

Guidelines for Managing Asthma in Virginia Schools

Revised August 2020



Introduction

Asthma is a commonly diagnosed lung condition that impacts children and adolescents. It is recognized as one of the leading causes of absenteeism among school-age children. Proper

disease management is the key to reducing respiratory symptoms or exacerbations and improve the overall health and quality of life of children impacted by this condition.

School nurses and health staff can support students with asthma in the school setting by recognizing how the disease affects breathing and identifying environmental triggers and signs of an impending asthma attack. Successfully managing asthma in the school setting will decrease absences caused by asthma and disruptions in learning caused by asthma emergencies.

Legislative Background

The 2020 Virginia General Assembly passed [HB 860 \(Bell\)](#) which amends and reenacts §§ [8.01-225 \(A21\)](#) and [54.1-3408](#) of the *Code of Virginia* regarding use of albuterol in schools effective July 1, 2020.

This legislation allows a healthcare provider to issue an order or standing protocol for trained school staff to administer albuterol by inhaler or nebulizer to a student previously diagnosed with asthma and believed to be experiencing, or about to experience, an asthmatic crisis.

This includes (1) any school nurse, school board employee, employee of a local governing body or employee of a local health department and (2) any employee of a school for students with disabilities, as defined in § 22.1-319 and licensed by the Board of Education, or any employee of a private school that is accredited pursuant to § [22.1-19](#) as administered by the Virginia Council for Private Education.

In addition, those personnel who authorize, provide, administer, or assist in the administration of a albuterol inhaler or nebulized albuterol to a student believed in good faith to be in need of such medication, or is the prescriber of such medication, shall not be liable for any civil damages for ordinary negligence in acts or omissions resulting from the rendering of such treatment.

Asthma Overview

Asthma is a chronic lung disease that causes airway inflammation. Inflamed airways are particularly sensitive and tend to overreact to certain “triggers.” Triggers can include numerous physical, chemical, and pharmacologic agents, such as allergens, viral infections, cold air, and exercise. When the airways react to a trigger, three physiologic processes happen:

1. Bronchospasm, contraction or squeezing of the involuntary muscle surrounding the airway;
2. Inflammation and edema (swelling) of the mucous membranes of the airways; and
3. Excessive, thick secretions from mucous glands.

Bronchospasm, edema, and increased mucus narrow the airway and result in less air getting into and out of the lungs thereby causing wheezing, coughing, chest tightness, and/or difficulty breathing. Wheezing is a high-pitched whistling or squeaky sound that can be made when air moves through narrowed airways. These symptoms can be mild or moderate and affect activity levels, or they can be severe and life threatening. Therefore, persons caring for a student with asthma need knowledge and skill to assess and support the student.

What Is Asthma?

[Asthma](#) is a disease that affects the lungs. It is one of the most common long-term diseases of children, but adults can have asthma, also. Asthma causes wheezing, breathlessness, chest tightness, and coughing at night or early in the morning.

Genetic, environmental, and occupational factors have been linked to asthma. Exposure to irritants in the environment like mold or dampness, dust mites, and secondhand tobacco smoke have been linked to the development of asthma. Air pollution and viral lung infection may also lead to asthma.

Individuals can control asthma exacerbations by knowing the warning signs of an asthma attack, staying away from things that cause an attack, and following a healthcare provider's advice. When asthma is controlled, individuals can experience:

- decreased symptoms such as wheezing or coughing;
- improved sleep;
- decreased absences from school or work;
- participation in physical activities;
- reduced hospitalizations due to asthma complications; and
- improved overall health.

What is an Asthma Attack?

An asthma attack may include coughing, chest tightness, wheezing, and trouble breathing. The attack happens in the body's airways, which are the paths that carry air to the lungs. As the air moves through the lungs, the airways become smaller, like the branches of a tree are smaller than the tree trunk. During an asthma attack, the sides of the airways in the lungs swell and the airways shrink. Less air gets in and out of the lungs, and mucous clogs up the airways.

What Causes an Asthma Attack?

Asthma is caused by swelling (inflammation) in the airways. During an asthma attack, the muscles surrounding the airways tighten. The lining of the air passages swells. As a result, less air is able to pass through. Asthma is a leading cause of missed school days and hospital visits for children. An allergic reaction is a key part of asthma in children. Asthma and allergies often occur together.

Common asthma triggers include:

- air quality;
- animals (hair or dander);
- aspirin and other medicines;
- changes in weather (most often cold weather);
- chemical fumes from cleaning products and aerosol products;
- dust, mold, and pollen;

- exercise;
- pests (cockroaches and mice);
- strong emotions;
- tobacco smoke; and
- viral infections, such as the common cold.

How Is Asthma Treated?

Asthma is a chronic condition that can generally be controlled by taking medication prescribed by a healthcare provider and avoiding things that can trigger or cause an attack. Not everyone with asthma takes the same medicine. Some medicines can be inhaled, or breathed in, and some can be taken as a pill. Asthma medicines come in two types — quick relief and long-term control. Quick-relief medicines control the symptoms of an asthma attack. If the school nurse notices the rate of inhaler or nebulizer use increases, it should be reported to the student’s parent or guardian. Parents/guardians should contact their healthcare provider to determine if changes are needed as part of the treatment plan. Asthma can usually be controlled with proper management. Asthma medicines may have side effects, but most side effects are mild and soon go away.

Medications Used to Treat Asthma

Most people with asthma need two kinds of medications: quick-relief and long-term control. [Allergy shots](#) (immunotherapy) can also be helpful to reduce environmental triggers.

Quick Relief

Quick-relief medications are taken at the first sign of asthma symptoms for immediate relief. They include:

- Short-acting inhaled beta2-agonists (inhalers) which include: albuterol (AccuNeb, Proventil HFA, ProAir HFA, Ventolin HFA) and levalbuterol (Xopenex, Xopenex HFA; and
- Anticholinergics which includes: Tiotropium (Spiriva® Respimat®) and Ipratropium Bromide HFA.

Both are bronchodilators, which means they expand the passageways into the lungs. This allows more air movement in and out of the lungs and improves breathing. They also help to clear mucus from the lungs by enabling the mucus to move more freely and be coughed out more easily. [Exercise-induced asthma](#) may require the use of a bronchodilator before exercising.

Even though quick-relief medications can stop [asthma symptoms](#), they do not control the cause of the symptoms: airway inflammation. Asthma is not well controlled if quick-relief medication to treat asthma symptoms is used more than twice a week.

Long Term Control

Long-term control medications are taken daily to prevent symptoms and [asthma attacks](#). They include:

- Inhaled corticosteroids, which include fluticasone, budesonide, mometasone, beclomethasone and ciclesonide. Inhaled corticosteroids are safe, well-tolerated, and among the most effective medications for treating asthma;
- Antileukotrienes or leukotriene modifiers which include montelukast sodium, zafirlukast, and zileuton; and
- Long acting inhaled beta2-agonists (never taken alone, but can be extremely useful when combined with an inhaled corticosteroid). These include salmeterol, formoterol, and vilanterol.

These medications are taken every day with or without symptoms. The most effective long-term control medications reduce the inflammation in the airways and improve asthma symptoms.

Emergency, quick relief, or rescue medications work very quickly and are used to open the airways in asthma attacks. They are usually bronchodilators and work by relaxing the muscles surrounding the airways so that the airways open and allow the child to breathe easier. Albuterol (Proventil, Ventolin) is an example of a common bronchodilator. Quick relief medications often are delivered through metered dose inhalers (MDI) and usually work for about four hours.

Using a Metered-Dose Inhaler (MDI)

The use of inhaled medication is necessary to treat and/or prevent asthma attacks. The school nurse can assist students and families in learning the [proper method of using an inhaler](#) by mouthpiece or mask. The medication is only as effective as the way it is delivered.

Using a Nebulizer

A nebulizer is a small machine that turns liquid medicine into a mist and can deliver medicine to the lungs with less effort than an inhaler. Most nebulizers are small, are easy to transport and work using air compressors. Clean the nebulizer cup, mask, and tubing frequently so that it continues to work properly.

COVID-19 Considerations

During the COVID-19 pandemic, asthma treatments using inhalers with spacers, with or without a face mask and according to each student's individualized treatment plan, are preferred over nebulizer treatments whenever possible. Based on limited data, the use of asthma inhalers (with or without spacers or facemasks) is not considered an aerosol-generating procedure.

Due to limited availability of data, it is uncertain whether aerosols generated by nebulizer treatments are potentially infectious. During the COVID-19 pandemic, nebulizer treatments at school should be reserved for children who cannot use or do not have access to an inhaler (with or without spacer or facemask).

Asthma Management in Schools

With appropriate care, including medical management and strategies to reduce environmental asthma triggers, students with asthma can control their symptoms so that the condition does not interfere with their educational activities.

Schools are one setting in which many asthma control services can be provided. For example, school nurses can help students use their medications correctly and can refer students to medical care. Other school personnel have roles in ensuring that students receive emergency care when needed. School staff can also take steps to improve the school environment so that students, as well as faculty and staff, are not exposed to harmful substances that can trigger their asthma symptoms.

Asthma Action Plan

An asthma action plan (or management plan) is a written plan developed by the healthcare provider to help control or manage a student's asthma in the school setting. The goal of an asthma action plan is to reduce or prevent flare-ups and maintain safety in the school setting and keep students with Asthma in school. Asthma Action Plan (AAP) and other asthma resources may be found on the Virginia Department of Education's (VDOE's) [School Health Services](#) webpage.

Individualized Health Plan (IHP)

The Registered Nurse (RN) initiates and develops an Individualized Healthcare Plan (IHP) for students whose healthcare needs require more complex school nursing services. An IHP is a plan of care written by the registered nurse for students with, or at risk for, physical or mental health needs (ANA and NASN, 2017). It is the responsibility of the Registered Nurse to evaluate the IHP on an annual basis and update the plan as needed to reflect changes in the health of a student and address nursing interventions and/or student healthcare outcomes.

504 Plan

Students with asthma may be eligible for an individualized education program (IEP) under *Individuals with Disabilities Act* (IDEA) or a "Section 504 plan" under Section 504 of the *Rehabilitation Act* of 1973. Even though asthma is not one of the 14 disability categories identified by the Virginia Regulations [8 VAC20-8180.J-W](#), a student with asthma may be eligible for an IEP under the Other Health Impairment (OHI) category if the student has "limited strength, vitality or alertness... that is due to chronic or acute health problems such as asthma... that adversely affects a child's educational performance."

A student with asthma may qualify as a student with a disability under Section 504 of the *Rehabilitation Act* of 1973 if the student (i) has a physical or mental impairment (such as a condition affecting the respiratory system, e.g., asthma) that substantially limits one or more major life activities; (ii) has a record of such an impairment; or (iii) is regarded as having such an impairment. Section 504 defines "major life activities" to include, among other things, caring for one's self, seeing, speaking, learning, and breathing. The Office for Civil Rights (OCR) within the U.S. Department of Education has found that a student with asthma may require a Section 504 plan even if the student's condition does not limit the student's learning.

In any case, it is important to note that, while having an individualized healthcare plan for asthma does not automatically trigger eligibility for an IEP or a Section 504 plan, school divisions should ensure that procedures are in place to address whether a student with asthma may be entitled to special education, accommodations, or supports under Section 504 or IDEA.

Resources for School Nurses

- American College of Allergy, Asthma and Immunology* . (2016). From [Asthma Medication](#).
- [Asthma](#). (n.d.). From Virginia Department of Health.
- [Asthma](#). (2020, May). From Centers for Disease Control.
- [Asthma and school](#). (2020, January 13). From Medline Plus.
- Centers for Disease Control. (2017, January). [Strategies for Addressing Asthma in Schools](#). From National Center for Environmental Health.
- Coalition, V. A. (2019). *Virginia Department of Education*. From [School Health Services, Health Office](#).
- Dugdale, III, MD,, David D.; Zieve, MD, David;. (2020). [Signs of an asthma attack](#). From Medline Plus.
- [How to use your peak flow meter](#). (2020, January). From Medline Plus.
- Kaneshiro, N. K., Zieve, D., & Conaway, B. (2018, May 20). *Medline Plus*. From [Asthma in Children](#).
- Know How to Use Your Asthma Inhaler*. (2017). From Centers for Disease Control: Know How to Use Your Asthma Inhaler.
- Martin, L. J. (2020, January 13). [Asthma and School](#). From Medline Plus.
- Medline Plus*. (2020, January). From [How to use a nebulizer](#).
- National Association of School Nurses*. (2015). From [School Nurse Asthma Care Checklist](#).
- School Health Services*. (2020). From [Virginia Department of Education](#).
- US Department of Health and Human Services, National Institutes of Health. (2014). [Managing Asthma: A Guide for Schools](#). From Managing Asthma.
- Zieve, MD, D., & Martin, MD, L. J. (2020, January). *Medline Plus*. From [Asthma Control Drugs](#).