

# Asthma & Physical Activity in the School

MAKING A DIFFERENCE



U.S. Department of Health and Human Services  
National Institutes of Health  
National Heart, Lung, and Blood Institute



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**National Heart  
Lung and Blood Institute**  
People Science Health

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“I’m unstoppable...  
when I take my asthma  
medicine, I’m fine.”

## ■ FOREWORD

Regular physical activity is important to the health and well-being of all students.

Yet students who have asthma and their families often see asthma as a barrier to being physically active. About 1 in every 10 children has asthma, a common but serious chronic disease. Poorly controlled asthma can lead to debilitating symptoms, school absences, and life-threatening events that require emergency care. Asthma can limit a student's ability to play, learn, and sleep—all critical to his or her development.

When asthma is well managed and well controlled, however, students who have asthma should be able to participate fully in all activities, including vigorous exercise. As a classroom teacher, physical education teacher, coach, or person who is supervising school-age youth who are engaged in physical activity, you can use the practical strategies outlined in this booklet to lessen the burden of asthma on students, families, and the school community.

It is our hope that this booklet will promote partnerships among students, families, health care providers, and school personnel that will empower students to take control of their asthma and to participate fully and safely in sports and physical activities. Use it with its companion publication, *Managing Asthma: A Guide for Schools*—developed collaboratively by the National Heart, Lung, and Blood Institute's National Asthma Education and Prevention Program and the U.S. Department of Education—to help make your school's policies and practices more asthma-friendly.



**Denise Simons-Morton, M.D., Ph.D., Director**

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## ■ WHAT IS ASTHMA?

Asthma is a serious chronic lung disease that inflames and narrows the airways. Although inflammation is a helpful defense mechanism for our bodies, it can be harmful if it occurs at the wrong time or stays around after it's no longer needed.

That is what happens when a person has asthma. Ongoing inflammation (swelling) makes the airways in the lungs more sensitive to things that they see as foreign and harmful—such as bacteria, viruses, dust, tobacco smoke, and strong odors—also called asthma “triggers.” The immune system of a person who has asthma overreacts to these things by releasing different kinds of cells and chemicals that cause one or more of the following changes in the airways:

- The inner linings of the airways become inflamed (swollen), leaving less room in the airways for the air to move through.
- The muscles surrounding the airways tighten up, which narrows the airways even more. (This is called bronchospasm.)
- The mucus glands in the airways produce lots of thick mucus, which further blocks the airways.

*The good news is that today's treatments can successfully control asthma so that most students can participate fully in regular school and childcare activities, including play, sports, and other physical activities.*

These changes can make it harder for the person who has asthma to breathe. They also can cause coughing, wheezing, tightness in the chest, and shortness of breath.

If the inflammation associated with asthma is not treated, each time the airways are exposed to their asthma triggers the inflammation increases, and the person with asthma is likely to have symptoms.

Exercise-induced asthma (also called exercise-induced bronchospasm) is asthma that is triggered by physical activity. Vigorous exercise will cause symptoms for most students who have asthma if their asthma is not well-controlled. Some students experience asthma symptoms only when they exercise.

Asthma varies from student to student and often from season to season or even hour by hour. At times, programs for students who have asthma may need to be temporarily modified, such as by varying the type, intensity, duration, and/or frequency of activity. At **all** times, students who have asthma should be included in activities as much as possible. Remaining behind in the gym or library or frequently sitting on the bench can set the stage for teasing, loss of self-esteem, unnecessary restriction of activity, and low levels of physical fitness. ■



## ■ HELP STUDENTS CONTROL THEIR ASTHMA

Good asthma management is essential for getting control of asthma. In school settings, it means helping students to:

- Follow their written asthma action plan; You can also help by modifying physical activities to match students' current asthma status.
  - Have quick and easy access to their asthma medications;
  - Recognize their asthma triggers (the factors that make asthma worse or cause an asthma attack); and
  - Avoid or control asthma triggers.
- As Table 1 shows, good asthma management offers important benefits, including allowing students who have asthma to participate fully in physical activities and other regular school activities. ■



Table 1: BENEFITS OF ASTHMA CONTROL

### **With good asthma management, students with asthma should:**

- Be free from troublesome symptoms day and night:
  - no coughing or wheezing
  - no difficulty breathing or chest tightness
  - no night time awakening due to asthma
- Have the best possible lung function
- Be able to participate fully in any activities of their choice
- Not miss work or school because of asthma symptoms
- Need fewer or no urgent care visits or hospitalizations for asthma
- Use medications to control asthma with as few side effects as possible
- Be satisfied with their asthma care





## ■ FOLLOW THE ASTHMA ACTION PLAN

Everyone who has asthma should have a written asthma action plan (see Appendix 1 for samples). The student's health care provider, together with the student and his or her parent or guardian, develops the student's written asthma action plan.

It should provide instructions for daily management of asthma (including medications and control of triggers) and explain how to recognize and handle worsening asthma symptoms.

Table 2 lists what asthma action plans typically contain. Depending on the student's needs, the school may also develop a more extensive individualized

health plan (IHP) or individualized education plan (IEP). A copy of the student's asthma action plan should be on file in the school office or health services office, with additional copies provided to the student's teachers and coaches.

You can help a student to follow his or her written asthma action plan in two



Table 2: ASTHMA ACTION PLAN CONTENTS

**Daily management:**

- What medication to take daily, including the specific names and dosages of the medications.
- What actions to take to control environmental factors (triggers) that worsen the student’s asthma.

**Recognizing and handling signs of worsening asthma:**

- What signs, symptoms, and peak flow readings (if peak flow monitoring is used) indicate worsening asthma.
- What medications and dosages to take in response to these signs of worsening asthma.
- What symptoms and peak flow readings indicate the need for urgent medical attention.

**Administrative issues:**

- Emergency telephone numbers for the physician, emergency department, and person or service to transport the student rapidly for medical care.
- Written authorization for students to carry and self-administer asthma medication, when considered appropriate by the health care provider and the parent or guardian.
- Written authorization for schools to administer the student’s asthma medication.

ways: 1) by monitoring the student’s asthma symptoms and/or 2) by having the student use a peak flow meter, which is a small, handheld device that measures how **hard** and **fast** the student can blow air out of the lungs. A drop in peak flow can warn of worsening asthma even before symptoms appear (see Appendix 2 for instructions).

Asthma action plans are most commonly divided into three colored

zones—green, yellow, and red—like a traffic light. The individual zones correspond with a range of symptoms and/or peak flow numbers determined by the student’s health care provider and listed on the asthma action plan. As described on the next page, an increase in asthma symptoms, or a drop in peak flow compared with the student’s personal best peak flow number, indicates the need for prompt action to prevent or treat an asthma attack.

- **GREEN ZONE = Go.** The green zone means that the student has no asthma symptoms and/or has a peak flow reading at 80% or more of the student's personal best peak flow number. The student should continue taking his or her daily long-term control medication, if prescribed.
- **YELLOW ZONE = Caution.** The yellow zone means that the student is experiencing worsening asthma symptoms and/or has a peak flow reading between 50% and 79% of the student's best peak flow number. Typically, this means the student needs a quick-relief (bronchodilator) medication—inhaled albuterol, for example—to temporarily open the airways (see next section for more information about asthma medications). In the meantime, the student should continue the

medication listed in the green zone. Follow any additional instructions provided in the asthma action plan.

- **RED ZONE = Medical Alert!** Begin emergency steps and get medical help now. A student in the red zone has severe asthma symptoms and/or a peak flow reading of less than 50% of the student's best peak flow number. The student needs a quick-relief (bronchodilator) medication, such as inhaled albuterol, to open the airways. Seek medical help right away. Your quick action could help save a life. ■

*Supporting and encouraging each student's efforts to follow his or her written asthma action plan is essential for the student's active participation in physical activities.*



#### WINNERS WITH ASTHMA

**What do Justine Henin, Jerome Bettis, Amy Van Dyken, Jackie Joyner-Kersey, Bill Koch, Greg Louganis, Juwan Howard, and Jim Ryun all have in common?**

Each is a famous athlete who has asthma. They come from diverse fields: tennis, football, swimming, track and field, cross-country skiing, diving, basketball, and long-distance running.

Following their asthma action plans helped these athletes become winners.



## Actions for School Staff

### CLASSROOM TEACHERS, PHYSICAL EDUCATION TEACHERS, OR COACHES:

- Take steps to support the use of written asthma action plans:
  - **Know how to easily access the student's asthma action plan or ask for a copy from the school nurse or designee.** You may need to assist a student to follow pre-medication procedures before the student exercises, or to help a student who has worsening asthma. Consult with the school nurse or designee for clarification.
  - **Establish good communication among all parties involved in the student's care.** Engage parents or guardians, students, health care providers, and school health staff in following the asthma action plan to help maximize the student's participation and minimize risks.
  - **Be responsive to the needs of students who have asthma.** Consult *Managing Asthma: A Guide for Schools* for suggested activities (available at [www.nhlbi.nih.gov/health/prof/lung/index.htm](http://www.nhlbi.nih.gov/health/prof/lung/index.htm)).
  - **Teach students asthma awareness and peer sensitivity.** As students learn more about asthma, they can more easily offer support instead of barriers to their classmates who have asthma.

### SCHOOL HEALTH PERSONNEL:

- Ensure that all students who have asthma have an asthma action plan on file at school, and appropriate medications available at school.



## ■ ENSURE STUDENTS HAVE EASY ACCESS TO THEIR MEDICATION

### Asthma Medications

Many students who have asthma require both long-term control medications and quick-relief medications. These medications prevent as well as treat symptoms and enable the student to participate safely and fully in physical activities.

*All students who have asthma must have quick-relief medication available at school to take as needed to relieve symptoms, and, if directed, to take before exposure to an asthma trigger, such as exercise.*

Most asthma medications are inhaled as sprays or powders and may be taken using metered-dose inhalers, dry powder inhalers, or nebulizers. A metered-dose inhaler is a pressurized canister that delivers a dose of medication and does not require deep and fast breathing (see Appendix 3 for instructions). A dry powder inhaler is another kind of inhaler that does require deep and fast breathing to get the medication into the lungs (see Appendix 4 for instructions). A nebulizer is a machine that turns liquid medication into a fine mist. Whichever delivery method is used, it is important for students to take their medications correctly.

**LONG-TERM CONTROL MEDICATIONS** are usually taken daily to control underlying airway inflammation and thereby prevent asthma symptoms. They can significantly reduce a student's need for quick-relief medication.

Inhaled corticosteroids are the most effective long-term control medications for asthma. It is important to remember that inhaled corticosteroids are generally safe for long-term use when taken as prescribed. They are **not** addictive and are not the same as illegal anabolic steroids used by some athletes to build muscles.

**QUICK-RELIEF MEDICATIONS** (also known as short-acting bronchodilators) are taken when needed for rapid, short-term relief of asthma symptoms. They help stop asthma attacks by temporarily relaxing the muscles around the airways. However, they do nothing to treat the underlying airway inflammation that caused the symptoms to flare up.

An additional use for quick-relief medications is the prevention of asthma symptoms in students who have exercise-induced asthma. These students may be directed by their health care provider to take their quick-relief medication inhaler 5 minutes before participating in physical activities.

## Ensuring Access

Ensuring that students who have asthma have quick and easy access to their quick-relief medication is essential. These students often require medication during school to treat asthma symptoms or to take just before participating in physical activities or exposure to another asthma trigger. If accessing the medication is difficult, inconvenient, or embarrassing, the student may be discouraged and fail to use his or her quick-relief medication as needed. The student's asthma may

become unnecessarily worse and his or her activities needlessly limited.

A parent or guardian should provide to the school the student's prescribed asthma medication so that it may be administered by the school nurse or other designated school personnel, according to applicable federal, state, and district laws, regulations, and policies. Federal legislation relevant to the needs and rights of students who have asthma includes the Americans with Disabilities Act ([www.ada.gov](http://www.ada.gov)), Family Educational Rights and Privacy





Act of 1974, Individuals with Disabilities Education Act (<http://idea.ed.gov>), and Section 504 of the Rehabilitation Act of 1973. Additional information about these laws is available from the Office for Civil Rights at the U.S. Department of Education (see Appendix 5).

In addition, all 50 states and the District of Columbia have laws allowing students to carry and self-administer their prescribed quick-relief asthma medications in school settings. Required documentation usually includes having on file at the school a written asthma action plan and/or medication authorization form signed by the student's physician and parent or guardian, and in some jurisdictions, the school nurse.

The NHLBI's publication *When Should Students With Asthma or Allergies Carry and Self-Administer Emergency Medications at School?* provides useful guidance for determining when to entrust and encourage a student with diagnosed asthma to carry and self-administer prescribed emergency medications at school. In addition, the Allergy and Asthma Network/Mothers of Asthmatics has information on federal and state laws that address students' rights to carry and self-administer prescribed asthma medications. You also can look for asthma-related laws and regulations in each state and territory through the Library of Congress (see Appendix 5). ■

## Actions for School Staff

### TAKE STEPS TO SUPPORT QUICK AND EASY ACCESS TO STUDENT MEDICATIONS:

- **Provide students who have asthma quick and easy access to their prescribed medications** for all on- and off-site school activities before, during, and after school.
- **Make sure students have prescribed medication to take *before exercise***—usually a quick-relief inhaler (bronchodilator)—if indicated by student's asthma action plan.
- **Enable students to carry and self-administer their asthma medications.** Laws in all 50 states and the District of Columbia declare students' rights to carry and use their prescribed asthma medications. Consult *When Should Students With Asthma or Allergies Carry and Self-Administer Emergency Medications at School?* (available at [www.nhlbi.nih.gov/health/prof/lung/index.htm](http://www.nhlbi.nih.gov/health/prof/lung/index.htm)).
- **Know your school's policies and procedures for administering medications,** including emergency protocols for responding to a severe asthma attack.

## ■ RECOGNIZE ASTHMA TRIGGERS

Each student who has asthma has one or more triggers that can make his or her condition worse. These triggers increase airway inflammation and/or make the airways constrict, which makes breathing difficult. There are many possible triggers; Table 3 lists the most common ones.



Table 3: ASTHMA TRIGGERS

### ■ Allergens

- Pollen—from trees, plants, and grasses, including freshly cut grass
- Animal dander from pets with fur or hair
- Dust and dust mites—in carpeting, mattresses, pillows, and upholstery
- Cockroach droppings
- Molds

### ■ Irritants

- Strong smells and chemical sprays, including perfumes, paints, cleaning solutions, chalk dust,

talcum powder, new carpet, and pesticide sprays

- Air pollutants
- Cigarette and other tobacco smoke

### ■ Other asthma triggers

- Upper respiratory infections—colds or flu
- Exercise—running or playing hard—especially in cold weather
- Strong emotional expressions, such as laughing or crying hard
- Changes in weather, exposure to cold air



“Every spring my asthma gets real bad. I couldn’t even finish the President’s Challenge Physical Fitness Test! But this year, my teacher let me do the run inside before the air got so bad. I got a badge!”

## Actions for School Staff

### TAKE STEPS TO REDUCE EXPOSURE TO ENVIRONMENTAL TRIGGERS:

- **Identify students' known asthma triggers and symptoms.** Consult students' asthma action plans for guidance. If you observe things that seem to worsen a student's asthma, inform the school nurse or the parent or guardian as appropriate.
- **Monitor the environment for potential allergens and irritants**—for example, a recently mowed field or refinished gym floor. If an allergen or irritant is present, consider a temporary change in location.
- **Eliminate or control exposure to as many of the students' known asthma triggers as possible.** For example:
  - Keep animals with fur or hair out of the classroom.
  - Use wood, tile, or vinyl floor coverings instead of carpeting.
  - Schedule maintenance or pest control that involves strong irritants and odors for times when students are not in the area and the area can be well-ventilated.
  - Avoid freshly cut grass during pollen season.
  - Encourage students to use a scarf or cold air mask to cover their nose and mouth on cold or windy days. It will help to warm and humidify the air before it reaches the airways.
  - Enforce smoking bans on school property.
- **Make adjustments for students whose asthma is worsened by pollen, cold air, or air pollution.** Check the air quality index and consider moving an outdoor activity indoors when the air pollution or pollen levels are high or when the weather is cold.

### Avoid or Control Asthma Triggers

Some asthma triggers—like pets with fur or hair—can be avoided. Others—like exercise and other physical activity—are important for good health and should be managed rather than avoided.

### Modify Physical Activities To Match Current Asthma Status

Students who follow their asthma action plans and keep their asthma under control can usually participate in a full range of sports and physical

activities. Activities that are more intense and sustained, such as long periods of running, basketball, and soccer, are more likely to provoke asthma symptoms. Nevertheless, most students diagnosed with asthma, including exercise-induced asthma, can participate in these activities if their asthma is properly treated. In fact, Olympic athletes who have asthma have demonstrated that vigorous activities are possible with good asthma management.

However, when a student experiences asthma symptoms, or is recovering from a recent asthma attack, physical activities should be temporarily modified in type, length, and/or frequency to help reduce the risk of further symptoms. Work with the student, parents or guardians, health care providers, and other school staff to plan appropriate activities for the student until he or she is fully recovered. ■

## Actions for School Staff

### TAKE STEPS TO INCLUDE STUDENTS WHO HAVE ASTHMA IN PHYSICAL ACTIVITY:

- **Include warm-up and cool-down periods** that incorporate walking or other low-intensity activities. These measures may help prevent or lessen episodes of exercise-induced asthma.
- **Review the type and length of any activity limitations** based on the student's current asthma status or as noted in the student's asthma action plan, and modify activity accordingly. For example, if running is scheduled, the student could run the whole distance, run part of the distance, alternate running and walking, or walk the whole distance. Work with the student, parent or guardian, school nurse, or health care provider, as appropriate, to determine how the student could participate more fully in the future.
- **Take extra care with a student who has symptoms or who has just recovered from an asthma attack.** He or she is at greater risk for asthma problems. Look for symptoms, review the student's asthma action plan, and check peak flow if the student uses a peak flow meter. Follow the student's asthma action plan and school emergency response protocols if the student's symptoms (such as coughing, wheezing, difficulty breathing, and chest tightness or pressure) and/or peak flow readings are getting worse (that is, moving into the yellow or red zones of the asthma action plan).
- **Keep the student involved in the group activity when any temporary but major modification to his or her physical activities is required.** Adapt or lower the intensity of the student's activity until he or she can return to full participation. Dressing for a physical education class and participating at any level is better than being left out or left behind.



## ■ RECOGNIZE WORSENING ASTHMA AND TAKE ACTION

### Act Fast When Signs and Symptoms of an Asthma Attack Appear

An asthma attack requires prompt action to stop it from becoming more serious or even life-threatening. Recognizing the signs and symptoms of asthma attacks when they appear, and taking appropriate action in response, is crucial. Prompt treatment can help students resume their activities as soon as possible.

The following table lists the immediate steps to take during an asthma attack. Depending on the student's response to treatment, physical activity may then be resumed, modified, or halted. Don't delay getting medical help, however, for a student who has severe or persistent breathing difficulty.

### Actions for School Staff

#### BE PREPARED TO RESPOND TO SIGNS AND SYMPTOMS OF AN ASTHMA ATTACK:

- **Identify students who have asthma.** Review their asthma action plans and know where their medications are kept.
  - Other signs, such as low peak flow readings as indicated on the student's asthma action plan
- **Know the common signs and symptoms** of worsening asthma that require prompt attention:
  - Coughing or wheezing
  - Difficulty breathing
  - Chest pain, tightness, or pressure—reported by the student
- **Be alert for any symptoms or complaints.** Even mild symptoms can lead rapidly to severe, life-threatening asthma attacks.
- **Be familiar with your school's policies and procedures** for administering medications and for responding to asthma attacks.

## Action Steps for Staff to Manage an Asthma Attack

**ACT FAST!** Warning signs and symptoms—such as coughing, wheezing, difficulty breathing, chest tightness or pressure, and low or falling peak flow readings—can worsen quickly and even become life-threatening. They require quick action.

### 1. Quickly assess the situation.

- **Call 9-1-1 right away if** the student is struggling to breathe, talk, or stay awake; has blue lips or fingernails; or asks for an ambulance.
- If accessible, use a peak flow meter to measure the student's lung function.

### 2. Get help, but never leave the student alone.

Have an adult accompany the student to the health room or send for help from the school nurse or designee. Do not wait.

### 3. Stop activity.

Help the student stay calm and comfortable.

- If the asthma attack began after exposure to an allergen or irritant (such as furry animals, fresh cut grass, strong odors, or pollen) remove the student from the allergen or irritant, if possible.

### 4. Treat symptoms.

Help the student locate and use his or her **quick-relief medication (inhaler)** with a spacer or holding chamber (if available).

- Many students carry their medicine and can self-manage asthma attacks. They should follow the school protocol. Provide support as needed.

### 5. Call the parent or guardian.

### 6. Repeat use of quick-relief inhaler in 20 minutes if—

- Symptoms continue or return;
- Student still has trouble breathing; or
- Peak flow reading is below 80% of student's personal best peak flow number on asthma action plan.



### CALL 9-1-1 IF ANY OF THE FOLLOWING OCCUR:

- The student is struggling to breathe, talk, or stay awake; has blue lips or fingernails; or asks for an ambulance.
- The student doesn't improve or the student has a peak flow reading below 50% of the student's personal best peak flow number after two doses of quick-relief medication, and the nurse (or designee) or parent or guardian is not available.
- No quick-relief medicine is available, the student's symptoms have not improved spontaneously, and the nurse (or designee) or parent or guardian is not available.
- You are unsure what to do.

## Be Alert to Signs That Asthma May Not Be Well Controlled on an Ongoing Basis

Teachers and coaches who supervise students' physical activities are in a unique position to notice the signs of poorly controlled asthma, either in a student who lacks an asthma diagnosis or in a student who has a treatment plan for asthma. Look for symptoms or other signs—subtle or dramatic—that suggest a student's asthma is not under good long-term, day-to-day control (see Table 4). Students are not always able to recognize for themselves when their asthma is poorly controlled.

Because exercise provokes symptoms in most children with poorly controlled asthma, the student who has asthma symptoms with physical activity may need to be evaluated by his or her health care provider. Even for a student who has exercise-induced asthma, the

frequent use of quick-relief medication during or after exercise may signal the need to return to his or her health care provider to add a daily long-term control medication or to increase the dosage.

If at any time you suspect that a student's asthma is not well controlled, do not hesitate to contact the school nurse or the student's parent or guardian to suggest scheduling an office visit with the student's health care provider, who may adjust the student's treatment. The student may also need to learn how to follow his or her asthma action plan more carefully and how to take his or her medications correctly.

Teachers and coaches may sometimes wonder if a student's reported symptoms indicate a desire for attention or a desire



Table 4: SIGNS THAT MAY INDICATE POORLY CONTROLLED ASTHMA REQUIRING A PHYSICIAN VISIT

- Frequent or recurring symptoms (more than twice a week), such as coughing, wheezing, chest tightness, or shortness of breath. Symptoms may range from mild to severe.
- Frequent (more than twice a week) use of quick-relief medication.
- Exercise-induced asthma or poor endurance.
- Frequent school absences, or recurrent visits to the emergency department or hospital because of asthma.
- Low peak flow readings before or after physical activity when compared with the peak flow ranges in the student's asthma action plan.



not to participate in an activity. At other times, it may seem that students are overreacting to minimal symptoms.

At **all** times, it is essential to respect the student's report of his or her own condition. If a student regularly asks to be excused from recess or avoids physical activity, a real physical problem may be present. The student may also need more assistance and support from his or her teacher and coach in order to become an active participant. Consult with the school nurse, parent

or guardian, or health care provider to find ways to ensure that the student is safe, feels safe, and is encouraged to participate actively. ■

*“The role of physical education teachers is in some ways probably the first line of recognition of children who have problems with their asthma... They can really help these children.”*

—Dr. David Evans, Columbia University  
Asthma Program Evaluator

## Actions for School Staff

### HELP STUDENTS BECOME ACTIVE AND TAKE CONTROL OF THEIR ASTHMA:

- **Share observations of asthma symptoms and related concerns** with the student, school nurse, and the student's parents or guardians, including problems with physical activity, missed school days, or medication side effects.
- **Encourage regular follow-up visits with the student's health care provider** to assess student's asthma control, educate student and parents or guardians on how to manage asthma, and update student's written asthma action plan.
- **Provide students quick and easy access to their asthma medications** and help them follow their asthma action plan to use their medications properly.
- **Remind students to monitor their asthma control by using their peak flow meter and/or by keeping track of their symptoms in an asthma diary.** It may empower students to become more engaged in managing and controlling their asthma.

Teachers and coaches who supervise students' physical activities are in a unique position to notice the signs of poorly controlled asthma



# Asthma Action Plan

For: \_\_\_\_\_ Doctor: \_\_\_\_\_ Date: \_\_\_\_\_  
 Doctor's Phone Number \_\_\_\_\_ Hospital/Emergency Department Phone Number \_\_\_\_\_

## GREEN ZONE

### Doing Well



- No cough, wheeze, chest tightness, or shortness of breath during the day or night
- Can do usual activities

**And, if a peak flow meter is used,**  
**Peak flow:** more than \_\_\_\_\_  
 (80 percent or more of my best peak flow)

My best peak flow is: \_\_\_\_\_  
 Before exercise \_\_\_\_\_  \_\_\_\_\_  2 or  4 puffs \_\_\_\_\_ 5 minutes before exercise

Take these long-term control medicines each day (include an anti-inflammatory).

**Medicine** \_\_\_\_\_ **How much to take** \_\_\_\_\_ **When to take it** \_\_\_\_\_

## YELLOW ZONE

### Asthma Is Getting Worse

- Cough, wheeze, chest tightness, or shortness of breath, or
- Waking at night due to asthma, or
- Can do some, but not all, usual activities

**-Or-**  
**Peak flow:** \_\_\_\_\_ to \_\_\_\_\_  
 (50 to 79 percent of my best peak flow)

**Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.**

**First** \_\_\_\_\_  2 or  4 puffs, every 20 minutes for up to 1 hour  
 (short-acting beta<sub>2</sub>-agonist)  
 Nebulizer, once

**Second** \_\_\_\_\_ **If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:**

- Continue monitoring to be sure you stay in green zone.
- Or-**
- If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:**
- Take: \_\_\_\_\_  2 or  4 puffs or  Nebulizer  
 (short-acting beta<sub>2</sub>-agonist)
- Add: \_\_\_\_\_ mg per day For \_\_\_\_\_ (3–10) days  
 (oral steroid)
- Call the doctor  before/  within \_\_\_\_\_ hours after taking the oral steroid.

## RED ZONE

### Medical Alert!

- Very short of breath, or
- Quick-relief medicines have not helped, or
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in Yellow Zone

**-Or-**  
**Peak flow:** less than \_\_\_\_\_  
 (50 percent of my best peak flow)

**Take this medicine:**

\_\_\_\_\_  4 or  6 puffs or  Nebulizer  
 (short-acting beta<sub>2</sub>-agonist)  
 \_\_\_\_\_ mg  
 (oral steroid)

**Then call your doctor NOW.** Go to the hospital or call an ambulance if:

- You are still in the red zone after 15 minutes AND
- You have not reached your doctor.

### DANGER SIGNS

- Trouble walking and talking due to shortness of breath
- Lips or fingernails are blue

**Take  4 or  6 puffs of your quick-relief medicine AND**  
**Go to the hospital or call for an ambulance**

**NOW!** \_\_\_\_\_ (phone)

Source: National Heart, Lung, and Blood Institute, National Institutes of Health, U.S. Department of Health and Human Services. NIH Publication No 07-5251, April 2007.

# My Asthma Plan ENGLISH

Patient Name: \_\_\_\_\_

Medical Record #: \_\_\_\_\_

Provider's Name: \_\_\_\_\_ DOB: \_\_\_\_\_

Provider's Phone #: \_\_\_\_\_ Completed by: \_\_\_\_\_ Date: \_\_\_\_\_

Controller Medicines	How Much to Take	How Often	Other Instructions
		_____ times per day <b>EVERY DAY!</b>	<input type="checkbox"/> Gargle or rinse mouth after use
		_____ times per day <b>EVERY DAY!</b>	
		_____ times per day <b>EVERY DAY!</b>	
		_____ times per day <b>EVERY DAY!</b>	
Quick-Relief Medicines	How Much to Take	How Often	Other Instructions
<input type="checkbox"/> Albuterol (ProAir, Ventolin, Proventil) <input type="checkbox"/> Levalbuterol (Xopenex)	<input type="checkbox"/> 2 puffs <input type="checkbox"/> 4 puffs <input type="checkbox"/> 1 nebulizer treatment	Take <b>ONLY</b> as needed (see below — starting in Yellow Zone or before exercise)	NOTE: If you need this medicine more than two days a week, call physician to consider increasing controller medications and discuss your treatment plan.

Special instructions when I am ● *doing well*, ● *getting worse*, ● *having a medical alert*.

## Doing well.

- No cough, wheeze, chest tightness, or shortness of breath during the day or night.
- Can do usual activities.

**Peak Flow** (for ages 5 and up):  
is \_\_\_\_\_ or more. (80% or more of personal best)  
**Personal Best Peak Flow** (for ages 5 and up): \_\_\_\_\_



**PREVENT** asthma symptoms every day:

- Take my controller medicines (above) every day.
- Before exercise, take \_\_\_\_\_ puff(s) of \_\_\_\_\_
- Avoid things that make my asthma worse. (See back of form.)

## Getting worse.

- Cough, wheeze, chest tightness, shortness of breath, or
- Waking at night due to asthma symptoms, or
- Can do some, but not all, usual activities.

**Peak Flow** (for ages 5 and up):  
\_\_\_\_\_ to \_\_\_\_\_ (50 to 79% of personal best)



**CAUTION.** Continue taking every day controller medicines, AND:

- Take \_\_\_\_\_ puffs or \_\_\_\_\_ one nebulizer treatment of quick relief medicine. If I am not back in the **Green Zone** within 20-30 minutes take \_\_\_\_\_ more puffs or nebulizer treatments. If I am not back in the **Green Zone** within one hour, then I should:
  - Increase \_\_\_\_\_
  - Add \_\_\_\_\_
  - Call \_\_\_\_\_
- Continue using quick relief medicine every 4 hours as needed. Call provider if not improving in \_\_\_\_\_ days.

## Medical Alert

- Very short of breath, or
- Quick-relief medicines have not helped, or
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in **Yellow Zone**.

**Peak Flow** (for ages 5 and up):  
less than \_\_\_\_\_ (50% of personal best)



**MEDICAL ALERT! Get help!**

- Take quick relief medicine: \_\_\_\_\_ puffs every \_\_\_\_\_ minutes and get help immediately.
- Take \_\_\_\_\_
- Call \_\_\_\_\_

**Danger! Get help immediately! Call 911 if trouble walking or talking due to shortness of breath or if lips or fingernails are gray or blue. For child, call 911 if skin is sucked in around neck and ribs during breaths or child doesn't respond normally.**

**Health Care Provider:** My signature provides authorization for the above written orders. I understand that all procedures will be implemented in accordance with state laws and regulations. Student may self carry asthma medications:  Yes  No self administer asthma medications:  Yes  No (This authorization is for a maximum of one year from signature date.)

Healthcare Provider Signature \_\_\_\_\_

Date \_\_\_\_\_

ORIGINAL (Patient) / CANARY (School/Child Care/Work/Other Support Systems) / PINK (Chart)

Used with permission from Regional Asthma Management and Prevention (RAMP), a program of the Public Health Institute. The RAMP Asthma Action Plan was supported by Cooperative Agreement Number 1U58DP001016-01 from the Centers for Disease Control and Prevention. The contents of the RAMP Asthma Action Plan are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

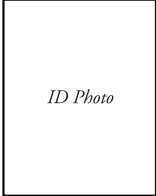


Asthma and Allergy  
Foundation of America

# STUDENT ASTHMA ACTION CARD



Name: \_\_\_\_\_ Grade: \_\_\_\_\_ Age: \_\_\_\_\_  
 Homeroom Teacher: \_\_\_\_\_ Room: \_\_\_\_\_  
 Parent/Guardian Name: \_\_\_\_\_ Ph: (h): \_\_\_\_\_  
 Address: \_\_\_\_\_ Ph: (w): \_\_\_\_\_  
 Parent/Guardian Name: \_\_\_\_\_ Ph: (h): \_\_\_\_\_  
 Address: \_\_\_\_\_ Ph: (w): \_\_\_\_\_



Emergency Phone contact #1: \_\_\_\_\_  
 Name Relationship Phone

Emergency Phone contact #2: \_\_\_\_\_  
 Name Relationship Phone

Physician Treating Student for Asthma: \_\_\_\_\_ Ph: \_\_\_\_\_

Other Physician: \_\_\_\_\_ Ph: \_\_\_\_\_

## EMERGENCY PLAN

Emergency action is necessary when the student has symptoms such as \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, or has a peak flow reading of \_\_\_\_\_.

### • Steps to take during an asthma episode:

1. Check peak flow.
2. Give medications as listed below. Student should respond to treatment in 15-20 minutes.
3. Contact parent/guardian if \_\_\_\_\_
4. Re-check peak flow.
5. Seek emergency medical care if the student has any of the following:
  - ✓ Coughs constantly
  - ✓ No improvement 15-20 minutes after initial treatment with medication and a relative cannot be reached.
  - ✓ Peak flow of \_\_\_\_\_
  - ✓ Hard time breathing with:
    - Chest and neck pulled in with breathing
    - Stooped body posture
    - Struggling or gasping
  - ✓ Trouble walking or talking
  - ✓ Stops playing and can't start activity again
  - ✓ Lips or fingernails are grey or blue

**IF THIS HAPPENS, GET  
EMERGENCY HELP NOW!**

### • Emergency Asthma Medications

Name	Amount	When to Use
1. _____		
2. _____		
3. _____		
4. _____		

See reverse for more instructions

**DAILY ASTHMA MANAGEMENT PLAN**

• **Identify the things which start an asthma episode (Check each that applies to the student.)**

- |   |  |                                      |
|---|--|--------------------------------------|
| <input type="checkbox"/> Exercise               | <input type="checkbox"/> Strong odors or fumes | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Respiratory infections | <input type="checkbox"/> Chalk dust / dust     | _____                                |
| <input type="checkbox"/> Change in temperature  | <input type="checkbox"/> Carpets in the room   |                                      |
| <input type="checkbox"/> Animals                | <input type="checkbox"/> Pollens               |                                      |
| <input type="checkbox"/> Food _____             | <input type="checkbox"/> Molds                 |                                      |

Comments \_\_\_\_\_

• **Control of School Environment**

(List any environmental control measures, pre-medications, and/or dietary restrictions that the student needs to prevent an asthma episode.) \_\_\_\_\_

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

• **Peak Flow Monitoring**

Personal Best Peak Flow number: \_\_\_\_\_

Monitoring Times: \_\_\_\_\_

• **Daily Medication Plan**

Name	Amount	When to Use
1. _____		
2. _____		
3. _____		
4. _____		

**COMMENTS / SPECIAL INSTRUCTIONS**

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

**FOR INHALED MEDICATIONS**

I have instructed \_\_\_\_\_ in the proper way to use his/her medications. It is my professional opinion that \_\_\_\_\_ should be allowed to carry and use that medication by him/herself.

It is my professional opinion that \_\_\_\_\_ should not carry his/her inhaled medication by him/herself.

\_\_\_\_\_  
 Physician Signature Date

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

AAFA • 8201 Corporate Drive, Suite 1000, Landover, MD 20785 • www.aafa.org • 800-727-8462

A peak flow meter is a small handheld device that measures how **hard and fast** the student can blow air out of the lungs. As airways narrow from inflammation or bronchoconstriction and it becomes harder for air to move through the lungs, peak flow readings get lower.

Monitoring peak flow can detect worsening asthma early—sometimes hours or even days before the student develops or notices any asthma symptoms. Peak flow monitoring can also be used to assess the student's response to medication during an asthma attack. Not all students with asthma monitor their peak flow. Peak flow monitoring may be particularly helpful for students who have difficulty recognizing signs and symptoms of worsening asthma and students who have more severe asthma.

The student's personal best peak flow number represents the student's highest measured reading determined when the student is feeling well and has no asthma symptoms. The student's personal best peak flow number should be noted on his or her asthma action plan. A decrease in peak flow compared with the student's personal best peak flow number may signal a need to adjust treatment to prevent or stop an asthma attack.

Based on the student's personal best peak flow number, the health care

provider can establish ranges that coincide with the green, yellow, and red "traffic light" zones on the student's asthma action plan. Generally, a peak flow reading between 80% and 100% of the personal best peak flow number is in the green zone and means that the student is doing well and can continue his or her usual treatment and level of activity.

A peak flow reading of less than 80% of the student's personal best, however, indicates the need for action according to the student's asthma action plan. Symptoms such as coughing, wheezing, and chest tightness are also indicators of worsening asthma. Until the student's peak flow reading equals or exceeds 80% of his or her personal best peak flow number and symptoms improve, the student should avoid running and playing.

Getting an accurate peak flow reading requires maximum effort and good technique. To improve the accuracy of peak flow monitoring, guide the student through the proper technique using the instructions that follow. Pay attention to symptoms, too, such as coughing, wheezing, chest tightness, or other breathing difficulties, that indicate the student is having an asthma attack and requires prompt treatment.

## Using a Peak Flow Meter

### TO HELP STUDENTS USE A PEAK FLOW METER, GIVE THE FOLLOWING INSTRUCTIONS:

1. Move the indicator to the bottom of the numbered scale (zero).
2. Stand up.
3. Take as deep a breath as possible.
4. Place the meter in your mouth and close your lips around the mouthpiece. Do not put your tongue inside the hole.
5. Blow out as hard and fast as you can through the mouth (not the nose).
  - Write down the number you get. If you cough or make a mistake, don't write down the number. Do it over again.
  - Repeat these actions (steps 1–5) for two more times and write down the highest three numbers (when done correctly, the numbers should be about the same).



**Compare these three numbers with the peak flow numbers on the student's written asthma action plan or other individual plan.** Check to see which range the number falls under and follow the plan's instructions for that range.

**GREEN ZONE:** 80%–100% of personal best ➔ Take daily long-term control medication, if prescribed.

**YELLOW ZONE:** 50%–79% of personal best ➔ Add quick-relief medication(s) as directed and continue daily long-term control medication, if prescribed. Continue to monitor.

**RED ZONE:** Less than 50% of personal best ➔ Add quick-relief medication(s) as directed. Get medical attention for the student now.



It is important that students take their medications correctly. Most quick-relief medications (and some long-term control medications) are delivered by metered-dose inhalers, which are small, pressurized canisters that release a pre-measured dose of medication. They are highly effective but can be difficult to use correctly because the student must breathe in at the right time while pressing down on the inhaler to release the medication.

Attaching a spacer or valved holding chamber (with a face mask for small children) to one end of the metered-dose inhaler can help. This hollow tube-like device briefly holds the released inhaler medication. Using the device's mouthpiece at the other end to breathe in the medication slowly and deeply helps to get the right dose directly into the lungs, instead of stopping at the mouth or throat, or blowing away in the air.

Instead of using a metered-dose inhaler, some students may take their asthma medication using a nebulizer (a machine that turns liquid medication into a fine mist). Either device works fine, but a metered-dose inhaler with a spacer or valved holding chamber has the added benefits of being easier to use, less time consuming, and less expensive.

The school nurse should review proper use of the metered-dose inhaler with the student. The instructions provided below are for your information. Not all of the ways pictured in the third step below will apply to all types of metered-dose inhalers. Differences in the content of the metered-dose inhaler, the use of built-in spacers on some devices, ability to coordinate each step, and other considerations can influence the choice of technique for using a metered-dose inhaler.

## How To Use a Metered-Dose Inhaler

1. Take off the cap. Shake the inhaler. Prime according to manufacturer's instructions.
2. Breathe out.
3. Use the inhaler in any one of these ways:



A.  
Spacer



B.  
In the  
mouth



C.  
Open  
mouth

4. As you start to breathe in, push down on the top of the inhaler and keep breathing in slowly for 3 to 5 seconds.
5. Hold your breath for 10 seconds. Breathe out.
6. When taking an inhaled corticosteroid, **rinse out your mouth with water** and then spit it out. Rinsing helps to prevent an infection in the mouth.

Dry powder inhalers all require a deep, fast breath to pull the medication from the device into the lungs. However, there are differences among various types of dry powder inhalers. For example, to load a dose of medication after removing the cap or cover, it may be necessary to slide a lever, push a button, twist a dial, or place a capsule inside the inhaler. Moreover, while some inhalers should always be held upright, others should be held horizontally for use.

Children as young as four or five years of age can be taught to use dry powder inhalers. Encourage students and their families to read the instructions that come with the inhaler carefully and to ask a school nurse, doctor, or other health care provider to show them how to use the dry powder inhaler the right way.

If you are observing or assisting students in their use of dry powder inhalers, keep these tips in mind to help them avoid common mistakes:

- Do not shake the inhaler before using it. The dose of medication can fall out.
- Do not use a spacer. Instead, use a deep, fast breath to pull the dose into the lungs.
- Do not blow air into the inhaler. Keep the head turned away when breathing out.
- Do not leave the inhaler in the bathroom. Moisture can cause it to clog up.
- Do not use water to clean the inhaler. Wipe the mouthpiece with a dry cloth or tissue.
- Do not run out. Get a new inhaler before it is used up and the dose counter hits 0.

## How To Use a Dry Powder Inhaler

1. Remove cap and hold inhaler upright, or as otherwise indicated.
2. Load a dose into the inhaler as directed.
3. Take a deep breath and breathe out.
4. Close your lips tightly around the inhaler.
5. Breathe in quickly and deeply through your mouth.
6. Remove the inhaler from your mouth.
7. Hold your breath for about 10 seconds.
8. Breathe out slowly through your nose or mouth.
9. If you are supposed to take more than 1 puff of medicine per dose, wait 1 minute and repeat steps 2 through 8 for each puff.
10. When taking an inhaled corticosteroid, **rinse out your mouth with water** and then spit it out. Rinsing helps to prevent an infection in the mouth.

The National Heart, Lung, and Blood Institute (NHLBI) Health Information Center provides information to health professionals, patients, and the public about the treatment, diagnosis, and prevention of heart, lung, and blood diseases and sleep disorders.

*Publications on asthma in the school include:*

**Managing Asthma: A Guide for Schools**  
(booklet produced with the U.S. Department of Education)

**How Asthma-Friendly Is Your School?**  
(checklist in English and in Spanish)

**Is the Asthma Action Plan Working?—  
A Tool for School Nurse Assessment**

**Students With Chronic Illnesses:  
Guidance for Families, Schools,  
and Students**

*For more information, contact:*

**NHLBI Health Information Center**  
P.O. Box 30105  
Bethesda, MD 20824-0105  
301-592-8573  
TTY: 800-877-8339  
Fax: 301-592-8563  
Web site: [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

*Also, try these other resources:*

**Allergy and Asthma Network/  
Mothers of Asthmatics**  
8201 Greensboro Drive, Suite 300  
McLean, VA 22102  
800-878-4403  
703-288-5271  
Web site: [www.aanma.org](http://www.aanma.org)

**American Association for Respiratory Care**  
9425 North MacArthur Boulevard, Suite 100  
Irving, TX 75063  
972-243-2272  
Web site: [www.aarc.org](http://www.aarc.org)

**American Lung Association**  
1301 Pennsylvania Avenue, NW., Suite 800  
Washington, DC 20004  
800-586-4872  
202-785-3355  
Web site: [www.lungusa.org](http://www.lungusa.org)

**American School Health Association**  
4340 East West Highway, Suite 403  
Bethesda, MD 20814  
800-445-2742  
301-652-8072  
Web site: [www.ashaweb.org](http://www.ashaweb.org)

**Asthma and Allergy Foundation of America**  
8201 Corporate Drive, Suite 1000  
Landover, MD 20785  
800-727-8462  
Web site: [www.aafa.org](http://www.aafa.org)

**Centers for Disease Control and Prevention**  
1600 Clifton Road, NE.  
Atlanta, GA 30333  
800-232-4636 (800-CDC-INFO)  
TTY: 888-232-6348  
Web site: [www.cdc.gov/healthyyouth](http://www.cdc.gov/healthyyouth)

**The Law Library of Congress**  
101 Independence Avenue SE.  
Washington, DC 20540-4860  
202-707-5079  
Web site: [www.loc.gov/law/help/guide/states.php](http://www.loc.gov/law/help/guide/states.php)

**U.S. Environmental Protection Agency**  
P.O. Box 42419  
Cincinnati, OH 45242-0419  
800-490-9198  
Web site: [www.epa.gov/asthma/publications.html](http://www.epa.gov/asthma/publications.html)

**U.S. Department of Education**  
Office for Civil Rights  
Lyndon Baines Johnson Department of  
Education Building  
400 Maryland Avenue, SW.  
Washington, DC 20202-1100  
800-421-3481  
TDD: 877-521-2172  
Web site: [www.ed.gov/ocr](http://www.ed.gov/ocr)

“When we follow  
my son’s asthma action plan,  
there’s no slowing  
him down.”









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**National Heart  
Lung and Blood Institute**  
People Science Health