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Toolkit for the Administration of Epinephrine and Albuterol/Levalbuterol in the School Setting

Georgia Department of Education

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INTRODUCTION

This toolkit provides local schools or school districts with guidelines in the development and implementation of policies related to stock Epinephrine Auto-Injector and stock Albuterol/Levalbuterol in the school setting. The toolkit specifically addresses:

- Medication administration
- Development of the Individualized Health Care Plan and Emergency Action Plan
- Stock Epinephrine in the School Setting for Treatment of Perceived Anaphylaxis
- Stock Albuterol/Levalbuterol in the School Setting for Treatment of Perceived Respiratory Distress

Throughout this document where there is a reference to Albuterol, it also applies to Albuterol Sulfate.

MEDICATION ADMINISTRATION PROCEDURAL GUIDELINES

The following procedural guidelines are recommended considerations that schools and school districts may adopt into their local district procedures. *When feasible*, school nurses should provide oversight of medication administration.

Storage of Medications

Emergency medications should be stored in an unlocked, clearly labeled and readily accessible cabinet or container in the health room or other accessible space in the school building during school hours under the general supervision of the school nurse or, in the absence of the school nurse, the principal or the principal's designee who has been trained in the administration of medication.

To promote rapid, life--saving steps in an emergency, medications should not be locked during the school day. While they must not be accessible to students, they should be kept in a safe, accessible, and reasonably secure location that can be properly supervised by nurse or other authorized, trained school personnel.

Epinephrine Storage

According to the manufacturer, epinephrine auto-injectors should be stored at room temperature until the marked expiration date when the unit must be replaced. Auto--injectors should not be refrigerated as this could cause the device to malfunction. Auto--injectors should not be exposed to extreme heat, such as in the glove compartment or trunk of a car during the summer, and they should not be exposed to direct sunlight. Heat and light shorten the life of the product and can cause the epinephrine to degrade. To be effective, the solution in the auto-injector should be clear and colorless. If the solution is brown, replace the unit immediately.

Albuterol/Levalbuterol Storage

Albuterol/Levalbuterol inhalation solution for a nebulizer should be stored between 20° and 25° C (68° and 77° F). Vials should be protected from light before use, therefore, keep unused vials in the foil pouch. Check for drug color: do not use solution if brown or darker than slightly yellow. Do not use it if it is pinkish in color. Do not use it if it contains a precipitate (particles in the solution).

Albuterol/Levalbuterol Multi Dose Inhaler (MDI) should be stored at room temperature between 15° and 25° C (59° and 77° F). Avoid exposure to extreme heat and cold. Do not puncture the canister. Do not store near heat or flame. Temperatures above 120° F may cause the canister to burst. Confirm expiration date and do not use it after the expiration date printed on the vial or canister. Check with the local pharmacists to obtain medications that will remain "in date" for 12-15 months or more.

Location of Medications

The primary consideration for the location of emergency medications should be the safety of students. Consider the following when deciding the location of emergency medications:

- Types of medications
- Developmental stage of students

- Competence of the student
- Size of the school building
- Availability of a full-time school nurse in the school building
- Availability of communication devices between school personnel (such as teachers, para-professionals) who are inside the building or outside on school grounds and the school nurse
- School nurse response time from the health office to the classroom
- Other responsibilities of the teacher
- Suggestion from students and parents
- Movement of the students within the school building
- Number and type of school staff trained in the use of emergency medications

Stocking of Medications

Epinephrine Auto-Injectors

Pursuant to O.C.G.A. § 20-2-776.2, a school may stock epinephrine auto- injectors with a prescription provided by a licensed health practitioner (pursuant to O.C.G.A. § 26-4-116.1) for use on any student or employee who exhibits signs of anaphylactic adverse reaction. The school may designate an employee or agent trained in the possession and administration of auto-injectable epinephrine to be responsible for the storage, maintenance, and distribution by the school. A school may arrange with manufacturers of auto-injectable epinephrine or third- party suppliers to obtain the products free of charge or at fair market or reduced prices.

Levalbuterol or Albuterol

Pursuant to O.C.G.A. § 20-2-776.3 a school may stock albuterol sulfate or levalbuterol with a prescription provided by a licensed health practitioner (pursuant to O.C.G.A. § 26-4.116.3) for use on any student who exhibits symptoms of respiratory distress. The school may designate an employee or agent trained in the possession and administration of albuterol sulfate or levalbuterol to be responsible for the storage, maintenance, and distribution by the school. A school may arrange with manufacturers of albuterol sulfate or levalbuterol or third-party suppliers to obtain the products free of charge or at fair market or reduced prices.

Administration of Medications

Epinephrine Auto-Injectors

Pursuant to O.C.G.A. § 20-2-776.2, an epinephrine auto-injector may be administered by any school employee or agent who has completed training in recognizing the symptoms of anaphylactic shock and the correct method of administering the epinephrine auto-injector. Epinephrine auto-injector may be administered to any student regardless of whether that student has a prescription for epinephrine or not. Any school personnel who in good faith administers or chooses to not administer epinephrine to a student shall be immune from civil liability for any act or omission to act related to the administration of epinephrine. Pursuant to O.C.G.A. § 20-2-776, as each local board of education shall adopt a policy authorizing a student to carry and self-administer prescription auto-injectable epinephrine, a student may self-administer the epinephrine auto- injector if the student has written statements of authorization on file from the student's medical provider and from the parents or guardian.

Levalbuterol or Albuterol

Pursuant to O.C.G.A. § 20-2-776.3, albuterol sulfate or levalbuterol may be administered by any school employee or agent who has completed training in recognizing the symptoms of respiratory distress and the

correct method of administering albuterol or levalbuterol. Any school personnel who in good faith administers or chooses to not administer albuterol sulfate or levalbuterol to a student should be immune from civil liability for any act or omission to act related to the administration of albuterol sulfate or levalbuterol. Pursuant to O.C.G.A. § 20-2-774, a student may self-administer Albuterol sulfate or Levalbuterol if the local board of education has a policy authorizing self-administration of asthma medication.

Training for Medication Administration

Pursuant to O.C.G.A. § 20-2-776.2, any school employee or agent of a public or private school who has completed training or received information in recognizing symptoms of anaphylactic shock and the correct method of administering the auto-injectable epinephrine may provide and/or administer auto-injectable epinephrine.

Pursuant to O.C.G.A. § 20-2-776.3, any school employee or agent of a public or private school who has completed training or received information in recognizing symptoms of respiratory distress and the correct method of administering albuterol/levalbuterol may provide and/or administer albuterol/levalbuterol.

Best Practices for Medication Administration

Best practice is that the licensed school nurse should be responsible for general supervision of administration of medications in the schools to which that nurse is based and/or assigned. This supervision should include, but not be limited to, the following:

- Being available regularly to review orders and changes in orders and communicate these to the personnel designated to give medication.
- Setting up a plan and schedule to ensure medications are administered properly.
- Assisting district to facilitate proper training from outside expert/source.
- Providing appropriate follow-up to ensure the administration of medication plan results in desired student outcomes.
- Providing consultation by telephone or other means of telecommunication.
- Implementing policies and procedures regarding all phases of administration of medications.
- Reviewing periodically all documentation pertaining to the administration of medications for students.
- Observing competency to administer medications by qualified personnel.

Best Practices for Administration of Epinephrine Auto-injectors

Training should be conducted by a nationally recognized organization experienced in training laypersons in emergency health treatment. Training may be conducted online or in person and should cover, at a minimum, the following:

- How to recognize signs and symptoms of severe allergic reactions, including anaphylaxis
- Standards and procedures for the storage and administration of auto- injectable epinephrine
- Therapeutic effects of the medication, potential side effects, overdose or missed dose of the medication
- Emergency follow-up procedures

It is strongly recommended that training be provided for school personnel annually.

Best Practices for Administration of Levalbuterol or Albuterol

Training should be conducted by a nationally recognized organization experienced in training laypersons in emergency health treatment. Training may be conducted online or in person and should cover, at a minimum, the following:

- How to recognize signs and symptoms of respiratory distress
- Standards and procedures for the storage and administration of albuterol/levalbuterol
- Therapeutic effects of the medication, potential side effects, overdose or missed dose of the medication
- Emergency follow-up procedures

It is strongly recommended that training be provided for school personnel annually.

Schools/school districts should maintain documentation of administration of medication trainings as follows:

- Dates of general and student-specific training
- Content of the training
- List of individuals who have successfully completed general training
- Student specific administration of medication training for the current school year
- Name and credentials of the nurse or school medical advisor trainer or trainers
- Completed Documentation of Competencies Form (see Appendix F)

Returning to School after an Emergency

Students who have experienced an acute allergic reaction or perceived respiratory distress at school may need special consideration upon returning to school. The approach taken by the school/school district is dependent upon the severity of the emergency, the student's age, and the diagnosis.

Upon returning to school, it is strongly recommended that the student be seen by a licensed professional school nurse. The school nurse is responsible for completing an assessment to ensure Individualized Health Care Plans and Emergency Action Plans are in place and that provider follow--up and other appropriate measures are taken to ensure the health and safety of the student.

In the absence of a school nurse, it is recommended that the student and parents meet with designated school personnel to discuss any perceived contributing factors to the respiratory distress, symptoms displayed and results of follow-up with a medical provider for assessment of asthma or other underlying conditions.

If the emergency may have resulted from a food consumed at school or from an acute environmental exposure, then request assistance from witnesses and staff to ascertain what exposure the student may have encountered and review what changes need to be made to prevent another episode. This information should be included in the student's Individualized Health Care Plan and Emergency Action Plan upon return to school.

DEVELOPING INDIVIDUALIZED HEALTH CARE PLANS AND EMERGENCY ACTION

Children with life-threatening allergies or asthma should have an Individualized Health Care Plan (IHCP) and possibly an action plan (such as an Emergency Action Plan) to address how their health and safety needs will be met while in school.

More information about IHCPs, Emergency Action Plans, and 504 plans.

Emergency Action Plan (EAP)

EAPs provide specific directions for students with life-threatening allergies or asthma episodes. Emergencies may include medical emergencies (e.g., accidental exposure to allergens) or safety emergencies (e.g., fire drills or lockdowns). The EAPs must be appropriate for the student's diagnosis. The EAPs are often part of IHCPs. This written plan helps school nurses, school personnel, and emergency responders react to emergencies in a prompt, safe, and individualized manner. EAPs may include:

- Name and other identifying information (such as date of birth, grade, and photo)
- Disease or disorder specific information (such as specific allergen)
- Signs and symptoms of an adverse reaction
- Location and storage of emergency medications
- Who will administer the medication (including self--administration options)
- Follow--up plans (such as calling 911 after the administration of epi pens)
- Emergency contacts for parents/guardians and medical providers

To develop EAPs, school nurses should:

- Obtain current health information from the family and the student's health care provider(s), including student's emergency plan and all medication orders, Asthma Action Plans, Allergy Action Plans; and
- Consult with the health care provider, when necessary, to clarify emergency medical protocol and medication orders.

Individualized Health Care Plan (IHCP)

In addition to having a current EAP, students with life-threatening allergies and asthma should also have an IHCP. The process for developing and implementing an individualized plan for the student includes:

- Identification of a core team to establish the plan. School nurses should have the lead role on this team. In addition to the school nurse, the team should include, at a minimum, parent(s), guardian(s), or other family members; school administrator(s); classroom teacher; and the student (if appropriate). Other suggested members include the school medical advisor, school-based health clinic staff, student's medical provider, culinary arts teachers (if applicable to the student), and other school personnel such as the school service manager

- Collaboration between school nurses and parents to consider developmentally and age-appropriate accommodations for consideration at the core team meeting
- Meeting of team members to finalize IHCPs. While health care providers can offer recommendations for the types of accommodations needed in school settings, it is the core team's responsibility for the development of recommendations based on the students' needs and school environments
- Determination of the type of plan appropriate for students (such as IHCP or Section 504 plan) based on core team recommendations.
- Based on students' health status, determination of the minimum frequency with which health information will be reviewed and updated accordingly
- Clarification of the roles and responsibilities of each core team member and insurance that all team members' opinions are considered

IHCPs should address student needs both during the normal school day and during before- and after-school activities. This information may be distributed to all school personnel responsible for the student with life-threatening allergies or asthma.

Considerations to be included in IHCPs for students with life-threatening allergies or asthma may include:

- Classroom environment (such as including allergy-/trigger-free areas in the classroom for students with allergies or allowing students with allergies to have dietary supplements when needed in the classroom)
- Cafeteria safety, including allergy free tables or zones
- Participation in school nutrition programs
- Snacks, birthdays, and other celebrations
- Alternatives to rewards and incentives
- Location(s) of emergency medication
- Risk management during lunch and recess times
- Classroom projects (such as science activities that may involve allergen products)
- Classroom jobs (such as feeding fish, washing tables, etc.)
- Special events (such as cultural programs, science programs)
- Field trips, fire drills and lockdowns
- Staff education and training
- Who will provide emergency and routine care in school, i.e., administering emergency medication or feeding
- Substitute staff notification and training (including nurses, teachers, student teachers, cafeteria staff, school bus drivers and others as appropriate)
- School transportation
- Transitions to after-school programs, athletic and extracurricular activities
- Parent Teacher Organization or Parent Teacher Association sponsored events for students
- Transitions between grade levels and school buildings in the district

STOCK EPINEPHRINE AUTO-INJECTOR IN THE SCHOOL SETTING FOR TREATMENT OF PERCEIVED ANAPHYLAXIS

What is Anaphylaxis?

Anaphylaxis is a potentially life-threatening medical condition occurring after exposure to an allergen1. A person's immune system can overreact and target otherwise harmless elements in our diet and environment. This initiates a sequence of events in the cells of the immune system resulting in the release of chemical mediators, such as histamine.

These chemical mediators trigger inflammatory reactions in the tissues of the skin, the respiratory system, the gastrointestinal tract, and the cardiovascular system. When the inflammatory symptoms are widespread and systemic, the reaction is termed "anaphylaxis" a potentially life-threatening event. Anaphylaxis symptoms may include:

Figure 1: Symptoms Chart

Organ	Symptoms
Skin	Swelling of any body part, hives, rash/redness on any part of body Itching of any body part
Respiratory	Runny nose Coughing, wheezing, difficulty breathing, shortness of breath Throat tightness Difficulty swallowing Difficulty breathing, shortness of breath Change in voice Cyanotic (bluish) lips and mouth area
Gastrointestinal (GI)	Itchy lips, tongue, mouth and/or throat Vomiting Stomach cramps Abdominal pain Nausea Diarrhea

Cardiovascular	Heartbeat irregularities Flushed pale skin Decrease in blood pressure Fainting or loss of consciousness Dizziness Change in mental status

Anaphylaxis is more common among those who have had previous anaphylaxis, people with allergies and/or asthma, and people with other conditions like heart disease.[1] Anaphylaxis is usually an immediate reaction, occurring within minutes of exposure; however, it can also occur a half-hour or more after exposure. Sometimes, the initial symptoms may be followed by a second wave of symptoms two to four hours later and possibly longer. This combination of an early phase of symptoms followed by a late phase of symptoms is defined as biphasic reaction. For this reason, it is important to seek medical care after anaphylaxis, even if an epinephrine auto-injector is used.

For those at risk of anaphylaxis, the most important management strategy in the school is to stay away from anaphylaxis triggers. In an anaphylactic reaction, epinephrine auto- injector is the treatment of choice and should be given immediately. Then call 911 for transport to the closest medical facility. Sometimes, if symptoms do not subside, a second epinephrine auto-injector is necessary. Reports indicate that from 6% to 19% of pediatric patients treated with a first epinephrine injection in anaphylaxis require a second dose.[2]

Studies show that fatal and near-fatal anaphylactic reactions are sometimes associated with not using an epinephrine auto-injector or delaying the use of epinephrine treatment.[1] When in doubt, it is better to give the epinephrine auto-injector and call 911. An epinephrine auto-injector is a disposable drug delivery system that contains the proper dose of epinephrine and is used to treat anaphylaxis. It is supplied as a spring-loaded syringe that can be easily transported. The disposable system is designed to treat a single anaphylactic episode and must be properly discarded after its use. It is recommended two epinephrine auto-injectors be kept available and accessible.

Standards and Procedures for Emergency Use of the Epinephrine Auto-Injector

Steps in the Emergency Use of an Epinephrine Auto-Injector:

1. Assessing symptoms of anaphylaxis (see Symptom Chart). Anaphylaxis usually occurs right after exposure to an allergen. Frequently, anaphylaxis occurs in individuals who have a history of a previous reaction. If there is uncertainty about the diagnosis, but there is a reasonable probability that it is anaphylaxis, then treat it as anaphylaxis.
2. If anaphylaxis symptoms occur, call 911. Stay with the student. Have others notify the school nurse, school administrator, and parent/guardian immediately.
3. Have the student sit down. Reassure the student and avoid moving him or her. Calming reduces the distribution of allergens in the body.
4. Prepare to administer epinephrine auto-injector.
    a. For students in second grade or below, or if less than 66 lbs., use 0.15mg epinephrine.
    b. For adults and students in third grade or above, or if more than 66 lbs., use 0.3mg epinephrine.
    c. The epinephrine acts immediately; however, the effects last only 10—15 minutes. Make sure someone has called 911.

5. Administer epinephrine auto-injector. Instructions and videos for administration of EpiPens, Auvi-Q, and Adrenaclick can be found after Step 12.
6. Observe the student for signs of shock. Cover the student with a blanket, as necessary, to maintain body temperature and help to prevent shock.
7. Monitor the student's airway and breathing. Begin CPR immediately if the student stops breathing.
8. If symptoms continue and paramedics do not arrive, use a new epinephrine auto-injector, and re-inject if student continues to experience symptoms. Continue to monitor the student's airway and breathing.
9. Medical care should be obtained at the emergency room after an injection with the epinephrine auto-injector since a delayed reaction may occur. The student should follow up with a medical provider.
10. Document the incident and include in the documentation the date and time epinephrine was administered, the student's response, and additional pertinent information.

Demonstration: Online Videos for Administration of Epinephrine Auto-Injector

EpiPen demonstration video

EpiPen instructions:

1. Take the epinephrine auto-injector out of its package.
2. Remove the blue safety cap.
3. Hold the auto-injector in your fist. The needle comes out of the orange end, so be careful not to hold your hand over the end.
4. Push the end with the needle firmly against the side of the child's thigh, about halfway between the hip and knee. Inject the medicine into the fleshy outer portion of the thigh. Do not inject into a vein or the buttocks.
5. You can give the injection through clothes or on bare skin.
6. Hold the auto-injector in place until all the medicine is injected—usually no more than 3 seconds.
7. Remove the needle by pulling the pen straight out. A protective shield will cover the needle as soon as it is removed from the thigh. Put the injector back into its safety tube. Give it to EMS when they arrive.
8. Massage the area after the injection.

Auvi-Q démonstration video

Auvi-Q instructions[3]:

1. Pull Auvi-Q out of the case.
2. Pull the red safety guard off – the needle will come out of the black end.
3. Place the black end firmly against the side of the child's thigh, about halfway between the hip and knee. Inject the medicine into the fleshy outer portion of the thigh. Do not inject into a vein or the buttocks. Hold the leg firmly in place before and during the injection.
4. You can give the injection through clothes or on bare skin.
5. Hold the auto-injector in place for the 2 second countdown.
6. Remove the needle by pulling the Auvi-Q straight out. A protective shield will cover the needle as soon as it is removed from the thigh. Put the Auvi-Q back into its case. Give it to EMS when they arrive.
7. Massage the area after the injection.

Adrenaclick demonstration video

Adrenaclick instructions[3]:

1. Pull off the gray caps from both ends. The needle will come out of the red tip.
2. Place the red tip firmly against the side of the child's thigh, about halfway between the hip and knee. Inject the medicine into the fleshy outer portion of the thigh. Do not inject into a vein or the buttocks. Hold the leg firmly in place before and during the injection.
3. You can give the injection through clothes or on bare skin.
4. Hold the auto-injector in place for 10 seconds.
5. Remove the needle by pulling the Adrenaclick straight out. If the needle is exposed, then the dose is given. If the needle is not exposed, repeat steps 2-4.
6. Put the Adrenaclick back into its case. Give it to EMS when they arrive and provide the student's demographic information prior to transport.
7. Massage the area after the injection.

STOCK ALBUTEROL/ LEVALBUTEROL IN THE SCHOOL SETTING FOR TREATMENT OF PERCEIVED RESPIRATORY DISTRESS

What is Asthma?

Asthma is a chronic disease of the lungs and airways that may make it difficult to breathe and can be life threatening. Asthma causes inflammation or swelling of the airways, production of excess mucus and tightening of the muscles (bronchospasm) that surround the airway. Together the inflammation, mucus, and bronchospasm make it harder to move air through the airways.

Asthma symptoms include wheezing, coughing, shortness of breath, and chest pain or tightness. These symptoms are often initiated or worsened by exposure to substances or conditions (also called "triggers") such as allergens (dust, animal fur, cockroaches, mold, and pollens from trees, grasses, and flowers), irritants (tobacco smoke, air pollution, strong odors, or chemicals), exercise, colds, flu, and strong emotions.

Asthma affects people of all ages. Genetics, environmental exposures, and viral and respiratory infections all play a role in asthma. There is no cure for asthma. However, it can be managed by avoiding triggers and taking appropriate medications.

Standards and Procedures for Emergency Use of Albuterol/Levalbuterol

The Expert Panel Report (EPR-3) Guidelines for the Diagnosis and Management of Asthma[4] recommends the following for optimal asthma control:

1. Assessment and monitoring
2. Education for a Partnership in Asthma Care
3. Control of Environmental Factors and Comorbid Conditions that affect asthma
4. Medications

In school settings asthma management is supported by:

- Documentation and utilization of Asthma Action Plans and Individual Care Plans (ICP).
- Asthma management education for staff and administration
- Protocols to control asthma triggers
- Protocols to manage acute asthma episodes

Asthma medications belong to two broad categories based on whether they provide quick relief or long-term control of asthma symptoms:

- Quick relief medications (bronchodilators) open the airways by relaxing the muscles around the bronchial tubes. Bronchodilators are taken when symptoms begin to occur or when they are likely to occur (e.g., prior to recess, physical education classes or sports events or, if the student is using a peak-flow meter, when readings are in the yellow or red zone). This category of medications includes short-acting inhaled beta-two (ß2)-agonists.
- Long-term control medications are anti-inflammatory medications and are taken daily on a long-term basis to gain and maintain control of persistent asthma, even in the absence of symptoms. This category includes long-acting inhaled beta-two (ß2)-agonist, inhaled anti- inflammatory medications, leukotriene modifiers, combination medications, and biologics[5].

Many with asthma show "early warning signs" before an acute episode begins. Students vary in how they perceive their symptoms. Consider using an Asthma Action Plan to identify students' early warning signs and symptoms.

Possible Asthma Early Warning Signs and Symptoms[6]

- Increased mucus/sputum production
- Runny/stuffy/congested nose
- Itchy neck or chin
- Feeling tired, weak, or lack of energy
- Raised shoulders, slouching

Possible Late-Stage Asthma Episode Signs and Symptoms[6]

- Asthma is getting worse quickly
- Asthma quick-relief medicines are not helping
- Chest tightness or pain
- Severe shortness of breath
- Breathing is faster or slower than normal
- Breathing may be hard or shallow
- Trouble walking or talking due to shortness of breath
- Chest retractions (skin sucks in between or around the neck, chest plate, and/or rib bones when inhaling; this is rare in adults)

- Ribs or stomach moving in and out deeply and rapidly
- Expanded chest that does not deflate when you exhale
- Shoulders hunched over ("posturing")
- Cyanosis, a tissue color change on mucus membranes (tongue, lips, and around the eyes) and fingertips or nail beds – the color appears grayish or whitish on darker skin tones and bluish on lighter skin tones

When any of these signs and symptoms are noted, contact the school nurse. If late- stage signs and symptoms are noted, call 911.

To treat an asthma episode:

1. Follow the child's asthma action plan.
2. Administer or help administer rescue medication. Instructions on how to use an inhaler and nebulizer are below.
3. Notify the school nurse/unlicensed personnel and child's parent.
4. Keep the child calm.
5. Encourage slow, deep breaths and sitting up straight.
6. Stay with the child.

Demonstration: Online Videos for Administration of Albuterol/Levalbuterol

Metered-Dose Inhaler (MDI) demonstration videos

For the best results, it is recommended that children use a spacer with their MDI. A valved holding chamber (spacer) is a helpful tool to use with MDI inhalers. The spacer helps to get the medication straight to the lungs with less medication stopping in the mouth and throat. It can improve the effectiveness of the medication up to 70%. It can also be as effective during an asthma episode to use an MDI with spacer as using a nebulizer to deliver the medication.

Metered-Dose Inhaler (MDI) instructions:

1. Remove the MDI mouthpiece cap and look at the tiny exit hole where the medication comes out of the canister. It should be free of debris or white powder. If it is not, follow package instructions to thoroughly clean the inhaler.
2. Shake the inhaler, if necessary, to mix the powder medication with other ingredients inside the canister. Check your patient instruction sheet to see if your inhaler requires shaking (and how much), as a few brands (including Alvesco® and QVAR®) are blended differently and do not need shaking.
3. Prime the inhaler if necessary. When the MDI is new or has not been used in a while, the ingredients may separate. Priming ensures the dose you inhale contains the labeled amount of medication. (Note: Priming instructions are different for each MDI brand; check your patient instruction sheet.) When using a valve holding chamber, insert the MDI mouthpiece into the end port of the chamber after priming.
4. Stand or sit up straight and breathe out completely. Emptying your lungs as much as possible gives you room to inhale the medication slowly and deeply.
5. Hold the inhaler upright with the mouthpiece at the bottom and the top pointing up. Position it as instructed by your physician or the medication's patient instruction sheet. Some recommend holding the inhaler about 1-2 inches away from your open mouth; others recommend putting the MDI

mouthpiece between your teeth and closing your lips tightly around it. Be sure to keep your tongue out of the way of the spray.

6. Begin to inhale slowly, then activate the inhaler immediately. If you wait too long, you will not have enough breath left to inhale the medicine deep into your small airways.
7. Continue inhaling slowly for 3-5 seconds, until your lungs are full. You might be surprised at how long that is, so test yourself. Using a stopwatch device or clock with a second hand, begin to inhale and pretend to actuate your inhaler. See how long it takes you to fill your lungs. Did you run out of room in your lungs before three seconds occurred? If so, try it again, more slowly. Practice until you get it right. Then practice again … and again.
8. Hold your breath for 10 seconds, if possible. (You can take the inhaler out of your mouth.) When you hold your breath, you allow the tiny particles of medication to settle on the surface of your airways.
9. Exhale slowly.
10. Repeat steps 2 through 9 if your Asthma Action Plan says to take a second dose. (Skip step 3; your inhaler will not need to be primed again so soon.
11. Replace the cap on your inhaler and store it where it will not be exposed to moisture or extreme temperature changes. Check your patient instruction sheet to see if your inhaler needs to be stored in an upright position. For the best results, store and use the inhaler at normal room temperature – between 59- and 77-degrees F. In very cold weather, keep it close to your body, not in your car or in a backpack. In cold temperatures, warm the inhaler with your hands before using it.
12. Clean the inhaler according to your patient instructions, usually weekly. If using water, leave time for the inhaler to air dry.

Nebulizer demonstration videos

Nebulizer instructions:

1. Wash your hands. To keep your nebulizer – and your lungs – free of germs, always wash your hands before handling the medication and equipment.
2. Check your medication. Before you begin, look closely at your medicine:
    a. Has it expired?
    b. Is the vial crushed or damaged?
    c. Does the medicine look discolored?
    d. Has it been exposed to any extremely hot or cold temperatures?
    e. If you answer "yes" to any of these, replace the medicine.
3. Gather your equipment. In most set-ups, you have a compressor (the basic nebulizer machine), tubing, a cup (the nebulizer) for the medicine, and a mouthpiece. You might also have a mask. The compressor forces air into the medication in the cup, breaking the liquid into an aerosol. The cup design determines how well the system can produce droplets that are the right size to travel deep into the airways. Breath-enhanced and breath-actuated units allow less medication to escape into the air. Young children and disabled or elderly patients unable to use a mouthpiece effectively should always use a mask. Choose one that is soft and flexible enough to fit snugly on the face and large enough to cover the mouth and nose.
4. Pour medication into the nebulizer cup. Unit-dose vials are easy to use; just twist off the top and pour. Choose a nebulizer cup that will sit flat for easy pouring. Smell the medication as you pour it and throw out any medication that smells foul, spoiled or like it may contain rubbing alcohol. Don't overfill the cup as it may not aerosolize the medication at the correct particle size.
5. Sit back and relax. Put the mask on or place the mouthpiece over your tongue and close your teeth and lips tightly around it, then turn on the nebulizer machine. Breathe normally. If you start to cough, turn the machine off until you can breathe freely again. Continue the breathing treatment until the cup is empty. If the medication foams or bubbles, stop the treatment; you may have defective or

contaminated medicine or equipment. Do not 'blow-by' or mist the medication in front of the child's face; this will release the medicine into the air, not the lungs.

6. Wash up. Follow the manufacturer's instructions to keep your nebulizer cup, mouthpiece and tubing clean; whatever gets into your cup – from germs on your hands to house dust – will get into your lungs. When everything is clean and dry, store the system where it will stay dust-free.

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APPENDIX A - SAMPLE SCHOOL/SCHOOL DISTRICT PRESCRIPTION REQUEST (AUTO-INJECTABLE EPINEPHRINE)

The Prescription Request should be completed and signed by the school or school district and sent to the medical provider for a prescription for the undesignated auto-injectable epinephrine from the prescribing medical provider. Once the prescription has been received, a copy should be kept by the school or school district.

Disclaimer: Please note that the forms listed below are sample forms. Please consult your school district's legal counsel before implementing the use of any legally binding documents.

Request for Auto-Injectable Epinephrine Prescription
School/School District: _____
Address: _____ (street) (city) (state) (zip code)
Phone number: _____ Fax number: _____ Email address: _____
School/School District Representative (Print name): _____
Request submitted to (Name of practice/clinic): _____
Medical Provider (Print name): _____

The above-named school/school district requests a prescription from (*Medical Provider*) for the limited purpose of stocking and administering auto-injectable epinephrine to any student upon the occurrence of an actual or perceived anaphylactic adverse reaction, subject to the following conditions:

1. All school personnel trained in recognizing the symptoms of anaphylactic shock and the correct method of administration may administer auto-injectable epinephrine.
2. When epinephrine is administered, call 911 and notify the school nurse, student's parents/guardians, or, if the parents/guardians are not available, any other designated person(s).
3. There are written procedures for the school/school district, in accordance with any standards established by Medical Provider, for:

a. Storage of Medications
b. Location of Medications
c. Stocking of Medications
d. Administration of Medications
e. Training for Medication Administration

I certify that I have read and agree to the above and all requirements to the administration of epinephrine and that the information provided in this request is accurate.

Medical Provider (Print name): _____

Signature:_____ Date: _____

Address:_____
(street) (city) (state) (zip code)

Phone number:_____Fax number:_____Email address: _____

School/School District Representative (Print name): _____

Signature:_____ Date: _____

Address:_____ (street)
(city) (state) (zip code)

Phone number:_____Fax number:_____Email address: _____

APPENDIX B - SAMPLE SCHOOL/SCHOOL DISTRICT PRESCRIPTION REQUEST (ALBUTEROL /LEVALBUTEROL)

The Prescription Request should be completed and signed by the school or school district and sent to the medical provider for a prescription for the albuterol/levalbuterol from the prescribing medical provider. Once the prescription has been received, a copy should be kept by the school or school district.

Disclaimer: Please note that the forms listed below are sample forms. Please consult your school district's legal counsel before implementing the use of any legally binding documents.

Request for Albuterol/Levalbuterol Prescription
Request (check all that apply): Nebulizer solution Metered Dose Inhaler School/School District Name: _____ Address: _____ (street) (city) (state) (zip code) Phone number:_____Fax number:_____Email address: _____ School/School District Representative (Print name): _____ Request submitted to (Name of practice/clinic): _____ Medical Provider (Print name): _____

The above-named school/school district requests a prescription from (Medical Provider) for the limited purpose of stocking and administering albuterol or levalbuterol to any student upon the occurrence of an actual or perceived respiratory distress, subject to the following conditions:

1. The school/school district has approved policies governing the administration of albuterol or levalbuterol by school personnel.
2. The unlicensed school personnel authorized to administer albuterol or levalbuterol have completed training in recognizing the symptoms of respiratory distress and the correct method of administering albuterol or levalbuterol.
3. After administration of albuterol, contact the school nurse. If no school nurse is available, call 911. - There are written procedures, in accordance with any standards established by the medical provider, for:

a. Storage of Medications
b. Locations of Medications
c. Stocking of Medications
d. Administration of Medications
e. Training for Medication Administration

I certify that I have read and agree to the above and all requirements to the administration of albuterol or levalbuterol and that the information provided in this request is accurate.

Medical Provider (Print name): _____

Signature:_____ Date: _____

Address:_____
(street) (city) (state) (zip code)

Phone number:_____Fax number:_____Email address: _____

School/School District Representative (Print name): _____

Signature:_____ Date:_____

Address: _____
(street) (city) (state) (zip code)

Phone number:_____Fax number:_____Email address: _____

APPENDIX C: SAMPLE MEMORANDUM OF AGREEMENT (ANAPHYLAXIS)

A school/school district may choose to use a Memorandum of Agreement if a formal agreement is preferred or requested by the medical provider to define relationships and protocols with respect to the provision of prescription.

Disclaimer: Please note that the forms listed below are sample forms. Please consult your school district's legal counsel before implementing the use of any legally binding documents.

MEMORANDUM OF AGREEMENT BETWEEN
[MEDICAL PROVIDER]
AND
[SCHOOL/SCHOOL DISTRICT]

Effective Date:

End Date:

(Medical Provider) and (School/School District) enter into this Agreement to support the safe and effective management of allergies and anaphylaxis in the school setting consistent with O.C.G.A. § 20-2-776.2 by stocking and administering auto-injectable epinephrine for use with students experiencing an actual or perceived anaphylactic adverse reaction.

Medical Provider agrees to:

1. Write a prescription in name of school/school district for the stocking and administration of Epinephrine Auto-Injectors to any student believed to be experiencing potentially life-threatening allergic reactions (anaphylaxis) upon receipt of Prescription Request Form.

School/School District agrees to:

1. Approve policies governing the administration of epinephrine by school personnel.
2. Require unlicensed school personnel authorized to administer epinephrine to complete training in recognizing the symptoms of anaphylactic shock and the correct method of administering the epinephrine auto-injector.
3. Maintain a list of school personnel (licensed and unlicensed) authorized and trained to administer epinephrine when a school nurse is not immediately available.
4. Administer the epinephrine auto-injector in accordance with a written medication administration plan.
5. Call 911 and notify the school nurse, student's parents, or, if the parents/guardians are not available, any other designated person(s) when epinephrine is administered.
6. Complete the Report of Emergency Medication Administration Form and fax to the prescribing medical provider within 72 hours of administration.

7. Have written procedures, in accordance with standards established by the Department of Public Health, for:
    a. Storage of Medications
    b. Locations of Medications
    c. Stocking of Medications
    d. Administration of Medications
    e. Training for Medication Administration

This Agreement may be canceled or terminated by either of the parties upon thirty days' written notice.

This_____day of_____,_____

Medical Provider _____ Date _____

_____
Print/Type Name

_____ _____
School/School District Date

_____
Print/Type Name

_____
Title

APPENDIX D: SAMPLE MEMORANDUM OF AGREEMENT (ASTHMA)

A school/school district may choose to use a Memorandum of Agreement if a formal agreement is preferred or requested by the medical provider to define relationship and protocols with respect to the provision of prescription.

Disclaimer: Please note that the forms listed below are sample forms. Please consult your school district's legal counsel before implementing the use of any legally binding documents.

MEMORANDUM OF AGREEMENT BETWEEN
[MEDICAL PROVIDER]
AND
[SCHOOL/SCHOOL DISTRICT]

(Medical Provider) and (School/School District) enter into this Agreement to support the safe and effective management of respiratory distress due to asthma in the school setting consistent with O.C.G.A. § 20-2-776.3 by stocking and administering albuterol or levalbuterol for use with students experiencing actual or perceived respiratory distress.

Medical Provider agrees to:

1. Write a prescription in name of school/school district for the stocking of albuterol or levalbuterol to any student believed to be experiencing respiratory distress upon receipt of Request for Prescription Form.

School/school district agrees to:

1. Approve policies governing the administration of albuterol or levalbuterol by school personnel.
2. Require unlicensed school personnel authorized to administer albuterol or levalbuterol to complete training in recognizing the symptoms of respiratory distress and the correct method of administering albuterol or levalbuterol. The school nurse will document the training and testing for competency.
3. Maintain a list of school personnel (licensed and unlicensed) authorized and trained to administer albuterol or levalbuterol when a school nurse is not immediately available.
4. Administer albuterol or levalbuterol in accordance with a written medication administration plan.
5. Contact the school nurse after albuterol/levalbuterol is administered. If no school nurse is available, call 911.
6. Complete Report of Emergency Medication Administration Form and fax to the medical provider within 72 hours of administration.
7. Have written procedures, in accordance with standards established by the Department of Public Health, for:
    a. Storage of Medications
    b. Locations of Medications
    c. Stocking of Medications
    d. Administration of Medications

e. Training for Medication Administration

This Agreement may be canceled or terminated by either of the parties upon thirty days' written notice.

This_____day of_____,_____

Medical Provider _____ Date _____

_____
Print/Type Name

_____ _____
School/School District Date

_____
Print/Type Name

_____
Title

APPENDIX E: SAMPLE REPORT OF EMERGENCY MEDICATION ADMINISTRATION FORM

EMERGENCY MEDICATION ADMINISTRATION REPORTING FORM

SCHOOL DISTRICT:	*NAME OF SCHOOL:*
ADDRESS (STREET, CITY, STATE, ZIP CODE)	*SCHOOL REPRESENTATIVE COMPLETING FORM:*
TELEPHONE:	*CONTACT EMAIL:*
DATE OF INCIDENT:	*TIME OF INCIDENT:*

1. Emergency Medication Administered?
    a. Albuterol/Levalbuterol
    b. Epinephrine Auto-Injector
2. Age of Individual receiving emergency medication: _____
3. Description of person receiving emergency medication: (circle one only)
    a. Student
    b. Staff Member
    c. Visitor
    d. Other (please specify) _____
4. Was there any previously known diagnosis of a severe allergy or asthma?
    a. Yes
    b. No
5. If epinephrine administered, document trigger that precipitated allergic episode *(Circle all that apply)*
    a. Food (specific food if known)_____
    b. Drug (specific drug if known) _____
    c. Insect (specific insect if known) _____
    d. Other (please specify) _____
    e. Not Applicable _____
6. Location of where symptoms developed: (Check all that apply)
    a. Within school building
    b. On school grounds
    c. Other (e.g., school activity location, field trip location, etc.)
7. Number of doses administered _____
8. Type of person administering the emergency medication: (Circle all that apply)

a. School Nurse
b. Trained Personnel
c. Student
d. Other (please specify) _____

APPENDIX F: SAMPLE DOCUMENTATION OF EMERGENCY ADMINISTRATION COMPETENCIES

Upon completing the written test and demonstration of skills, the qualified trainer must complete a Documentation of Competencies form. This documentation should then be maintained for at least five years.

Documentation of Competencies

I have provided orientation, instruction, training, and practice opportunities for _____ to administer **auto-injectable epinephrine** in response to life-threatening systemic allergic reactions (anaphylaxis). I observed the above-named person and feel this person can appropriately perform the tasks above.

Comments:

_____ _____

Date Qualified Trainer Signature

****

I have been provided adequate orientation, instruction, training, and opportunities to practice administering auto-injectable epinephrine in response to life-threatening systemic allergic reactions (anaphylaxis). I have the competencies necessary to provide these services in a safe manner.

Comments:

_____ _____

Date Participant/Staff Signature

Documentation of Competencies

I have provided orientation, instruction, training, and practice opportunities for _____ to administer **albuterol/levalbuterol** treatments in response to respiratory distress. I observed the above-named person and feel this person can appropriately perform the tasks above.

Comments:

_____ _____

Date Qualified Trainer Signature

****

I have been provided adequate orientation, instruction, training and opportunities to practice administering albuterol/levalbuterol in response to respiratory distress. I feel I have the competencies necessary to provide these services in a safe manner.

Comments:

_____ _____

Date Participant/Staff Signature

RESOURCES

FOOD ALLERGIES

- Centers for Disease Control and Prevention (CDC) http://www.cdc.gov/healthyyouth/foodallergies/pdf/13_243135_A_Food_Allergy_Web_50 8.pdf
- National Institute of Allergy and Infectious Diseases (NIAID) https://www.niaid.nih.gov/diseases-conditions/food-allergy
- American Academy of Allergy, Asthma, and Immunology (AAAAI) https://www.aaaai.org/conditions-treatments/allergies/food-allergy
- Kids with food allergies (KFA) https://kidswithfoodallergies.org/
- Food Allergy Research and Education (FARE) https://www.foodallergy.org/living-food-allergies/food-allergy-essentials/food-allergy-101
- National Association of School Nurses (NASN) https://www.nasn.org/nasn-resources/resources-by-topic/allergies-anaphylaxis
- Allergy and Asthma Network https://allergyasthmanetwork.org/food-allergies/

TRAINING

- AllergyHome.org: Food Allergy Tools for Schools https://www.allergyhome.org/schools/food-allergy-school-staff-training-full-length-module/
- NASN Checklist for Training https://www.nasn.org/nasn-resources/skills-training/conversations-food-allergy
- Food Allergy Research and Education (FARE) https://www.foodallergy.org/our-initiatives/education-programs-training/fare-training
- American Lung Association https://www.lung.org/professional-education/training-certification
- Asthma and Allergy Foundation of America https://aafa.org/programs/education-programs/

GENERAL INFORMATION AND GUIDELINES

- Georgia Department of Public Health, Asthma Control Program https://dph.georgia.gov/Asthma
- National Asthma Education and Prevention Program (NAEPP) https://www.nhlbi.nih.gov/
- Expert Panel Report 3: Diagnosis and Management of Asthma Practical Guide to the Diagnosis and Management of Asthma https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma
- Asthma Management Guidelines: Focused Updates 2020 https://www.nhlbi.nih.gov/health-topics/asthma-management-guidelines-2020-updates
- Centers for Disease Control and Prevention, National Asthma Program. https://www.cdc.gov/national-asthma-control-program/php/about/index.html
- American Lung Association https://www.lung.org/
- Asthma and Allergy Foundation of America https://aafa.org/
- National Association of School Nurses https://www.nasn.org/nasn-resources/resources-by-topic/asthma

KEY TERMS

Acute: Severe and sudden onset of conditions

Albuterol: Also called albuterol sulfate, is a bronchodilator that relaxes muscles in the airways and increases air flow to the lungs

Anaphylactic shock: An extreme, often life-threatening allergic reaction to an antigen to which the body has become hypersensitive

Asthma Episode: Also called an asthma "attack" or asthma "exacerbation", this is when symptoms of asthma become worse

Asthma Action Plan: A written, individualized worksheet completed by a healthcare provider that provides information and instructions on how to manage one's asthma

Auto-injectors: A device for injecting oneself with a single, preloaded dose of a drug that typically consists of a spring-loaded syringe activated when the device is pushed firmly against the body

Biphasic: Having two phases

Bronchodilators: A type of medication that relaxes muscles in lungs and widens airway to make breathing easier

Bronchospasm: Constriction of the air passages of the lungs by tightening of muscle lining in airways

Epinephrine: A crystalline sympathomimetic hormone used medicinally especially to stimulate the heart during cardiac arrest and to treat life-threatening allergic reactions

Histamine: A chemical compound in some body cells that can cause symptoms of allergies, such as runny nose or sneezing

Levalbuterol: a beta-agonist bronchodilator administered by oral inhalation to treat bronchospasm associated especially with asthma

MDI: Metered Dose Inhaler

Peak Flow Meter: A peak flow meter is an inexpensive, hand-held device that measures how much air you can blow out with one strong exhalation

Spacer: A valved holding chamber that holds the spray from the MDI and lets the patient inhale the medication without having to time the release of the medication from the MDI and inhalation

Sulfate: A salt or chemical compound of sulfuric acid


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