

Recognition and Treatment of Anaphylaxis in the School Setting

Background for Authorization

House Bill 1107/Senate Bill 656 enacted by the 2012 General Assembly required local school boards to adopt and implement policies for the possession and administration of epinephrine in Virginia public schools by the beginning of the 2012-2013 school year. The Department of Health (VDH), in conjunction with the Departments of Education (DOE) and Health Professions, established a stakeholder workgroup which developed revised guidelines for the recognition and treatment of anaphylaxis in the school setting. These revisions were incorporated into the existing “Virginia School Health Guidelines” published by VDH in consultation with DOE. The statute required the workgroup to address: the issuance and implementation of oral or written orders or standing protocols; consideration as to who may prescribe and/or issue standing protocols for the possession, storage, and administration of epinephrine; specification of training needs and requirements for the administration of epinephrine; appropriate liability protections; and any issues requiring statutory or regulatory amendment. House Bill 1468 enacted by the 2013 General Assembly amended the Code to include “an employee of a local governing body, or an employee of a local health department” to the list of entities in Code to be included in school policies for possession and administration of epinephrine, be exempt from liability, and with authorization by a prescriber and training may possess and administer epinephrine to students believed to be having anaphylactic reaction. Additionally, the bill provided clarifying language regarding the authorization “by a prescriber”.

Authorization

Code of Virginia §22.1-274.2. Possession and self-administration of inhaled asthma medications and epinephrine by certain students or school board employees.

C. By the beginning of the 2013-2014 school year, local school boards shall adopt and implement policies for the possession and administration of epinephrine in every school, to be administered by any school nurse, employee of the school board, employee of a local governing body, or employee of a local health department who is authorized by a prescriber and trained in the administration of epinephrine to any student believed to be having an anaphylactic reaction.

Code of Virginia § 54.1-3408. Professional use by practitioners.

D. Pursuant to an order or standing protocol issued by the prescriber within the course of his professional practice, any school nurse, school board employee, employee of a local governing body, or employee of a local health department who is authorized by a prescriber and trained in the administration of epinephrine, may possess and administer epinephrine.

Code of Virginia § 8.01-225. Persons rendering emergency care, obstetrical services exempt from liability.

11. Is a school nurse, an employee of a school board, an employee of a local governing body, or an employee of a local health department who is authorized by a prescriber and trained in the administration of epinephrine, and who provides, administers, or assists in the administration of epinephrine to a student believed in good faith to be having an anaphylactic reaction, or is the prescriber of the epinephrine, shall not be liable for any civil damages for ordinary negligence in acts or omissions resulting from the rendering of such treatment.

Overview

Anaphylaxis is one type of allergic reaction, in which the immune system responds to otherwise harmless substances from the environment (called “allergens”). A variety of allergens can provoke anaphylaxis, but the most common culprits are food, insect venom, medications, and latex. Unlike other allergic reactions, however, anaphylaxis is potentially lethal and can kill in a matter of minutes. Anaphylaxis typically begins within minutes or even seconds of exposure, and can rapidly progress to cause airway constriction, skin and intestinal irritation, and altered heart rhythms. Without treatment, in severe cases, it can result in complete airway obstruction, shock, and death. Initial emergency treatment is the administration of injectable epinephrine (also known as “adrenaline”) coupled with immediate summoning of emergency medical personnel and emergency transportation to the hospital. Appropriate, timely treatment can totally reverse anaphylaxis and return a child or adult to their prior state of health.

Reports of anaphylaxis have increased in recent years. As it is impossible to totally eliminate allergens from the school setting, all school districts, all schools, and all school staff must be prepared to help students who experience anaphylaxis. All school staff should know what to do in case of an anaphylactic attack, whether or not they are personally responsible for administration of epinephrine. They need to know what anaphylaxis is, how to tell if someone might be experiencing anaphylaxis, and how to get timely help for that child or adult. In addition, designated personnel need to go one critical step further and be able to provide the life-saving medication epinephrine while quickly summoning emergency care.

The purpose of this section of the Guidelines is to provide best-practice guidelines for responding to anaphylaxis in the school setting. It is not intended to supersede the individual prescriptive orders for epinephrine administration contained in the individualized healthcare plans of students with an established need for epinephrine availability. It does not address self-carrying of epinephrine. In fact, all students who have had a prior anaphylactic reaction or

VIRGINIA SCHOOL HEALTH GUIDELINES

otherwise identified as with need for epinephrine availability, should have this addressed specifically in an individualized healthcare plan and should provide epinephrine for their personal use to their school.

Anaphylaxis cannot be totally avoided in the school setting. Even if all students with known allergies are able to successfully avoid exposure to their allergens, the nature of childhood is for some students to develop new allergies each year. These Guidelines are intended to help schools respond to this challenge.

Common Allergens

Common Allergens	
Animal Dander (ex. cats)	Eggs
Fish	Insect venom (ex. bee stings)
Latex	Medications
Milk	Peanuts
Shellfish	Soy
Tree nuts (ex. pecans)	Wheat

Non-food items, such as arts and craft materials, may contain trace amounts of food products capable of causing an allergic reaction in susceptible individuals.

Recognizing Anaphylaxis

Anaphylaxis is a severe systemic allergic reaction, resulting from exposure to an allergen that is rapid in onset and can cause death.

Common Symptoms of Anaphylaxis
Sudden difficulty breathing, wheezing
Hives, generalized flushing, itching, or redness of the skin
Swelling of the throat, lips, tongue; tightness/change of voice; difficulty swallowing
Tingling sensation, itching, or metallic taste in mouth
Feeling of apprehension, agitation

Although anaphylaxis typically results in multiple symptoms, reactions may vary substantially from person to person. In some individuals, a single symptom may indicate anaphylaxis. Anaphylaxis usually occurs quickly-within seconds or minutes of exposure; death has been reported to occur within minutes. An anaphylactic reaction occasionally can

VIRGINIA SCHOOL HEALTH GUIDELINES

occur up to one to two hours after exposure to the allergen.

Treatment for Anaphylaxis

Epinephrine (also known as “adrenaline”) is the drug of choice used to treat and reverse the symptoms of anaphylaxis by constricting blood vessels and raising blood pressure, relaxing the bronchial muscles and reducing tissue swelling. Epinephrine is a prescribed medication and is administered by injection, either intramuscularly by an auto-injector or intramuscularly by syringe.

Epinephrine should be administered promptly at the first sign of anaphylaxis. It is safer to administer epinephrine than to delay treatment for anaphylaxis. The sooner anaphylaxis is treated, the greater the person’s chance for surviving the reaction. Epinephrine is fast acting, but its effects last only 5-15 minutes; therefore, a second dose of epinephrine may be required if symptoms continue.

Common side effects of epinephrine	
Rapid heart rate	Tremor
Nervousness	Anxiety

Epinephrine is available premeasured in an auto-injector or by ampoule or vial. Epinephrine auto-injectors can be administered in the school setting by both licensed personnel (i.e., registered nurse, physician) and trained unlicensed personnel as well as by self-administration in the case of older students. Use of epinephrine from a vial or ampoule requires careful measurement by and administration by licensed medical professionals. These Guidelines will address the use of epinephrine by auto-injector. However, epinephrine from vials or ampoules may be appropriate for some schools, dependent on the availability of adequate numbers of licensed medical personnel. The single dose epinephrine auto-injector is currently available in two doses: 0.15mg (for individuals weighing 33 to 66 lbs.) and 0.3mg (for individuals weighing greater than 66 lbs.).

Epinephrine Dosage	Weight of Individual
<i>0.15mg</i>	<i>33 to 66 pounds</i>
<i>0.3mg</i>	<i>Greater than 66 pounds</i>

Note: Epinephrine can be given based on an estimation of the individual’s weight; the most important action to reverse an anaphylactic reaction is to give the epinephrine and time should not be wasted seeking a precise weight. On average, children reach 66 pounds between ages 8 and 12 years of age. According to CDC growth chart data, 66 pounds is the 50th percentile for both boys and girls at age 9 (meaning half the children weigh less and half weigh more than 66 pounds). In an emergency such as anaphylaxis, it may be necessary to use best judgment as to whether or not the child appears to weigh at least 66 pounds based on their apparent age and body build.

Storage of medication and associated supplies

Epinephrine auto-injectors should be stored in a safe, unlocked and accessible location, in a dark place at room temperature (between 59-86 degrees F). It should be protected from exposure to heat, cold, or freezing temperatures. Exposure to sunlight will hasten deterioration of epinephrine more rapidly than exposure to room temperatures. The expiration date of epinephrine solutions should be periodically checked; the drug should be discarded and replaced if it is past the prescription expiration date. The contents should periodically be inspected through the clear window of the auto-injector. The solution should be clear; if it is discolored or contains solid particles, replace the unit. Supplies associated with responding to suspected anaphylaxis should be stored along with the epinephrine (ex. Incident Report, copy of Anaphylaxis guidelines). The epinephrine should be readily available to multiple school personnel, easily accessible to them, and should not be locked up. It should not be accessible to children.

Recommendations

1. Each school division shall adopt and implement a policy for the possession and administration of epinephrine in every school.

Policies should include:
Identification, assignment and training of at least two staff persons per school to administer epinephrine in the case of anaphylaxis.
Standing orders for non-student specific epinephrine.
Specific protocols for responding to anaphylaxis in the school setting, both onsite and at offsite school events, such as field trips.
Routine training of all school employees in the recognition of and response to anaphylaxis, including summoning of appropriate emergency care.
Procedures for documentation, tracking and reporting of event.
Procedures for purchasing, storage, and maintenance of supplies.
Expectation that parents/guardians of students known to have a need for epinephrine availability should provide the school with student specific medical orders, an individualized healthcare plan and their own supply of epinephrine promptly at the start of the school year or upon transfer to the school.

Consideration should be given to utilizing school health services staff and the designated authorized medical provider when developing local school division anaphylaxis policy.

2. It is recommended schools make available and stock both the 0.15mg and 0.3mg doses of epinephrine via auto-injector (or vial or ampoule) in each school regardless of whether or not any students have been diagnosed with allergies. At least 2 doses each of 0.15mg and 0.3mg epinephrine should be available via auto-injector (or vial) in each school (i.e., total of 4 doses of epinephrine per school *unless* the principal documents that 100% of students in the school are over 66lbs in which case 2 doses of the 0.3mg epinephrine will suffice).
3. Epinephrine will be administered to any student believed to be having an anaphylactic reaction by any school nurse, employee of the school board, employee of a local governing body, or employee of a local health department, who is authorized by a prescriber and trained in the administration of epinephrine. The building administrator must designate who will perform this task in the absence of the school nurse.
4. Stock epinephrine is intended for use on school premises and should not be carried offsite. Additional epinephrine should be made available along with arrangements for administration during field trips and other official offsite school activities.
5. Training designated employees of the school in the use of auto-injectable epinephrine shall be conducted utilizing the most current edition of the Virginia Department of Education *Manual for Training of Public School Employees in the Administration of Medication* on an annual basis. The guidelines within this manual should be used by the registered professional nurse providing this training. Alternative training materials and methods may also be used but should be approved by the Virginia Department of Education.
6. Each school division shall designate an authorized medical provider, *defined as a medical doctor (M.D.), doctor of osteopathy (D. O.), physician assistant (P.A.), or nurse practitioner (N.P.) with prescriptive authority*, to prescribe non-student specific epinephrine for the school, to be administered to any student believed to be having an anaphylactic reaction. Examples of potential medical providers include a local pediatrician, a physician contracted to provide medical director services to the school district, a family practice nurse practitioner with prescriptive authority, a local public health district director, or a physician assistant in a primary care office. Schools can consider working through the Virginia Chapter of the American Academy of Pediatrics, the Virginia Academy of Family Physicians, the Medical Society of Virginia, local medical societies, the Virginia Council of Nurse Practitioners, the Virginia Association of Physician Assistants, or their local health department to identify volunteers or applicants to provide this community assistance. (See Attachment 2: *Sample Standing Order: Auto-injector Epinephrine Administration for Anaphylaxis.*)

7. It is recommended that school divisions consider, at a minimum, annual practice drills to equip school personnel in providing a prompt and efficient response to an anaphylactic emergency.
8. It is expected that students with a history of anaphylaxis or whose medical providers consider them otherwise at high risk for anaphylaxis will provide the school with medical orders and student specific epinephrine on an annual basis.

Responding to Anaphylaxis

1. *Based on symptoms, determine that an anaphylactic reaction appears to be occurring. Act quickly. It is safer to give epinephrine than to delay treatment. **Anaphylaxis is a life-threatening reaction.***
2. *(If you are alone and are able to provide epinephrine, call out or yell for help as you immediately go to get the epinephrine. Do not take extra time seeking others until you have provided the epinephrine.)*
3. *(If you are alone and do not know how to provide epinephrine, call out or yell for help. If someone is available to help you, have them get the personnel trained to provide epinephrine and the epinephrine while you dial 911 and follow the dispatcher's instructions. Advise 911 operator that anaphylaxis is suspected and epinephrine is available. Your goal is to get someone (EMS or trained personnel) to provide epinephrine and care as soon as possible.)*
4. *Select appropriate epinephrine auto-injector to administer, based on weight.*

*Dosage: 0.15 mg Epinephrine auto-injector IM, if less than 66 pounds
0.30 mg Epinephrine auto-injector IM, if 66 pounds or greater*

Frequency: If symptoms persist or return, a second dose should be administered 5 to 15 minutes after first dose.

5. *Inject epinephrine via auto-injector: Pull off safety release cap. Swing and jab firmly into upper, outer thigh, (through clothing if necessary). **Hold in place for *5 or 10 seconds to deliver medication and then remove.** *Note: Check manufacturer instructions for time of delivery of medication. Massage the area for 10 more seconds. Note the time.*

6. *Call or have a bystander call 911 immediately or activate the Emergency Medical System (EMS). Advise 911 operator that anaphylaxis is suspected and epinephrine was given.*
7. *Keep the individual either lying down or seated. If they lose consciousness, check if they are breathing and have a pulse. If not, begin CPR (cardiopulmonary resuscitation), call out for help and continue CPR until the individual regains a pulse and is breathing or until EMS arrives and takes over.*
8. *Call School Nurse/Front Office school personnel and advise of situation.*
9. *Repeat the dose after 5 to 15 minutes if symptoms persist.*
10. *Stay with the individual until EMS arrives, continuing to follow the directions in No. 5 above.*
11. *Provide EMS with Epinephrine auto injector labeled with name, date, and time administered to transport to the ER with the student.*

FOLLOW UP (to be done the day of the event):

1. *Assure parents/guardians have been notified and advised to promptly let the student's primary care physician know about the episode of suspected anaphylaxis.*
2. *Complete required documentation of incident. (See Attachment 3: Sample Report of Anaphylactic Reaction.)*
3. *Order replacement epinephrine auto injector(s). Examples of epinephrine auto-injectors include:*
 - *Adrenaclick-<http://adrenaclick.com/>*
 - *Auvi-Q-<http://www.auvi-q.com/>*
 - *Epipen- <http://www.epipen.com/>*

Attachment 1. Anaphylaxis in the School Setting Flowchart

Attachment 2. Sample Standing Order: Auto-injector Epinephrine Administration for Anaphylaxis

Attachment 3. Sample Report of Anaphylactic Reaction

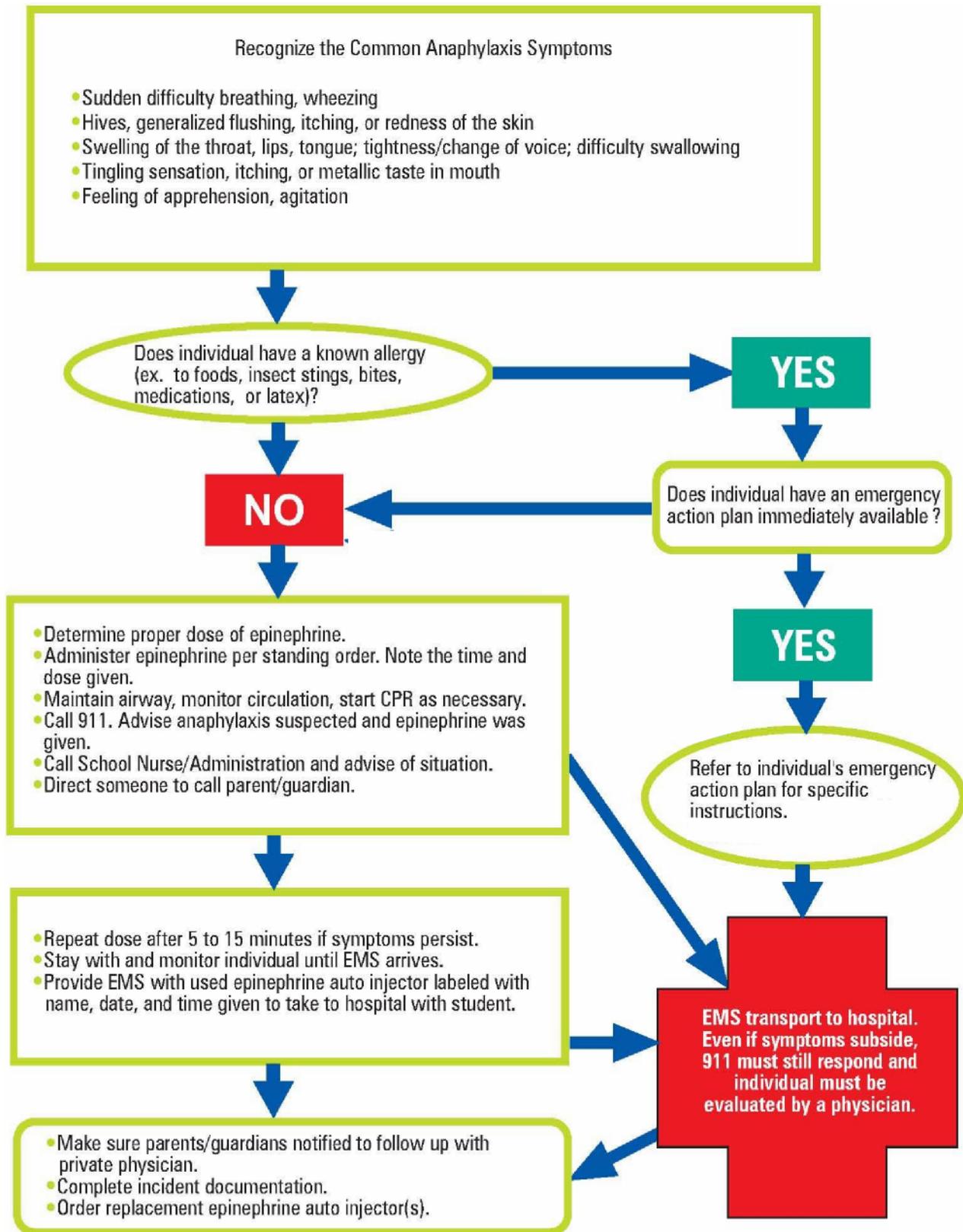
Sources

- Adrenaclick, (2013). Available at <http://adrenaclick.com/>
- American Academy of Allergy, Asthma & Immunology, (2012). Available at <http://www.AAAI.org/>
- California Department of Education.(2011). *Training Standards for the Administration of Epinephrine Auto-injectors*. Retrieved April 9, 2012, from <http://www.cde.ca.gov/ls/he/hn/epiadmin.asp?print=yes>
- Auvi-Q, (2013). Available at <http://www.auviq.com>
- Epi-Pen, (2012). Available at <http://www.epipen.com/>
- Food Allergy and Anaphylaxis Network. (2012). Available at www.foodallergy.org
- Oregon Department of Human Services Public Health Division. (2008). *Treatment of Severe Allergic Reaction: A Protocol for Training*. Retrieved January 19, 2012 from <http://public.health.oregon.gov/ProviderPartnerResources/HealthcareProvidersFacilities/Documents/Epinephrine0108.pdf>
- Sicherer, S. H., Mahr, T., & THE SECTION ON ALLERGY AND IMMUNOLOGY. (2010). Clinical Report Management of Food Allergy in the School Setting. *Pediatrics*, 126, 1232-1239.
- Simons, F. E. R. (2004). First-aid treatment of anaphylaxis to food: Focus on epinephrine. *The Journal of Allergy & Clinical Immunology*, 113, 837-844.
- Selekman, J. (2006). *School Nursing: A Comprehensive Text* (pp.664-665). Philadelphia, F.A. Davis Company.
- Virginia Department of Education, (2006). *Manual for Training of Public School Employees in the Administration of Medication*. Retrieved April 9, 2012, from http://www.doe.virginia.gov/support/health_medical/medication/manual_training_adminmeds.pdf
- Virginia Department of Health, (2003). *First Aid Flip Chart for School Emergencies*. Retrieved April 9, 2012, from <http://www.vahealth.org/childadolescenthealth/schoolhealth/documents/firstaidguide.pdf>
- Virginia Department of Health, (2004). *Guidelines for Specialized Health Care Procedures*, 294-295. Retrieved April 9, 2012, from <http://www.vahealth.org/childadolescenthealth/schoolhealth/publications.htm>
- Virginia Department of Health, (1999). Managing Illnesses/Injuries and Crisis. *Virginia School Health Guidelines*, 289-291. Retrieved April 9, 2012, from <http://www.vahealth.org/childadolescenthealth/schoolhealth/publications.htm>

June 28, 2012

Revised, December 2013

Recognize Anaphylaxis Symptoms



STANDING ORDER

AUTO-INJECTOR EPINEPHRINE ADMINISTRATION FOR ANAPHYLAXIS

In the event of an anaphylactic reaction in an individual in the school setting, epinephrine will be administered by the school nurse or trained unlicensed school personnel. This Standing Order is for the use of auto-injector epinephrine in such situations.

In the case of students with a history of anaphylaxis or other severe allergic reactions, epinephrine should be administered according to specific individualized prescriptive orders documented in their individualized health care plans. If no such orders exist or are not readily available, the Standing Orders given in this document should be used.

DEFINITION: **Anaphylaxis** is a severe allergic reaction which can be life threatening and occur within minutes after a triggering event or up to hours later.

CAUSES: Extreme sensitivity to one or more of the following:

Medication	Exercise induced	Foods	Latex
Idiopathic (unknown)	Insect stings	Other	Asthma triggers

PHYSICAL FINDINGS: Common symptoms associated with anaphylaxis:

1. Difficulty breathing, wheezing
2. Hives, generalized flushing, itching, or redness of the skin
3. Swelling of the throat, lips, tongue, throat; tightness/change of voice; difficulty swallowing
4. Tingling sensation, itching, or metallic taste in mouth
5. Feeling of apprehension, agitation

STANDING ORDER:

1. Based on symptoms, determine that an anaphylactic reaction appears to be occurring. Act quickly. It is safer to give epinephrine than to delay treatment.
Anaphylaxis is a life-threatening reaction.
2. **(If you are alone and are able to provide epinephrine**, call out or yell for help as you immediately go get the epinephrine. Do not take extra time seeking others until you have provided the epinephrine.)
3. **(If you are alone and do not know how to provide epinephrine**, call out or yell for help. If someone is available to help you, have them get the personnel trained to provide epinephrine and the epinephrine while you dial 911 and follow the dispatcher's instructions. Advise 911 operator that anaphylaxis is suspected and epinephrine is available. Your goal is to get someone (EMS or trained personnel) to provide epinephrine and care as soon as possible.)
4. Select appropriate epinephrine auto-injector to administer, based on weight.

Dosage: 0.15 mg Epinephrine auto-injector IM, if less than 66 pounds
0.30 mg Epinephrine auto-injector IM, if 66 pounds or greater

Frequency: If symptoms continue, a second dose should be administered 5 to 15 minutes after first dose.

VIRGINIA SCHOOL HEALTH GUIDELINES

5. Inject epinephrine via auto-injector: Pull off safety release cap. Swing and jab firmly into upper, outer thigh, (through clothing if necessary). **Hold in place for *5 or 10 seconds to deliver medication and then remove.** *Note: *Check manufacturer instructions for time of delivery of medication.* Massage the area for 10 more seconds. Note the time.
6. Call or have a bystander call 911 immediately or activate the Emergency Medical System (EMS). Advise 911 operator that anaphylaxis is suspected and epinephrine has being given.
7. Keep the individual either lying down or seated. If they lose consciousness, check if they are breathing and have a pulse. If not, begin CPR (cardiopulmonary resuscitation), call out for help and continue CPR until the individual regains a pulse and is breathing or until EMS arrives and takes over.
8. Call School Nurse/Front Office school personnel and advise of situation.
9. Repeat the dose after 5 to 15 minutes if symptoms persist or return.
10. Stay with the individual until EMS arrives, continuing to follow the directions in No. 7 above.
11. Provide EMS with Epinephrine auto injector labeled with name, date, and time administered to transport to the ER with the student.

FOLLOW UP (to be done the same day as the event):

1. Assure parents/guardians have been notified.
2. Complete required documentation of incident.
3. Order replacement epinephrine auto injector(s).

Physician/Licensed Prescriber Signature _____ Date _____

Print Name _____

*Effective for School Year _____

*Must be renewed annually and with any change in prescriber.

VIRGINIA SCHOOL HEALTH GUIDELINES

Report of Anaphylactic Reaction

Demographics and Health History

1. Name: _____ Name of School: _____

2. DOB: _____ Status of Person: Student Staff Visitor Gender: M F

3. History of allergy: Yes No Unknown If known, specify type of allergy: _____

If yes, was allergy action plan available? Yes No Unknown History of prior anaphylaxis: Yes No Unknown

Diagnosis/History of asthma: Yes No Unknown

School Plans and Medical Orders

4. Individual Health Care Plan (IHCP) in place? Yes No Unknown

5. Does the student have a student specific order for epinephrine? Yes No Unknown

6. Source of epinephrine (ex. student provided, stock epinephrine) _____ Expiration date of epinephrine _____ Unknown

Epinephrine Administration Incident Reporting

7. Date/Time of occurrence: _____ Vital signs: BP _____/____ Temp _____ Pulse _____ Respiration _____

8. Specify suspected trigger that precipitated this allergic episode:

Food Insect Sting Exercise Medication Latex Other _____ Unknown

If food was a trigger, please specify suspected food _____

Please check: Ingested Touched Inhaled Other specify _____

9. Did reaction begin prior to start of school day? Yes No Unknown

10. Location where symptoms developed:

Classroom Cafeteria Health Office Playground Bus Other specify _____

11. How did exposure occur?

12. Symptoms: (Check all that apply)

Respiratory

- Cough
- Difficulty breathing
- Hoarse voice
- Stuffy or runny nose
- Swollen throat or tongue
- Shortness of Breath
- Stridor
- Tightness (chest, throat)
- Wheezing

GI

- Abdominal discomfort
- Diarrhea
- Difficulty swallowing
- Oral Itching
- Nausea
- Vomiting

Skin

- Angioedema
- Flushing
- General itching
- General rash
- Hives
- Lip swelling
- Localized rash
- Paleness

Cardiac/Vascular

- Chest discomfort
- Cyanosis
- Dizziness
- Faint/Weak pulse
- Headache
- Low blood pressure
- Rapid heartbeat

Other

- Sweating
- Irritability
- Loss of consciousness
- Metallic taste
- Red eyes
- Sneezing
- Uterine cramping

13. First Epinephrine Dose (amt.) _____ Site (ex. upper left thigh) _____ Time: _____ Initials: _____

Second Epinephrine Dose (amt.) _____ Site _____ Time: _____ Initials: _____

VIRGINIA SCHOOL HEALTH GUIDELINES

14. Location where epinephrine administered: Health Office Other specify _____

15. Location of epinephrine storage: Health Office Other specify _____

16. Epinephrine administered by: RN Self Other (print name) _____

17. Parent or guardian notified of epinephrine administration: Yes No Time: _____
By whom: _____

18. Biphasic reaction: Yes No Don't know

Disposition

19. EMS notified at: (time) _____ By whom _____
Transported to hospital emergency department: Yes No If "No", reason _____
If yes, transferred via ambulance Parent/Guardian Other

20. Student/Staff/Visitor outcome: _____

School Follow-up

21. Were parents or guardians advised to follow up with student's medical provider? Yes No

22. Were arrangements made to restock epinephrine? Yes No

.NOTES: _____

24. Form completed by: _____ Date: _____
(please print)

Signature: _____ Title: _____

