

American Lung Association

Asthma 101

Childhood Asthma

- Asthma is the most common chronic disorder in childhood, currently affecting an estimated 6.1 million children under 18 years; of which 3.5 million suffered from an asthma episode in 2013.¹
- Secondhand smoke can cause serious harm to children. An estimated 400,000 to one million asthmatic children have their condition worsened by exposure to secondhand smoke.²
- Asthma can be a life-threatening disease if not properly managed. In 2013, 3,630 deaths were attributed to asthma. However, deaths due to asthma are rare among children. The number of deaths increases with age. In 2013, 218 children under 18 died from asthma.¹
- Asthma is the third leading cause of hospitalization among children under the age of 15. Approximately 32.7% of all asthma hospital discharges in 2006 were in those under 15; however, only 20.1% of the U.S. population was less than 15 years old.⁴
- In 2010, there were approximately 439,000 emergency room visits due to asthma in those under 18.²
- Asthma is one of the leading causes of school absenteeism.⁶ In 2008, asthma accounted for an estimated 14.4 million lost school days in children with an asthma episode in the previous year.^{6,7}

Adult Asthma

- The number and rate of hospital discharges for asthma peaked in 1995. Since that time, the number of discharges has decreased and the discharge rate has declined. During 2010, 439,000 discharges (14.1 per 10,000) were due to asthma.²
- More than 300,000 adult emergency room visits were attributed to asthma in 2010.²
- In 2008, asthma accounted for an estimated 14.2 million lost work days in adults.¹²
- The annual direct health care cost of asthma is approximately \$50.1 billion; indirect costs (e.g. lost productivity) add another \$5.9 billion, for a total of \$56.0 billion dollars.¹³



Normal Lung Tissue



Straw Activity

You'll need a watch or clock with a second hand and a drinking straw.

- Exercise in place for 30-60 seconds.
- Place a straw in your mouth. Seal your lips around the straw. Pinch your nostrils shut.
- Breathe in and out through the straw for 15 seconds.
- Pinch the straw in the middle to restrict and narrow the size of the opening.
- Take additional breaths.
- Remove straw and breathe normally.

Imagine what it must be like to feel like this for prolonged periods during an actual asthma episode. Think how hard it must be to concentrate when you can't breathe. Imagine how difficult it would be to climb a flight of stairs, walk down a long hallway to reach the school nurse or school office or get to the locker room to obtain prescribed medications when each breath is an effort.

Asthma Demonstration

Asthma is a chronic inflammatory disorder of the airways that causes three primary changes in the lungs:

- Inflammation (swelling) of the lining of the airways
- Bronchoconstriction (tightening of the bands of smooth muscles surrounding the airways) which reduces the width of the airways
- Excess mucus production that further narrows the airways

Asthma is an obstructive disease that may cause permanent changes (remodeling) if not properly treated. Asthma is a disease that cannot be cured but can be controlled.

Demonstration Activities

To get an idea of what an asthma episode feels like, try one of the following exercises.

Cautionary Note: If participants have asthma or other breathing problems, this may exacerbate their breathing difficulties. They should not participate in these activities.

- Make an "O" with your fingers and thumb. [Like this:](#)



- Put your fist to your mouth and breathe in and out for a few seconds. This is what it's normally like to breathe.

- Tighten your fist (make the "O" smaller) and place your fist to your mouth. [Like this:](#)



- Breathe in and out again for just a couple of seconds. This is what it can feel like when someone has asthma.

When someone has asthma three things happen that make it harder for them to get air in and out of their lungs:

- Airways swell (inflammation)
- Muscles around their airways tighten (bronchoconstriction)
- Too much mucus is produced

The above exercise demonstrates the muscle tightening and airway swelling.

Diagnosis

A diagnosis of asthma can be made by a health care professional through assessment of symptoms, medical history, physical examination and spirometry—a simple breathing test.

Diagnosing asthma in infants is often difficult, yet under-diagnosis and under-treatment are key problems in this age group. A detailed history of symptoms and a physical exam is a vital and important part of diagnosing asthma at any age.

Symptoms

Although symptoms may vary for each person with asthma, the primary symptoms of an asthma episode may include:

- Wheeze
- Cough
- Shortness of breath
- Chest tightness
- Retractions

Remember, all symptoms should be taken seriously. Please note that cough may be the only symptom. Some people with asthma may never wheeze.

Part of managing asthma includes assessing the severity of a person's asthma. This includes assessing night and daytime symptoms, plus a breathing test (spirometry). A person with asthma may be assessed at one of several different levels. The four levels of severity are intermittent, mild persistent, moderate persistent and severe persistent.

There are many common substances that can start an asthma episode. These substances, along with environmental conditions, are commonly referred to as triggers. Triggers cause asthma symptoms to begin or get worse. Asthma triggers may differ between individuals, what affects one person may not affect another.

If known triggers are present, susceptible people should be protected from exposure to the triggering agents and whenever possible, be removed from exposure to the trigger. Travel, outdoor activities (camping), and holidays often present unique challenges for asthma management. The following chart includes common agents and conditions that might trigger an asthma episode, possible sources, and strategies that can be used to reduce or control triggers.

Triggers and Control Strategies

INFECTIONS Colds, upper respiratory tract infections, influenza, sinusitis, and respiratory syncytial virus (RSV) may aggravate asthma symptoms.

- Diagnosing and treating upper respiratory tract infections and disease (rhinitis/sinusitis) is an integral part of managing asthma.
- Wash hands often.
- Use paper towels.
- Don't share cups, toothbrushes, towels or tissues.
- Keep hands away from face.
- Get an influenza shot yearly.

ALLERGENS Pets with fur and feathers

Animals Best option is to find a new home for family pets. If removal is not acceptable, ■ Keep the pet out of the child's bedroom and keep doors closed.

- Keep pets off of furniture.
- Wash the pet weekly to reduce the amount of dander.

- Vacuum with high efficiency particulate accumulator (HEPA) filter and dust weekly.
- Use a filter on air ducts in the child's room.
- Take allergy medications, as prescribed.
- Damp dust weekly

Cockroaches Infested buildings, kitchens, garbage, leaky faucets and pipes

- Do not leave food or garbage exposed.
- Store garbage in outside trash container.
- Poison baits or traps are preferred to chemical agents.
- Fixing leaky faucets will minimize cockroaches.

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Dust Mites Microscopic organisms found in carpeting, pillows, upholstery, stuffed animals, bedding, draperies

- Encase pillows, mattress, and box spring in an allergen impermeable cover.
- Wash bedding in hot water weekly.
- Do not sleep on upholstered furniture.
- Reduce indoor humidity to less than 50%.
- Minimize stuffed toys in child's bedroom.
- Vacuum (HEPA filter) and dust weekly.

Mold and Showers, restrooms, basements, materials and containers stored in damp areas, Yeast Spores leaky roofs, old books and newspapers, exercise and athletic mats, vaporizers/room humidifiers, aquariums, plants

- Fix leaky faucets and pipes.
- Clean visible mold with a stiff brush, hot water and non-ammonia soap.
- Run a dehumidifier and empty collection bucket daily.
- Use the exhaust fan in bathroom when bathing and above the stove when cooking.
- Throw away moldy items.
- Reduce indoor humidity to less than 50%.

Pollens Flowering trees and plants, cut flowers, grasses, weeds, gardens, nature walks, seasonal decorations

- Be aware of daily pollen counts in your area.
- Limit time outside during high pollen seasons.
- Keep windows closed and run air conditioner.
- Shower and wash hair before going to bed.
- Take allergy medications.

- Use an air cleaner that does not emit ozone in bedro

Foods/Additives Peanuts, soy eggs, dairy products, fish, wheat, sulfites (found in dried fruits, shrimp, wine) food preservatives, additives such as MSG and food dyes.

- For some people's allergies and sensitizations, exposure to ANY amount of allergic food or chemical could lead to mild to life-threatening reactions.
- Be aware of ingredients in processed and homemade foods.

Medical Conditions Acid reflux, sensitivity to aspirin, non-steroidal anti-inflammatory medications and medications (NSAIDs) and beta-blockers

- Appropriate treatment of reflux can minimize asthma episodes.
- Talk with health care provider about alternative medications.

IRRITANTS

Smoke Exposure to any type of smoke—cigarette, cigar and secondhand smoke, wood, coal, leaf burning, industrial waste, chemistry labs, kitchen

- Permit NO smoking in the home or around the person with asthma. If caregivers must smoke, wear a smoking jacket and smoke outside.
- If caregivers must smoke, wear a smoking jacket, smoke outside and leave the jacket outside. Do not bring it back into the home. It could trigger an asthma episode (attack).
- Help parents and caregivers quit smoking.
- Avoid exposure to outdoor burning, camp fires and other smoky areas.

Dust/Chalk Dust Chalkboards, dust

- Vacuum (HEPA filter) and dust weekly.
- Do not clap chalkboard erasers.

Weather Exposure to cold air or high humidity

- Monitor local weather forecast and high ozone alert days.
- Keep windows closed and use air conditioning when pollen, smog or humidity levels are high.
- Cover face with a scarf or wear a medical mask during weather changes or on days with poor air quality.

Aerosols, Strong Cleaning solutions, perfumes and colognes, paints, fumigation chemicals, room Odors and Fumes deodorizers, art supplies, roofing tars, sealants, traffic fumes, biology or chemistry labs

- Avoid or limit use of perfumes, scented deodorants, lotions, hairsprays, cleaning products, chemicals, candles and incense.
- Minimize breathing in automobile and bus fumes when waiting for public transportation. Wear a scarf or stand at the front of the stop, not at the end near fumes.
- Room should have proper ventilation.
- Clean room when person with asthma is away and ventilate before they return.
- Minimize contact.

BEHAVIORS

Emotions Crying, laughing, stressful situations

- Emotions are REAL triggers and can cause an asthma episode.

Exercise-induced Also referred to as exercise-induced bronchospasm, it is not a separate disease.

Exercise can trigger an asthma episode. It is often caused by cold, dry air that can produce a spasm in the airways.

- Warm up before and cool down after exercising.
- Follow health care provider's advice on pre-medication.
- Quick relief medications should always be available close by during physical exertion.
- Monitor air quality and only exercise outside when air quality is good.

MEDICATIONS

Asthma medications are essential to asthma management. They are important in both preventing an asthma episode from occurring and in treating an asthma episode already underway. A variety of medications are prescribed in the management of asthma.

Some medications reduce inflammation and prevent episodes. These are **controller medications**. They are taken on a daily basis, even when feeling well. Side effects can include a hoarse voice and yeast infection in the mouth but can be prevented by using a holding chamber and rinsing your mouth after medication use. Controller medications will not help during an asthma episode or in emergencies.

Other medications relieve bronchoconstriction (narrowing of the airways) and are designed for quick relief during an asthma episode. These are called **quick relief medications**. Quick relief medications relax the airway muscles and should be used when asthma symptoms first appear and/or before exercise, as indicated by a health care provider. Quick relief medications are taken on an as-needed basis to relieve symptoms.

Oral steroids (taken in pill or liquid form by mouth) are taken short-term (3 to 10 days) to treat severe asthma episodes. An oral steroid (like prednisone) begins to work in 6 to 24 hours to decrease swelling in the lungs. This oral steroid is safe when taken short-term. It is not the same medication that athletes take to increase their muscle mass.

Many asthma medications are in the form of sprays or powders that are breathed in through the mouth. They work best when they can get deep down into the lungs. Medications may be supplied as metered dose inhalers (MDIs), dry powder inhalers (DPIs), liquid solutions for nebulizer administration, or in tablet form.

Medication delivery devices assist in distributing asthma medications to the lungs. Equipment used in the administration of asthma management medications varies. People with asthma should be familiar with their delivery devices and administration. Metered dose inhalers (MDIs) and dry powder inhalers (DPIs) deliver a prescribed dose of medication from the unit with each activation. The medication can only reach the lungs if the person uses proper breathing techniques. Spacers or holding chambers attach directly to MDIs and should be used to assist medication delivery.

For optimal therapy, it is important to know when the medication expires and how many doses have been used in an inhaler. Some inhalers have dose counters built in and others require manually counting the doses by making hash marks on the inhaler.

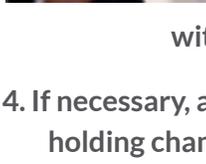
Metered Dose Inhaler with Spacer/Holding Chamber and Mask¹⁶



1. Remove cap to the inhaler.



2. Shake the inhaler for at least 10 seconds.



3. Insert the inhaler into the back of the holding chamber with mask.

4. If necessary, attach mask to holding chamber.

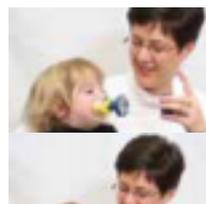


5. Put mask up to the child's face and make sure there is a good seal over the nose and mouth.

Some adults may need to use a mask.



6. Press down on the inhaler as the child begins to take a deep breath in. Release only one puff of medicine.



7. Keep the mask tight against the child's face for 6 breaths.



8. Wait 1 minute before repeating these steps, if a second dose is prescribed.

9. Repeat these steps, as prescribed.



Nebulizer¹⁶

1. Sit upright in a chair. An infant or small child may be held upright on lap or in arms.



2. Add medicine to nebulizer cup, as directed.
3. Turn switch on compressor to the "on" position.



4. Place mask on infant or child, making sure there is a good seal over the nose and mouth.

5. Breathe normally through the mouthpiece or mask, taking a deep breath ever minute or so. Continue until nebulizer cup begins to sputter.

Nebulizer Cleaning¹⁷

1. Disconnect nebulizer from tubing, disassemble, and briefly wash in warm soapy water.
2. Briefly wash nebulizer parts in warm soapy water. Do not submerge nebulizer tubing under water. Wipe with cloth, if soiled.
3. Place nebulizer parts on a towel or dish rack, and allow to air dry. Keep parts out of the reach of children. Reassemble the clean nebulizer, and place in a cool, dry place.

Metered Dose Inhaler (MDI) with Chamber

1. Remove cap to the inhaler.
2. Shake the inhaler for at least 10 seconds.
3. Insert inhaler into spacer
(technique will vary with type of spacer; refer to manufacturer's instructions).
4. Tilt your head back slightly and breathe out until lungs are completely empty.
5. Put the mouthpiece into your mouth between your teeth and close your lips around it. Do not block opening with your tongue.
6. Press down once on the inhaler canister.
7. Breathe in deeply and slowly through your mouth for about 5 to 7 seconds. You may have a holding chamber/spacer that has a built whistle, which will alert you if you are breathing in too fast.
8. Hold your breath as you count slowly to 10, if you can.
9. Wait at least 1 minute between puffs, and repeat as prescribed.²

If Asthma is under control, a person should be able to:

- Sleep through the night.
- Not cough or wheeze during the day or night.
- Be physically active.
- Not miss school and/or work due to asthma.
- Not have asthma-related visits to emergency room or hospitalization.

correctly.²⁵

- Determines when a health care provider's help is needed and when to seek immediate help.

Control of asthma depends on:

- Being able to get medical care.
- Having self-management skills.
- Having good communication between the person with asthma and those around them (parents, coaches, teachers, child care providers, friends and co-workers).

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Prevention and control of asthma episodes requires working closely with parents/ guardians and a child's health care provider to devise and follow a medical plan that...

- Prevents symptoms.
- Reduces contact with triggers.
- Prepares for any changes in symptoms.
- Ensures medications are being taken correctly.

Approximately 86% of patients don't take their medications

Exercise-induced Bronchospasm

Exercise-induced bronchospasm, or EIB (also referred to as exercise-induced asthma), is a temporary narrowing of the airways that restricts airflow, triggered by exercise.

Why does exercise cause asthma symptoms?

The intense breathing that takes place during exertion causes water loss from the lungs, which cools the lungs' moist lining. This drop in temperature may result in constriction of the muscles around the airways and inflammation within the airways—the ingredients of an asthma episode. EIB can occur during, or minutes after, vigorous activities, and may resolve in 20 to 30 minutes after onset. Research shows that with proper asthma management, exercise should be part of a person with asthma's daily routine.

An asthma management plan for a child or adult with EIB:

1. Pre-treat with medications. Bronchodilators or long-acting bronchodilators may be prescribed for EIB.

Many people with EIB use their quick relief medication 15 minutes before they exercise; but before you do this, always talk to your health care provider for guidance and recommendations.

2. Decreased activity should only be a

temporary solution. With proper asthma management, everyone should be able to exercise comfortably.

3. Encourage warm-up and cool-down exercises before and after exertion.
4. Make quick relief medications available at all times.
5. Avoid cold, dry air. If this is not possible, wearing a scarf or mask over their face during activities under these conditions will humidify the air before it reaches the lungs.
6. Remember to stop activity if coughing, wheezing, shortness of breath, and/or chest tightness occurs and follow your Asthma Action Plan.

Schools, child care provider sites, or families may wish to utilize the *Indoor Air Quality Checklist* to assess their environment and identify potential

triggers.

The children you care for are counting on you to help them breathe easier. The quality of air we breathe greatly influences lung health. By ensuring good indoor air quality, you can reduce or eliminate potential allergy or asthma triggers for yourself as a provider and for the children in your care. Careful cleaning can reduce dust, mold, and other allergens. Other air pollutants might also be present, but are not easily detected such as asbestos, formaldehyde, carbon monoxide, and radon. This checklist can help identify possible pollutants/triggers and indicate areas of your building where they might be found. Knowing what to look for and making changes are the first steps in ensuring healthy indoor air for the children in your care.

Please take a few minutes to look through each area of your building and check the appropriate boxes in each section. After each section heading, certain triggers appear with a brief explanation of how these items might affect the air quality of the children in your care. You may wish to add notes and date when the checklist was completed.

Please note that these triggers might be found in more than one room. Care providers with asthma/allergies should take precautions to protect their health at all times as well.

Infant/Toddler Room/Bedroom

Dust mites are tiny organisms that are present everywhere. Many individuals who suffer from allergies and asthma are sensitive to them. Respiratory viruses can also trigger an asthma episode, so careful cleaning and sanitizing can help stop the spread of these illnesses. If a child is not feeling well, it is best that he/she stay at home so that viruses are not spread.

Yes No Notes Date

1. Vacuuming (*recommended with a HEPA filter*) and cleaning is _____ done after hours or when children are not present.
2. Spills on carpet are cleaned immediately and the carpet _____ is allowed to dry completely.
3. Crib and sleeping mattresses are encased and wiped _____ daily with a damp cloth.
4. Sheets and blankets are washed weekly in hot water _____ (140°F or hotter) with unscented detergent.
5. Dolls and toys are wiped down daily with fragrance- _____ free disinfectant wipes.
6. Children do not sleep with stuffed animals. _____
- 7.

Diaper changing area is cleaned after each use, including

_____ carefully disposing of diapers and wiping changing area with fragrance-free disinfectant wipes.

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Bathroom

Excess moisture can result in the growth of mold and mildew. (Both can cause health problems, especially to individuals with respiratory problems.) Strong odors, such as those found in many cleaning supplies and soaps, can also cause allergic or asthmatic reactions for some children and adults.

Yes No Notes Date

1. Bathroom, especially near sinks and toilets, has been _____
_____ checked and is free of leaks, moisture, and mold.

2. Wastebaskets are emptied at the end of each day. _____

3. Floors, toilets, and sinks are cleaned daily with
_____ fragrance-free disinfectant wipes.

4. Cleaning supplies are tightly sealed and locked out of
_____ children's reach.

5. Air fresheners, soaps and hand sanitizers do not

have

_____ strong, perfumed scents.

Kitchen/Lunch Area

Spills and food not properly stored can draw unwanted pests, like cockroaches. Their droppings and decaying bodies can be harmful to the lungs of children with asthma.

Yes No Notes Date 1. Spills are wiped up immediately and countertops are
_____ wiped down daily with fragrance-free disinfectant wipes.

2. Wastebaskets and recycling are removed from area
_____ and disposed of at the end of each day.

3. Food is stored tightly in containers.
_____ 4.

Cooking is done with proper ventilation of fumes.

5. Pans under refrigerators are emptied and cleaned regularly.

General Classroom Area

Classrooms should be carefully cleaned on a regular basis when children are not present. Pets can be very harmful to a child with allergies or asthma. Animal dander, skin flakes,

saliva, or urine can cause a reaction.

Yes No Notes Date 1.

Vacuuming (with a HEPA filter) and cleaning are done _____ at the end of each day when children are not present.

2. There are no pets in the facility. _____

3. If a pet visits the center, cages are clean and kept away _____ from ventilation systems and fans.

4. Toys and books are wiped down on a regular basis and _____ are allowed to dry completely.

5. Art supplies are kept in sealed containers, and supplies _____ with strong scents or dust are not used. (ex. scented markers, strong smelling paints, chalk)

Throughout the Building

The following items will help you to determine if other kinds of air pollutants are present and the changes you might need to make.

Yes No Notes Date 1.

Smoking is prohibited. _____

2. _____

Strong perfumes and hair sprays are not worn. _____

3. Fresh or dried flowers or plants are avoided. Real plants, _____

_____ if over watered, can lead to mold; artificial plants can harbor dust.

4. I am aware that changes in the temperature or weather _____

_____ can affect children that have asthma or allergies.

5. Air conditioning is used during warm months whenever _____ possible to minimize outdoor allergens and pollutants in the building.

6. Heating, cooling, and ventilation systems are checked _____

_____ yearly by trained professionals and any problems are addressed.

7. Building is free of asbestos. (Professional inspection is recommended.) _____

8. Exposure to formaldehyde is minimized.

Formaldehyde _____

_____ is found in some building material adhesives and wood

products used in furniture, cabinets, and wall paneling.

9. Building has been tested for radon. Radon is a colorless, _____

_____ odorless, radioactive gas that occurs naturally in soil,

rock, and water.

10. Carbon monoxide detectors are installed and working

properly. Carbon monoxide is a colorless, odorless gas that can cause serious health problems and can be deadly at high levels.

11. An Asthma Action Plan for children with allergies and

asthma is accessible in the building so that providers and volunteers know what to do if there is an emergency.

An estimated 50 million people suffer from allergies, according to the National Institute of Allergies and Infectious Diseases; that is, 30% of adults and 40% of children suffer from



allergies. Allergic rhinitis, more commonly known as hay fever, is the most common of all allergies. The most common allergy symptoms include:

- Prolonged, sneezing spells
- Clear, watery nasal discharge
- Nasal congestion
- Itchy nose, eyes, ears, and throat

Many of these symptoms are similar to upper respiratory infections; however, the aches and fever that accompany a cold rarely occur with allergies. If symptoms persist, the individual may have allergic rhinitis (hay fever).

For some people, this affliction is seasonal; for others it occurs year-round. If a person has asthma and allergic rhinitis, the allergies often trigger asthma symptoms. An estimated 50% of asthma in adults and 80% in children are triggered by allergies. An estimated 20% of all children with allergic rhinitis will develop asthma within the next 8 to 10 years.

■ Allegra®

■ Benadryl®

■ Chlor-trimeton®

■ Claritin®

■ Tavist®

■ Zyrtec®

Prescription anti-histamines

include: ■ Clarinex®

■ Diphenhydramine HCL® injection

■ Dramamine®

■ Hyzine®

■ Palgic®

■ Periactin®

■ Promethazine® ■ Xyzal®

The following are examples of antihistamines/decongestants:

■ Actifed® ■ Aprodine® ■

■ Sudafed-Plus® ■ Zyrtec-D®

Allegra-D® ■ Claritin-D®

■ Contac®

■ Dristan®

There is a strong link between asthma and allergies, so it is important to keep allergens under control. Because some allergies affect the upper airway, they can trigger an asthma episode in the lower airway. People who suffer from allergies are six times more likely to have asthma than people who do not have allergies. However, all asthma is not allergy-related, and not all allergies will cause an asthma episode. Identifying and minimizing exposure to known allergens can improve quality of life.

Allergy Treatment

The good news is that people with allergies have plenty of treatment options. The medications used to treat allergic rhinitis fall into four categories: anti-histamines, decongestants, steroid nasal sprays and non-steroidal nasal sprays. Examples of over-the-counter anti-histamines are:

Nasal steroid sprays are also important in managing allergies; they typically begin to work about one week after beginning use.

Examples of these prescription nasal sprays are:

- Flunisolide®
- Nasacort®
- Nasonex®
- Rhinocort
- AQ®
- Veramyst®

A non-steroidal nasal spray, like Nasalcrom, which is over-the-counter, may take up to two weeks to begin working.

Nasal spray side effects can include:

- Dry mouth
- Drowsiness
- Increased heart rate
- Nosebleeds
- Nervousness

Examples of these non-steroidal nasal sprays are:

- Astelin®
- Astepro®
- Ipratropium®

This is not a complete list of all side effects. Patients should consult a health care provider for the medication that best treats their allergic symptoms.

Helpful Hints for Allergy Sufferers!

- Mattress covers, box springs, and pillows are the first line of defense for people with dust mite allergy. A focus on the bedroom for the allergy sufferers is important-stuffed animals, house pets, carpeting, trophies, or other items that collect dust aggravate allergy sufferers.
- Vacuum frequently with a HEPA filter-equipped vacuum cleaner.
- Most importantly, identify the allergy trigger and minimize or eliminate triggers.

Food allergy is an abnormal immune response to certain food(s) that the body reacts to as harmful. Estimates of the prevalence of food allergies range from approximately 4% to 8% of children and 2% of adults.^{19,20} Though reasons for this are poorly understood, the prevalence of food allergies and associated anaphylaxis appears to be on the rise. Risk factors associated with food allergy include: family history of asthma and allergies, genetic predisposition to allergic disease, elevated allergen-specific serum immunoglobulin levels (IgE concentrations), and being younger than 3 years of age. There are 8 foods that account for 90% of all food-allergy reactions: cow's milk, egg, peanut, tree nuts (for example, walnuts, pecans, almonds, and cashews), fish, shellfish, soybeans, and wheat.^{20,21,22} While 3.3 million Americans are allergic to peanuts or tree nuts, 6.9 million are allergic to seafood. Combined, food allergies cause 30,000 cases of anaphylaxis, 2,000 hospitalizations, and 150 deaths annually.²⁰

Symptoms of Food Allergy

Symptoms of a food-allergy reaction can be sudden and severe and commonly include one or more of the following:²³

- Hives
- Tingling in the mouth
- Swelling in the tongue and throat
- Difficulty breathing
- Abdominal cramps
- Vomiting or diarrhea
- Eczema or rash
- Coughing or wheezing
- Loss of consciousness
- Dizziness

Treatment of Food Allergies

Some types of mild food allergies are treatable with an antihistamine or bronchodilator. Severe, or anaphylactic reactions, require epinephrine. At present, there is no cure for food allergies. The best method for managing food allergies is prevention by way of strict avoidance of any food that triggers a reaction.²⁴

Q: Is asthma inherited?

Q: Why is daily

monitoring so important?

A: One school of thought is that there is a tendency for asthma to run in families, especially if one of the triggers is allergies. Other experts believe that it is the exposure to the same triggers in foods and/or the daily environment which may activate the same biochemical reactions and activate asthma in family members. Recent studies indicate that abnormalities on Chromosome No. 5 may be involved in asthma.

Q: Is the incidence of asthma gender related?

A: In children, asthma is more prevalent among males. In adults, asthma is more prevalent among females.

Q: Do children outgrow asthma?

A: The human body continues to develop new lung tissue for the first eight years of life. With the growth of new lung tissue, some symptoms may appear less dramatic than the earlier ages. With proper monitoring and medications, asthma can be successfully managed. When asthma is properly managed, symptoms are reduced or minimized to the point that they are not noticeable. Unless desensitization is prescribed, a person may continue to be sensitized to their known triggers. With teamwork between student, family, and school personnel, exposure to the person's known triggers can be minimized.

Q: Does asthma affect Americans of all backgrounds equally?

A: No. Among all racial and ethnic groups, Puerto

Ricans have the highest rate of lifetime asthma and Mexicans the lowest. Grouping all Hispanics together masks this difference. Puerto Ricans were almost 80% more likely and non-Hispanic blacks and American Indians were about 25% more likely to have ever been diagnosed with asthma than non-Hispanic whites.

A: As with any chronic condition, daily status is critical for successful management of persistent asthma. Just as an individual with diabetes monitors daily blood sugar levels and adjusts diet or insulin accordingly, so must an individual with asthma monitor lung function and symptoms daily. Peak flow monitoring provides objective information about the lung status. Serial peak flow monitoring provides information about the person's condition and allows adjustments to be made in care based upon results.

Q: Are antibiotics used to treat an asthma episode?

A: Antibiotics are not recommended for the treatment of acute exacerbations except as needed for other conditions (i.e. pneumonia, sinusitis) that may be contributing to an asthma episode.

Q: Are the steroids used in asthma the same as those banned in athletic competitions?

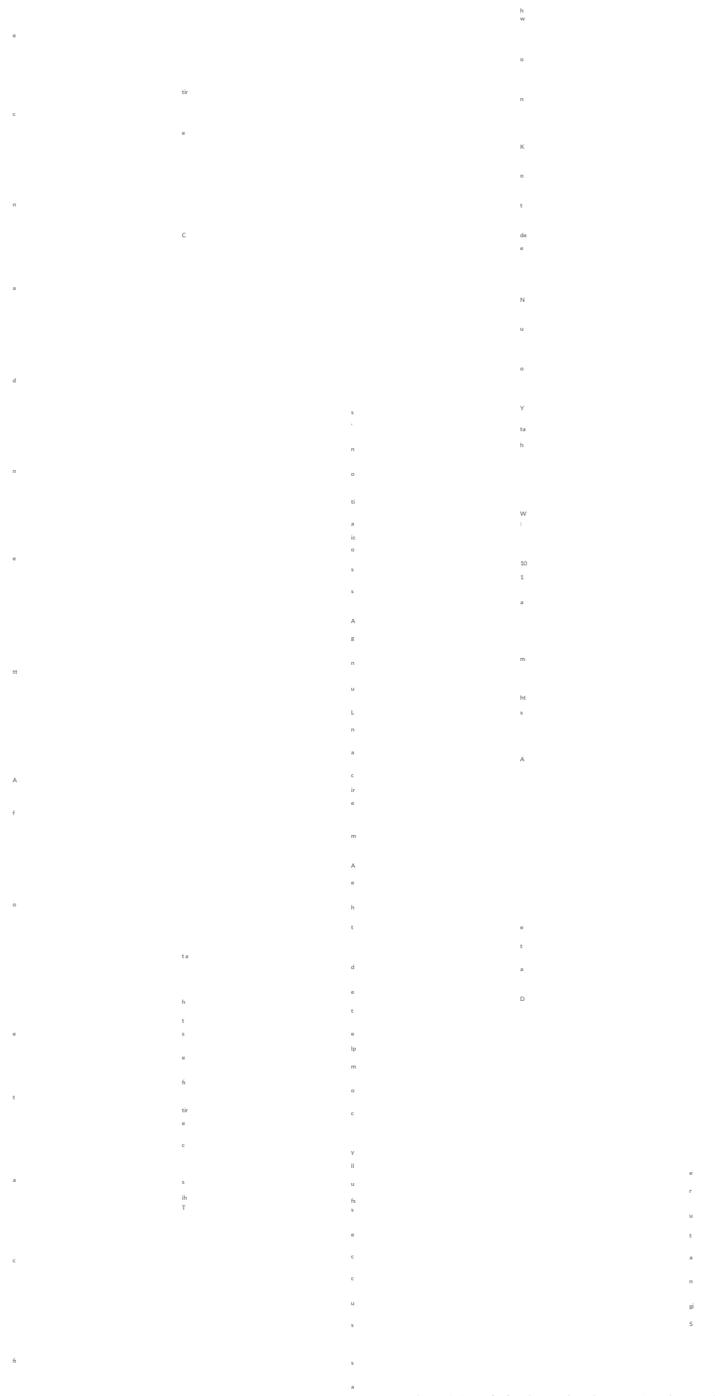
A: No. The steroids used in asthma management are corticosteroids and are permissible for use in athletic competition. Many athletes have asthma and are allowed to use their prescribed medications in competition. Anabolic steroids have been used by athletes to build body mass and are banned from use in many athletic competitions.

Q: How can I tell if a student is pretending to be sick?

A: Peak flow monitoring provides objective information regarding the child's status. However, treat all complaints and symptoms seriously. A child knows his/her body better than anyone else and can often perceive changes before symptoms become

apparent to others. If you feel a student is using asthma as an excuse not to participate on a regular

basis, communication with the school nurse, principal, and parent/guardian should be initiated.



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