

SECTION 3

Emergency Management of Asthma and Anaphylaxis



This section addresses the protocols and actions recommended for treatment of asthma and anaphylactic episodes and emergencies. All school staff should be provided information and training on how to recognize asthma and anaphylactic symptoms and how to provide immediate treatment. This information can prevent serious complications of asthma and anaphylaxis, and in emergencies, it can save lives.

Section 3

Emergency Management of Asthma and Anaphylaxis

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Recognizing an Asthma Episode

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

Common asthma symptoms:

1. Coughing (may be forceful enough to cause vomiting)
2. Wheezing (high pitched sound heard on exhalation)
3. Shortness of breath, breathlessness, or shallow breathing
4. Tightness in the chest or chest pain
5. Difficulty exercising, talking, walking or thinking

A child may exhibit one or more of the warning signs of an asthma episode:

Changes in breathing

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

Verbal complaints

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

Behavior changes and other signs

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



Take action without delay once a child and/or staff notice a developing asthma episode.

ASTHMA & ANAPHYLAXIS FIRST AID

IN THE SCHOOL SETTING

If student has ANY of these symptoms:

LUNG

unrelenting cough, wheezing (noisy breathing), shortness of breath, rapid or shallow breathing, nostrils open wide, chest tight or hurts, chest/neck sucked in, trouble walking or talking

MOUTH

itching, swelling of lips and/or tongue

THROAT

difficulty swallowing, itching, tightness/closure, hoarseness

SKIN

itching, hives, skin rash, redness, swelling, blue or gray lips and nails

GUT

vomiting, nausea, diarrhea, cramps

HEART

weak pulse, dizziness, passing out, confusion

AND/OR

drop in peak flow, unusually tired or lethargic, feeling anxious or panicky, been exposed to known or suspected allergic trigger (e.g., food, bee sting)

Only a few symptoms of an asthma attack or anaphylaxis (severe allergic reaction) may be present. Symptoms can get worse quickly.

Some symptoms can be life-threatening! **ACT FAST!**

1 STOP ACTIVITY

- Help student to an **UPRIGHT** position; remain calm.
- **NEVER LEAVE STUDENT ALONE!**

2 TAKE ACTION

- Follow student's Asthma Action Plan, Anaphylaxis Action Plan, or emergency plan, if available.
 - For **ASTHMA**, use **RESCUE INHALER IMMEDIATELY** (usually albuterol) equal to 2 puffs (15–30 seconds between puffs) with spacer (if available). May repeat every 10–15 minutes for up to 3 treatments.
 - For **ANAPHYLAXIS**, use EpiPen® or Twinject® Auto-Injector to **INJECT EPINEPHRINE IMMEDIATELY INTO THIGH and HOLD FOR 10 SECONDS.**

3 GET HELP

- Call School Nurse, if available, and resume treatment.
- **CALL 911 IMMEDIATELY** if epinephrine used or life-threatening allergic reaction suspected.
- **CALL 911 IMMEDIATELY** if:
 - Medications unavailable or don't work
 - Student has **LATE WARNING SIGNS** of an asthma emergency:
 - struggling to breathe
 - chest/neck muscles are pulled in or sucked in with each breath
 - trouble walking or talking
 - nostrils open wide
 - lips or fingertips are gray or blue
 - rapidly deteriorating condition

Always notify Parent/Guardian and document in health record.

Emergency Anaphylaxis Management

Epinephrine (adrenaline) administered by means of subcutaneous or intramuscular injection is the treatment of choice for anaphylaxis. It works to reverse the symptoms of an anaphylactic reaction and helps prevent its progression. It is available via prescription as an EpiPen® or EpiPen® Jr Auto-Injector or Twinject® Auto-Injector (Twinject® second dose requires repositioning needle). It is important to administer epinephrine **as soon as** one detects the symptoms of anaphylaxis.

Antihistamines, such as Benadryl, and steroids are often used to further improve the recovery of a person with an anaphylactic reaction.

Antihistamines and asthma medications may be administered with epinephrine, but never instead of epinephrine because they cannot reverse many of the symptoms of anaphylaxis.

Excerpted below are some of the strategies recommended by the American Academy of Allergy, Asthma, and Immunology in its position statement, *Anaphylaxis in Schools and Other Child-Care Settings* (bold emphasis added):



- **Epinephrine is the first drug that should be used in the emergency management of a child having a potentially life-threatening allergic reaction.** Epinephrine injection is available in a number of self-administration delivery devices... There are no contraindications to the use of epinephrine for a life-threatening allergic reaction.
- **In patients who have had anaphylactic reactions, it is recommended that epinephrine be given at the start of any reaction occurring in conjunction with exposure to a known or suspected allergen.** In situations where there has been a history of a severe cardiovascular collapse to an allergen, the physician may advocate that epinephrine be administered immediately after an insect sting or ingestion of the offending food and before any reaction has begun. Reports have shown that **adequate warning signs are not always present before serious reactions develop.**
- **All individuals receiving emergency epinephrine should immediately be transported to a hospital even if symptoms appear to have resolved.** In the majority of cases, epinephrine will be effective after 1 injection. However, further treatments may be required, and therefore observation in a hospital setting is necessary for at least 4 hours after initial symptoms subside because delayed and prolonged reactions may occur even after proper initial treatment.
- **Epinephrine should be kept in locations that are easily accessible and not in locked cupboards or drawers.** All staff members should know these locations. **Children old enough to self-administer epinephrine should carry their own kits.** For

younger children, the epinephrine device should be kept in the classroom and passed from teacher to teacher as the child moves through the school (e.g., from classroom to music to PE to lunch).

- All students, regardless of whether they are capable of epinephrine self-administration, will still require the help of others because the severity of the reaction may hamper their attempts to inject themselves. **Adult supervision is mandatory.**
- **All individuals entrusted with the care of children need to have familiarity with basic first-aid and resuscitative techniques. This should include additional formal training on how to use epinephrine devices.** Training programs may be through health departments or physicians' groups to ensure that all individuals in schools and other areas of child care (e.g., school bus drivers, coaches, camp counselors, and lifeguards) are qualified in these techniques. A **school-wide food allergy awareness program for the staff**, including an allergy emergency drill, should be developed to ensure that everyone will know what to do if a reaction occurs.

Anaphylaxis Action Plans are available from a number of sources. Call the DC Department of Health at (202) 442-5925 for more information about DC's Anaphylaxis Action Plan. Additional sample forms are available from the Allergy and Asthma Foundation of America (www.aafa.org, click on "Education" tab, then "Materials and Tools"); American Academy of

Allergy, Asthma and Immunology (www.aaaaa.org/members/resources/anaphylaxis_toolkit); and The Food Allergy & Anaphylaxis Network (www.foodallergy.org/school.html). Additional educational material for schools on anaphylaxis is available from The Food Allergy & Asthma Network (*The School Food Allergy Program*) and the Anaphylaxis Network in Canada.



Fatalities more often occur away from home and are associated with either not using epinephrine or a delay in the use of epinephrine treatment.

How to Use Epinephrine Auto-Injectors

School personnel and students authorized to carry their own anaphylaxis medication should be trained in using epinephrine auto-injector devices. Ask your school administrator and school nurse for assistance. Instructional materials, video, and placebo demonstrator and training pen devices also are available from The Food Allergy & Anaphylaxis Network in Fairfax, Virginia, from the manufacturers of epinephrine auto-injectors (including www.epipen.com and www.twinject.com), and from other sources.

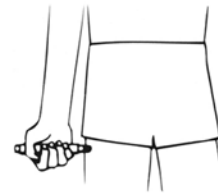
After administering epinephrine, ALWAYS CALL 911 or RESCUE SQUAD even if symptoms seem better.

EpiPen® and EpiPen® Jr. Directions

- Pull off gray activation cap.



- Hold black tip near outer thigh (always apply to thigh).
- Swing and jab firmly into outer thigh until Auto-Injector mechanism functions. Hold in place and count to 10. Remove the EpiPen® unit and massage the injection area for 10 seconds.



Twinject® 0.3 mg and Twinject® 0.15 mg

- Pull off green end cap, then red end cap.



- Put gray cap against outer thigh, press down firmly until needle penetrates. Hold for 10 seconds, then remove.



SECOND DOSE ADMINISTRATION:

If symptoms don't improve after 10 minutes, administer second dose:

- Unscrew gray cap and pull syringe from barrel by holding blue collar at needle base.
- Slide yellow or orange collar off plunger.
- Put needle into thigh through skin, push plunger down all the way, and remove.



Once EpiPen® or Twinject® is used, call the Rescue Squad. Take the used unit with you to the Emergency Room. Plan to stay for observation at the Emergency Room for at least 4 hours.

Asthma/Anaphylaxis Tracking and Follow-Up

Make sure every student with asthma or anaphylaxis has an action plan

- Get updated student Asthma Action Plan, Anaphylaxis Action Plan, Student Health Record, and medication administration forms at least annually.
- Ensure that students with asthma or anaphylaxis are monitored regularly by their healthcare provider. The rule of thumb is at least two scheduled asthma healthcare visits per year for students whose asthma is under control; 3-4 visits per year for students using daily medication therapy; and more frequent visits for students with unstable asthma.
- Keep the action plan readily available in the student's health record.
- Refer to student's action plan whenever he/she needs asthma or anaphylaxis medication or for monitoring (e.g., to check student's medication technique).

Track and document medication administration in student health record

- Document each time a student receives emergency medication, whether administered by the school nurse, authorized staff, or student.
- Ask the school nurse to assess students with asthma who use rescue medications more than twice a week or have other indications that their asthma is not well controlled.

- Recommend follow-up by a healthcare provider for a student whose asthma appears to be poorly controlled (e.g., based on symptom frequency, medication use, lack of medication, school nurse assessment, or student concerns) or who needs evaluation, testing, or medication for allergies and anaphylaxis. The American Academy of Pediatrics' *Schooled in Asthma* project, launched with funding from the Centers for Disease Control and Prevention, Division of Adolescent and School Health, provides sample forms and letters to facilitate communication among schools, families, and physicians (www.aap.org/schooledinasthma).
- Check medication availability and expiration date. Request refills as needed for expired or empty containers.

Report all anaphylaxis or asthma emergencies (Red Zone symptoms)!

- Notify the school nurse immediately, if available.
- File required incident report(s).
- Communicate about the incident with the healthcare provider and parent/guardian and document communication.
- Determine the cause of the reaction so that it can be avoided in the future.