This is especially true if the child has experience severe asthma episodes that led to hospitalization.

- ❖ Provide ongoing age appropriate information to the child.
- ❖ Encourage the child to ask questions.
- ❖ Provide clear, concise written materials.
- ❖ A warm, accepting attitude on the part of school personnel responsible for the supervision of the child will encourage him/her to express fears and ask questions.

### 5. Growth and DevelopmentSexuality

Some adolescents with chronic illness may feel that taking daily medication, such as oral or inhaled steroids, may interfere with their sexual development. They may wrongly assume that they cannot get pregnant and fail to practice safe sex.

- ❖ The child should be given a clear explanation of the illness and treatment.
- ❖ Allow the child the opportunity to ask questions.
- ❖ **Tell** him/her that the disease and treatments will **not** affect their sexual development and having sex is likely to result in pregnancy.

Children have the right to be told about their disease no matter what their age. The information should be presented in a manner appropriate to the child's level of understanding. Information about a child's asthma and management plan should be updated periodically according to the child's grade level and level of understanding.

## Family Issues

Asthma affects the whole family, not just the child with the disease. Parents of the child who has asthma struggle with many feelings. Some may feel guilty because they believe they have caused the child to have asthma through hereditary or other factors. They may, at times, become frustrated by the demands the child's illness places on the family. All parents want the best for their child but the difficulties of chronic illness can place undue strain on the family. School health personnel can play an important role in assisting the parent/guardians(s) to achieve the best for their child by helping him/her to fully participate in the asthma management team.

### **1. Decisions**

Parents may have difficulty with **decision making** -- are the symptoms bad enough to call the health care provider or is it okay to continue to manage the symptoms at home? Other family members may have a different opinion about the response to symptoms; they may think an emergency room visit is in order as soon as symptoms begin or may discourage ongoing medical management and feel episodic interventions are more appropriate. Provide ongoing asthma education to help the parent/guardian(s) understand the disease and treatment.

Facilitate parent support groups.

Maintain open lines of communication with parent/guardian, encouraging them to call with questions in order to improve compliance with the asthma management plan.

Publish articles on asthma in the school or parent newspaper.

Arrange for a physician to speak on asthma at a special program to facilitate parental understanding of the disease.

## **2. Guilt**

There may be guilt feelings if the child needs hospitalization. The caretaker may feel that they have caused the episode - did not give medication soon enough, left child with a babysitter, etc. Parents may feel guilty about not having time for siblings. Planned outings and events which include the siblings may have to be changed because the child with asthma may be symptomatic. Siblings may resent the additional attention the asthmatic child receives.

- ❖ Education for all family members is critical.
- ❖ Allow family members the opportunity to express their feelings and ask questions.
- ❖ Siblings must be given age appropriate explanation of the disease and treatment.

## **3. Time and energy**

Limited time and energy may make it difficult to incorporate the child's asthma care needs into family routines and activities. Appointments with healthcare providers are usually during work hours. The caretaker may be tired because of lost sleep due to treating a middle of the night asthma attack.

- ❖ Allow parents the opportunity to express frustrations.
- ❖ Encourage the child to attend camp. This gives the child an opportunity to learn more about the disease and participate in support groups while providing a break for the caretaker.

## **4. Discipline**

It is difficult to discipline a child who is manipulating the asthma to avoid chores or punishment. This is especially problematic if the child's symptoms require a trip to the emergency department and the child or parent is asked what might have triggered the attack. If the child's attack progresses to the point of requiring hospitalization, the parent may feel responsible for causing the child's asthma.

- ❖ Ongoing problems with asthma triggered by emotional issues warrant referral for family counseling.



## **5. Frustration**

Many parents/guardians feel that they are not recognized as part of the asthma management team. They experience frustration when trying to talk to health care professionals about the child's early symptoms of asthma and what medical interventions have been successful in the past.

- ❖ Structure the asthma management team so that all participants feel they are equal partners.
- ❖ Encourage parents to actively participate and to ask questions and express their concerns.

## **6. Self Care**

Parents may have difficulty in transferring the responsibility of care to the child and recognizing that the child is capable of managing his/her asthma. This is often the case when the child needs to be away from home. Parents are worried that the child will not be able to communicate to others that they are having a problem with asthma symptoms. Successful self-management of asthma requires a team effort and good communication between the child, parents, school and healthcare provider.

- ❖ Familiarize parents with school procedures, i.e. where medications are stored, access for the child, staff training.
- ❖ Provide reassurance to parent/guardian by informing them of emergency procedures in the school.

## Impact Of Asthma In School

Asthma may be a cause of increased absenteeism which may mean decreased scores and grades as well as social and behavioral problems. In addition, there may be disruption of the classroom when the child has an acute asthma episode. School staff may experience increased stress because they are unsure of how to respond to an asthma attack. This may result in unnecessary calls to 911 or emergency personnel, which can be avoided if attention is given to early signs and symptoms of asthma and appropriate intervention is initiated.

School personnel should know the child's early warning signs of an asthma attack. This should be listed on the student asthma management plan. A clear procedure for handling asthma episodes should be developed jointly by school personnel, parent/guardians, child and healthcare provider. Classmates can be educated about asthma to promote their understanding of the disease. The child should be encouraged to participate in physical education and all other activities in the school. Arrangements should be made to allow the child to engage in quiet but meaningful activities during times when full participation cannot be achieved.

Many classrooms contain allergens or irritants which may trigger the child's asthma. The school staff should be aware of these potential triggers and make necessary accommodations.

School staff must also be familiar with the potential symptoms of asthma and when to refer the child to the nurse. Knowledge of the common side effects of medication such as fatigue, irritability, restlessness, is essential for the teacher and other school personnel in order to understand and assist the asthmatic child.

**NOTE: The child having an asthma episode should never be left alone! An adult should accompany the child to the nurses office, locker, etc. to get his/her inhaler or the nurse should come to the child.**

## Health Care Plan/IEP/Section 504 Plan

**Health Care Plan** – A health care plan is required for all students who require medication and/or treatment while in school attendance. The student health care plan is a tool for responding to the temporary and/or long-term medical needs of a student. The plan provides a format for summarizing health information; it may include a problem/need statement, goals, plan of action and outcome expected.

**504 Plan - (Section 504 of the Rehabilitation Act of 1973)** "Individual with handicaps means any person who has a physical or mental impairment that substantially limits one or more major life activities, has a record of such an impairment, or is regarded as having such an impairment. As used in this definition, the phrase--

(1) Physical or mental impairment includes--

(i) Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive; digestive; genitourinary; hemic and lymphatic; skin; and endocrine; or

(ii) Any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities. The term "physical or mental impairment" includes, but is not limited to, such diseases and conditions as orthopedic, visual, speech, and hearing impairments, cerebral palsy, epilepsy, muscular dystrophy, multiple sclerosis, cancer, heart disease, diabetes, mental retardation, emotional illness, drug addiction, and alcoholism;

(2) Major life activities includes functions such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working;

(3) Has a record of such an impairment means has a history of, or has been misclassified as having, a mental or physical impairment that substantially limits one or more major life activities; and

(4) Is regarded as having an impairment means--

(i) Has a physical or mental impairment that does not substantially limit major life activities but is treated by the Department (of Education) as constituting such a limitation;

(ii) Has a physical or mental impairment that substantially limits major life activities only as a result of the attitudes of others toward the impairment; or

(iii) Has none of the impairments defined in paragraph (1) of this definition but is treated by the Department as having such an impairment.”

A 504 plan will describe (1) the disabling condition, (2) the major life function affected by the condition in the school setting, (3) how the major life activity within the school setting is limited, and (4) the services to be provided by the school district to meet the need(s) identified, e.g. ADHD-difficulty learning, staying on task, paying attention - service provided by the school district will include a medication administration and monitoring program.

**IEP - (Public Law 94-142, passed in 1975 and ultimately renamed the Individuals with Disabilities Education Act (IDEA) in 1990.)** - an Individualized Education Program (IEP) developed at the onset of special education services by a multi-disciplinary team which addresses the child's unique needs, including learning strengths and weaknesses, special education and support services required and projected educational goals. When a student has a health problem that requires the administration of medication or treatment during the school day, the IEP should contain a health care plan for the student. The IEP serves as a written contract describing what services the school district will provide for the student.

## **Guidelines for Developing Section 504 Educational Plan**

**Describe a brief history of the disease/illness causing the major impairment to learning.**

**Examples:**

Diagnosis

Age of onset

Severity-recent hospitalizations, # of days absent, history of homebound services

Triggers

Medications, type, dosage, frequency, need for supervision, emergency medications

Special concerns

**Identify areas of need and difficulties associated with the health/ learning impairment specific to the child.**

**Examples:**

Child misses school frequently during asthma attacks.

Child needs door to door transportation provided during the winter months.

Child needs supervision to take medication (drug name, dosage, frequency, time).

Child needs to learn how to use a peak flow meter.

Child needs to learn to use a spacer and inhaler properly.

Child needs to know medication, its action and side effects.

Child needs to be prompted to use her Inhaler when first signs of asthma symptoms appear

Child's environment must be free of identified asthma triggers such as cleaning solutions and perfume.

Child is unable to participate in regular gym or physical education when asthma symptoms are present or when peak flow meter reads low.

Child becomes angry and frustrated about asthma attacks.

### **Educational Plan**

**Include specific classroom accommodations and modifications and school staff involved in addressing the areas of need.**

**Quantify the anticipated amount of minutes per week or per month for each accommodation, modification and direct or consultative health/nursing service.**

#### **A. Physical/ Environmental Set-up**

**Examples:**

Allow child to carry inhaler.

Keep child's (preschooler or special needs child) inhaler and other medication in the classroom teacher's locked desk. Teacher to be taught procedure.

Eliminate sources of triggers from the classroom such as: animals, strong odor, chemicals, cleaning solution, chalk dust, roaches, perfume, etc.

Allow child to use elevator.

Allow child rest periods for tests and/or classroom tasks during asthma attacks.

Provide transportation accommodations based on needs.

Allow child to stay indoors during inclement weather when asthma symptoms are present.

Encourage good hand-washing techniques for all children in the classroom.

Provide reassurance and calming words when asthma symptoms occur.

**B. Provider/school staff/principal designee, parent/guardian participation:  
(Use titles only)**

**Examples:**

Nurse will teach child purpose and proper use of peak flow meter record keeping.

Nurse/principal designee to prompt, monitor and log medication that is self-administered and/or supervisor (Specify minutes per week).

Nurse will monitor current medical reports, medication orders , and collaborate with child's parent/guardian and private doctor.

Nurse will obtain current medication orders, including parent/guardian and medical authorization forms for medication administration during school hours.

Parent /guardian will provide changes in child's medication dosage and frequency to nurse/principal's designee.

Nurse/classroom teacher to monitor child's response to new medication.

Nurse will follow-up medical referral, report findings and recommendations from child's primary provider.

Nurse will communicate with parent/guardian regarding significant (positive & negative) changes in child's asthma conditions, responses to medication, etc. (specify minutes per month).

Classroom teacher will update nurse with asthma attacks and or ER visits as reported by the parent/guardian.

Child's learning attendance issues are addressed by the homebound instructional program when the child must miss school for more than two weeks as a result of the illness.

Gym teacher/classroom teacher and nurse will collaborate re: activity planning and /or alternative gym activities

Nurse will conduct/participate in school staff/student development regarding asthma and needs of children with asthma, triggers, medications, and side effects.

Nurse/classroom teacher will encourage child's participation in asthma camp.

(Sample)  
**504 Accommodation Plan**

**STUDENT** \_\_\_\_\_  
**GRADE** \_\_\_\_\_  
**PARENT/GUARDIAN'S NAME** \_\_\_\_\_  
**MEETING DATE** \_\_\_\_\_

1. Nature of the concern for which this plan is being written:

2. Describe how the concern affects a major life activity: (caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, & working.)

- a.
- b.
- c.

3. List the reasonable accommodations that appear necessary:

- a.
- c.
- d.
- e.

**REVIEW DATE** Example: The first week of every term.

Participants at meeting: (Name & Title)

" Original placed in the child's cumulative file and copies given/sent to the following: (Name, title, and date given/sent)

" Section 504 Procedural Safeguards explained and given to the parent/guardian(s)

\_\_\_\_\_ Administration Representative

(Sample)

## 504 Accommodation Plan

STUDENT \_\_\_\_\_

GRADE \_\_\_\_\_

PARENT/GUARDIAN NAME \_\_\_\_\_

MEETING DATE \_\_\_\_\_

1. Nature of the concern for which this plan is being written:

- a. Diagnosis
- b. Age of onset
- c. Severity-recent hospitalizations, # of days absent, history of homebound services
- d. Triggers
- e. Medications: type, dosage, frequency, need for supervision, emergency medications
- f. Special concerns

2. Describe how the concern affects a major life activity: (caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, & working).

- a. Child misses school frequently during asthma attacks.
- b. Child needs to learn how to use a peak flow meter.
- c. Child needs supervision to take medication (drug name, dosage, frequency, time).

3. List the reasonable accommodations that appear necessary:

- a. Child's learning attendance issues are addressed by the homebound instructional program when the child must miss school for more than two weeks as a result of the illness.
- b. Nurse will teach child purpose and proper use of peak flow meter record keeping.
- c. Nurse/principal designee to prompt, monitor and log medication that is self-administered and/or supervised ( Specify minutes per week).
- d. Nurse will communicate with parent/guardian regarding significant (positive & negative )changes in child's asthma conditions, responses to medication, etc. (Specify minutes per month)

REVIEW DATE: The first week of every term.(Example)

Participants at meeting: (Name & Title)

" Original placed in the child's cumulative file and copies given/sent to the following: (Name, title, and date given/sent)

" Section 504 Procedural Safeguards explained and given to the parent/guardian(s)

\_\_\_\_\_Administration Representative



# ILLINOIS ASTHMA CONSORTIUMS

| Consortium  | Contact Person | Address  | Phone/Fax                              | Email  |
|---|----------------|--|--|--|
| <b>Suburban Asthma Consortium<br/>American Lung Association</b> | Tad Schlake    | 1749 S. Naperville Rd.,<br>Ste. 202<br>Wheaton, IL 60187   | 630-260-9600 Phone<br>630-260-1111 Fax | <a href="mailto:tw Schlake@aol.com">tw Schlake@aol.com</a>   |
| <b>Southern IL Coalition<br/>American Lung Association</b>      | Tina Barnard   | 1600 Golfview Drive,<br>Ste. 260<br>Collinsville, IL 62234 | 618-344-8891 Phone<br>618-344-8933 Fax | <a href="mailto:tbarnard@plantnet.com">tbarnard@plantnet.com</a>   |
| <b>Rockford Asthma Coalition</b>                                | Kathy Sullivan | 1330 E. State St.<br>Rockford, IL 61104                    | 815-962-6412 Phone<br>815-962-6413 Fax | <a href="mailto:rkfdlungusa@hughestechnet.net">rkfdlungusa@hughestechnet.net</a>   |
| <b>Chicago Asthma Consortium</b>                                | Jura Scharf    | 400 North May Street,<br>#304<br>Chicago, IL 60622         | 312-243-1560 Phone<br>312-243-3954 Fax | Email:<br><a href="mailto:info@chicagoasthma.org">info@chicagoasthma.org</a><br>Website:<br><a href="http://www.chicagoasthma.org">www.chicagoasthma.org</a> |

## RESOURCE ORGANIZATIONS

| Agency  | Agency Description   | Phone                        | Websites   |
|---|--|------------------------------|--|
| <b>American Academy of Allergy, Asthma and Immunology</b> | Provides informational brochures relating to asthma and allergies “Tips to remember”.  | 800-822-2762                 | <a href="http://www.aaaai.org">www.aaaai.org</a>             |
| <b>American Academy of Pediatrics</b>                     | Provides educational programs and materials on asthma for professionals and parents. Endorsed “Guide for Managing Asthma in Children”.   | 800-433-9016<br>847-228-5005 | <a href="http://www.aap.org">www.aap.org</a>                 |
| <b>American Association for Respiratory Care</b>          | Supports research, education and charitable activities to foster the art, science, quality and technology of respiratory care.   | 972-243-2272                 | <a href="http://www.aarc.org">www.aarc.org</a>               |
| <b>American College of Allergy, Asthma and Immunology</b> | Provides information and news service for patients, parents of patients, purchasers of group health care programs and the news media.  | 800-842-7777                 | <a href="http://www.allergy.mcg.edu">www.allergy.mcg.edu</a> |
| <b>American College of Chest Physicians</b>               | Promotes the prevention and treatment of diseases of the chest through leadership, education, research and communication. Provides educational sessions and courses on asthma. Developed an educational booklet “Controlling your asthma”. | 847-498-1400                 | <a href="http://www.chestnet.org">www.chestnet.org</a>       |

## RESOURCE ORGANIZATIONS

| Agency   | Agency Description   | Phone   | Websites  |
|--|--|---|---|
| <b>American Lung Association</b>                                 | Information is available on asthma and other lung diseases, environmental air quality, and tobacco education and intervention programs .   | 312-243-2000<br>(Metro Chicago)<br><br>217-787-5864<br>(ALA of Illinois)<br><br>1-800-LUNGUSA | <a href="http://www.lungusa.org">www.lungusa.org</a>  |
| <b>American Lung Association<br/>Call Center</b>                 | The ALA Call Center is staffed by registered nurses and registered respiratory therapists from 7:00 A.M. - 6:00 P.M. weekdays (excluding major holidays). The staff is available to assist you via toll-free phone or email, providing information on specific lung diseases, smoking cessation, allergies and environmental health. | 1-800-548-8252  | <b>Email:</b><br><a href="mailto:questions@lungil.org">questions@lungil.org</a>   |
| <b>Asthma and Allergy Foundation of America</b>                  | Provides asthma educational information and programs. Developed an asthma program for teens "Power Breathing Program".   | 1-800-7asthma   | <a href="http://www.aafa.org">www.aafa.org</a>  |
| <b>Healthy Kids: The Key to Basics</b>                           | Provides educational planning for children with asthma and other chronic health conditions.  | 617-965-9637  | <a href="http://www.breatheamerica.com/common/resourcelist.htm">www.breatheamerica.com/<br/>common/resourcelist.htm</a><br><b>Email:</b> <a href="mailto:erg_hk@juno.com">erg_hk@juno.com</a> |
| <b>National Asthma and Allergy Network/Mothers of Asthmatics</b> | Helps all people affected by allergies and asthma. Membership in this organization includes a monthly newsletter, discounts on educational materials and some supplies such as peak flow meters, spacers and nebulizer accessories.  | 800-878-4403  | <a href="http://www.aanma.org/">www.aanma.org/</a>  |

## RESOURCE ORGANIZATIONS

| Agency  | Agency Description   | Phone                        | Websites   |
|---|--|------------------------------|--|
| <b>National Asthma Expert Panel/National Institutes of Health</b> | Developed the standards of asthma management. Provides free educational materials to schools and families. NAEPP materials include:<br><br>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). | 301-251-1222                 | <a href="http://www.nhlbi.nih.gov/nhlbi/lung/asthma/gp/asthgp.htm">www.nhlbi.nih.gov/nhlbi/lung/asthma/gp/asthgp.htm</a> |
| <b>Red Cross Asthma Program</b>                                   | Offers an asthma management program for groups of parents and children with asthma.  | 312-729-6239                 | <a href="http://www.redcross.org/il/chicago/">www.redcross.org/il/chicago/</a>   |
| <b>Safer Pest Control Project</b>                                 | Provides information to control pests effectively in the home and school while minimizing pesticide use. Offers workshops and demonstrations. Has a comic book about pest management, "The Pest Invasion".   | 312-641-5575                 | <a href="http://www.spcpweb.org">www.spcpweb.org</a>   |
| <b>U.S. Department of Education</b>                               | Office for Civil Rights, Customer Service Team   | 800-421-3481<br>202-205-5413 | <a href="http://www.ed.gov/offices/OCR">www.ed.gov/offices/OCR</a>   |
| <b>U.S. Environmental Protection Agency</b>                       | Indoor Environments Division<br>Indoor Air Quality Information Clearinghouse   | 202-233-9370<br>800-438-4318 | <a href="http://www.epa.gov/iaq">www.epa.gov/iaq</a>   |

## Signs of Asthma Episodes

- ❑ Breathing through mouth
- ❑ Dark circles under eyes
- ❑ Cough
- ❑ Wheeze
- ❑ Fast breathing
- ❑ Shortness of breath
- ❑ Itchy chin or neck
- ❑ Unable to finish a sentence without taking a breath
- ❑ Unusual paleness or sweating
- ❑ Vomiting with coughing
- ❑ Anxious or scared look
- ❑ Restless
- ❑ Tiredness not related to working or playing
- ❑ Lethargic
- ❑ Hunched-over posture
- ❑ Child can't stand or sit straight
- ❑ Notch at the base of the neck sinks in when the child breathes (retractions)
- ❑ Spaces between the ribs may sink-in when the child breathes (retractions)
- ❑ Cyanosis (blueness under fingernails, around lips)

### **The child may say:**

- My chest is tight
- My chest hurts
- I cannot catch my breath
- My mouth is dry
- My neck feels funny
- I don't feel well

# ASTHMA TRIGGERS

## Equipment and Supplies

- ♦ Paints and markers often have strong fumes. Use in well ventilated areas. Replace tops when not in use.
- ♦ Stuffed animals and toys should be made of synthetic washable material. Store in plastic bags or wash several times a year. Keep plastic storage bags away from children when not in use.
- ♦ Avoid pets whenever possible. The allergen particle from furbearing pets is smaller than a dust particle and remains in the air for a longer period or time. Aquariums for fish or reptiles may harbor mold. Some children may be sensitive to pet foods such as cockroaches, mice, etc.
- ♦ Clean chalk boards when children are not in the classroom. Clean erasers outside.

## Furniture

- ♦ Bookshelves trap dust easily. Dust weekly when the child is not present.
- ♦ Lamps should have plain shades rather than pleated shades that can trap more dust.
- ♦ Choose furniture made of vinyl, leather, or wood. Avoid upholstered furniture.

## Floor

- ♦ Remove rugs, if possible, and keep floors clean. Bare wood or tile floors are best.
- ♦ Throw rugs and carpet squares trap dust. Clean them weekly.

## Windows

- ♦ Avoid curtains. If you need a valance, choose synthetic fibers instead of natural fibers. Wash valances or curtains twice a year.
- ♦ Miniblinds and roller shades are better than curtains. Clean with damp cloth weekly.
- ♦ Check for outdoor triggers before opening windows. Fresh mown grass, burning leaves, exhaust fumes, smog, etc. can be problematic for some children. Avoid if possible.

## Heating and cooling systems

- ♦ Clean fan blades and grate monthly. Fans should blow outdoors to decrease bringing pollen and pollution into the room.
- ♦ Do not put towels under window units to collect condensation which encourage mold and bacteria to grow.
- ♦ Clean or change window air conditioner filters every 2 weeks and furnace filters at least monthly.
- ♦ Avoid using belt-type humidifiers.
- ♦ Use air conditioners or a dehumidifier to keep relative humidity between 35-45%

## Personal

- ♦ Avoid perfumes, scented talcum powder, hair sprays and other personal care items with strong odors .
- ♦ Smokers need to know that smoke lingers in their hair and on their clothes.

## Cleaning supplies

- ♦ Many children cannot read. If you have cleaning materials (chemical) be sure there is a Danger or Mr. Yuk sticker on it. Some cleaning products have strong fumes. Replace caps quickly and use when children are not present.
- ♦ Use natural cleaning agents.
  - White or apple cider vinegar removes mold, mineral deposits and crayon marks.
  - Baking soda is a good general cleaner; may also be used to deodorize rugs or refrigerators.
  - Club soda is a good spot remover.
  - Bleach solution is a viricide, mold remover and cleaning agent.
- ♦ Use liquid rather than bar soap (mild or unscented) for hand washing.

# **Managing Asthma in the School Environment**

## **Use the Indoor Air Quality Tools for Schools Action Kit**

Many indoor air quality problems in schools can impact the health of students and staff, including those with asthma. Some of the indoor air quality problems include: chemical pollutants from building or building maintenance materials; chemical pollutants from science and art classes; improperly maintained ventilation systems; and allergens from classroom animals and cockroaches or pests.

Mold growth may result from standing water in maintenance rooms and near piping, or from excess moisture in ceiling tiles, carpets, and other furnishings. Also, outdoor air pollutants and pollens may enter the school through ventilation systems and/or open doors and windows.

In order to help improve indoor air quality problems in school buildings, the Environmental Protection Agency (EPA) developed the Indoor Air Quality (IAQ) Tools for Schools Action Kit. This kit helps school personnel identify, solve, and prevent indoor air quality problems in the school environment. Through the use of a 19-step management plan and checklists for the entire building, schools can also lower their students' and staff's risk of exposure to asthma triggers. The checklists cover the building's ventilation system, maintenance procedures, classrooms (especially animals and mold), and food service areas.

Included in the kit is a Coordinator's Guide, which explains the fundamentals of indoor air quality in schools and procedures for improving the air inside the schools. The kit also contains checklists, a background informational piece for staff, a problem-solving wheel to identify potential indoor air quality causes and solutions, a guide for health professionals, and a 30-minute, two-part video covering the ventilation checklist and a school's implementation of IAQ Tools For Schools.

To use the IAQ Tools for Schools Kit, most schools form an IAQ coordinating team which implements the kit during the school year. Because IAQ problems can originate anywhere in the school building, usually the entire staff is informed and brought into the process of improving the indoor air. In addition, students can be involved in the process. Information about available curricula on indoor air quality can be found here ([epa.gov/iaq/schools/curricula.html](http://epa.gov/iaq/schools/curricula.html)).

School districts across the United States have adopted IAQ Tools for Schools, thus improving the air quality in all of the districts' buildings. The IAQ Tools for Schools Kit can be used alone or in conjunction with the American Lung Association's Open Airways For Schools asthma curriculum for eight to 11-year old children (see information included in this publication on Asthma Management and Education).

EPA has developed additional tools and programs to help schools and school districts implement the IAQ Tools for Schools Kit. This includes a step-by-step guide to successfully implementing the IAQ Tools for Schools Kit. This quick-start guide will help you gain a valuable understanding of the IAQ Tools for Schools program and provide you with a brief review of the kit, helpful implementation ideas, and case studies of several schools that have successfully implemented the kit.

Schools (or school districts) and non-profit groups may receive a copy of the IAQ Tools for Schools Kit at no cost simply by faxing a request on school or company letterhead to IAQ INFO at 703-356-5386. For more information, please call IAQ INFO at 1-800-438-4318. The entire IAQ Tools for Schools Kit can be downloaded here ([epa.gov/iaq/schools/tools4s2.html](http://epa.gov/iaq/schools/tools4s2.html)).

Source: <http://www.epa.gov/iaq/schools/asthma/iaq-1.html>

## **When A Child is Having an Asthma Attack**

**T Remain Calm**

**T Reassure the child**

T Remove the child from the activity or trigger and provide quiet activity

T Follow the child's asthma action plan

T Use reliever medication as ordered by the child's physician

T Monitor peak flow every 15 minutes

T Give sips of room temperature water

T If no improvement within 15-30 minutes or child is getting worse **call 911**

### **Call 911 if .....**

T Peak flow monitoring indicates less than 50% of personal best

T Retractions: neck area or space between ribs sinks in with each breath

T The child sits hunched over to breathe

T The child has difficulty walking or talking or is unable to speak

T Lips or fingernails turn blue or gray

**Never leave a child alone when he/she is having asthma symptoms!!**

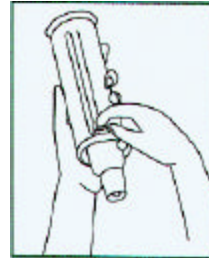
Early appropriate intervention for asthma symptoms  
results in good outcomes for the child.



## How to Use a Peak Flow Meter

1

Remove any gum, candy or food from your mouth.  
Move the marker to zero (0).



2



Stand up.  
Hold the meter but do not touch the numbers.  
Take a big breath with your mouth open.

3

Put the meter in your mouth and close your lips around the mouthpiece.  
Do not put your tongue in the hole!  
Blow out as hard and fast as you can in one blow.



4



Read the number where the marker stopped.

5

Write the number down.



6



Move the indicator back to zero (0).  
Repeat steps 1-5 two more times.  
Write down the highest of the three numbers in your peak flow log.

## **School Attendance**

### **May attend school if :**

- Peak flow is in the Green Zone
- Child has stuffy nose, but no wheezing
- Child has wheezing which goes away after taking medication
- Child is able to perform usual activities (getting dressed, eating)

### **The child should not attend school if:**

- Peak flow measurement is below 65-75% of personal best
- Wheezing or coughing continues even after treatment
- Child has trouble breathing or is breathing fast
- Child has a fever over 100 degrees
- Child is too weak or tired to take part in normal activities (dressing self, eating)

## **Asthma Inhalers at School**

### **Sample Memorandum to Parent/Guardian**

TO: Parent/Guardian of Children using Inhalers at School

FROM: School Nurse

There are two options available for the child who needs to use an inhaler at school.

**Option #1** Child will be allowed to carry his/her own inhaler and use it without supervision.

Advantage: The medication is immediately accessible. (A spare inhaler must be provided by the parent/guardian to be kept in the health office where it will be available should the child forget theirs.)

To utilize this option, please complete the Contract for Permission to Carry Inhalers and the Authorization and Permission for Administration of Medication forms (completed and signed by the physician and parent or guardian) and return to the health office with the spare inhaler.

**Option #2** The child comes to the health office where the inhaler is kept, and uses it under supervision.

Advantage: This will ensure that the medication is used correctly, in the proper amount and the doses will be documented.

To utilize this option, the child's physician must complete and sign the Authorization and Permission for Administration of Medication form and the parent or guardian must complete and sign the Parental Authorization Section. The form and the properly labeled medication should be returned to the health office.

**All medications brought to school must meet the requirements as outlined in the school district's medication administration policy.**

## **Sample Authorization and Permission for Administration of Medication**

\_\_\_\_\_  
Student's Name (Last)      (First)      (Middle)      Birthdate      School      Date

School medications and health care services are administered following these guidelines:

Physician/Prescriber signed, dated authorization to administer the medication.

Parent signed, dated authorization to administer the medication.

The medication is in the original labeled container as dispensed or the manufacturer's labeled container.

The medication label contains the student name, name of the medication, directions for use and date.

Annual renewal of authorization and immediate notification, in writing, of changes.

### Physician Authorization:

\_\_\_\_\_  
Medication/Health Care Treatment      Dosage      Time to be administered

\_\_\_\_\_  
Intended effect of this medication      Expected side effects, if any

\_\_\_\_\_  
Other medications student is taking

\_\_\_\_\_  
May student self-administer medication under supervision of Health Service personnel or designate?  
(A student self-administration form must be completed)      (Please circle) YES/NO

Administration instructions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Discontinue/Re-Evaluate/Follow-up Date (circle one)\_\_\_\_\_

\_\_\_\_\_  
Prescriber's Signature      Date signed

\_\_\_\_\_  
Prescriber's Emergency Phone#      Prescriber's Address

## Parental Authorization

*I herewith acknowledge that I am primarily responsible for administering medication to my child.*

*However, in the event that I am unable to do so or in the event of a medical emergency, I hereby authorize (name of School District) and its employees and agents, on my behalf and stead, to administer or to attempt to administer to my child (or allow my child to self-administer, while under the supervision of the employees and agents of the School District), lawfully prescribed medication in the manner described above. I acknowledge that it may be necessary for the administration of medications to my child to be performed by an individual other than a school nurse, and specifically consent to such practices. I further acknowledge and agree that, when the lawfully prescribed medication is so administered or attempted to be administered, I waive any claims I might have against the School District, its employees and agents arising out of the administration of said medication. In addition I agree to hold harmless and indemnify the School District, its employees and agents, either jointly or severally, from and against any and all claims, damages, causes of action or injuries incurred or resulting from the administration or attempts at administration of said medication.*

---

Parent's Signature

---

Home Phone

---

Parent's Address

---

Business Phone

---

Date

Additional Information

---

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### **Sample Physician Request For Self-Administration of Medication**

\_\_\_\_\_  
Name of Student Birthdate

\_\_\_\_\_  
Address City St Zip

\_\_\_\_\_  
Telephone Number

**TO:**

Principal:

School:

The above named pupil has \_\_\_\_\_  
(Name of Disease or Syndrome)

I am requesting that the above named student take the following medication during school hours.

\_\_\_\_\_  
Name of Medication Type of Medication (Tablet, Liquid or Capsule)

\_\_\_\_\_  
Dosage Time(s) to be given

\_\_\_\_\_  
Possible Side Affects

I certify that \_\_\_\_\_ has been instructed in the use and self-administration  
of \_\_\_\_\_  
(Name of Medication)

He/she understands the need for the medication, and the necessity to report to school personnel any unusual side effects. He/she is capable of using this medication independently.

I may be reached at the following phone # in the event of a reaction to the medication or an emergency:

\_\_\_\_\_  
Phone Number Physician Signature of Physician Date

\_\_\_\_\_  
Address of Physician Print Name of Physician

## Student Agreement to Carry Inhaler

1. Student has demonstrated the correct use of inhaler to the health care provider and school health personnel.
2. Student agrees to **never** share the inhaler with another person.
3. Student agrees that if there is not marked improvement after two puffs, he/she will notify a teacher or other responsible adult who will seek further medical intervention as outlined in the student's Asthma Management Plan.

Student signature\_\_\_\_\_ Date:\_\_\_\_\_

I give permission for my child\_\_\_\_\_ to carry the inhaler described below. I understand that he/she must follow the rules listed above. I will notify the school of changes in medication or my child's condition.

| NAME OF MEDICATION | DOSE  | FREQUENCY OF USE |
|--------------------|-------|------------------|
| _____              | _____ | _____            |
| _____              | _____ | _____            |
| _____              | _____ | _____            |

Parent/Guardian Signature \_\_\_\_\_ Date:\_\_\_\_\_