

Information for Families, Staff, and Nurses

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What Is Asthma?

Asthma is a chronic disease that affects more than 7 million children in America. It is the most common long-term (chronic) lung disease in children in the United States.

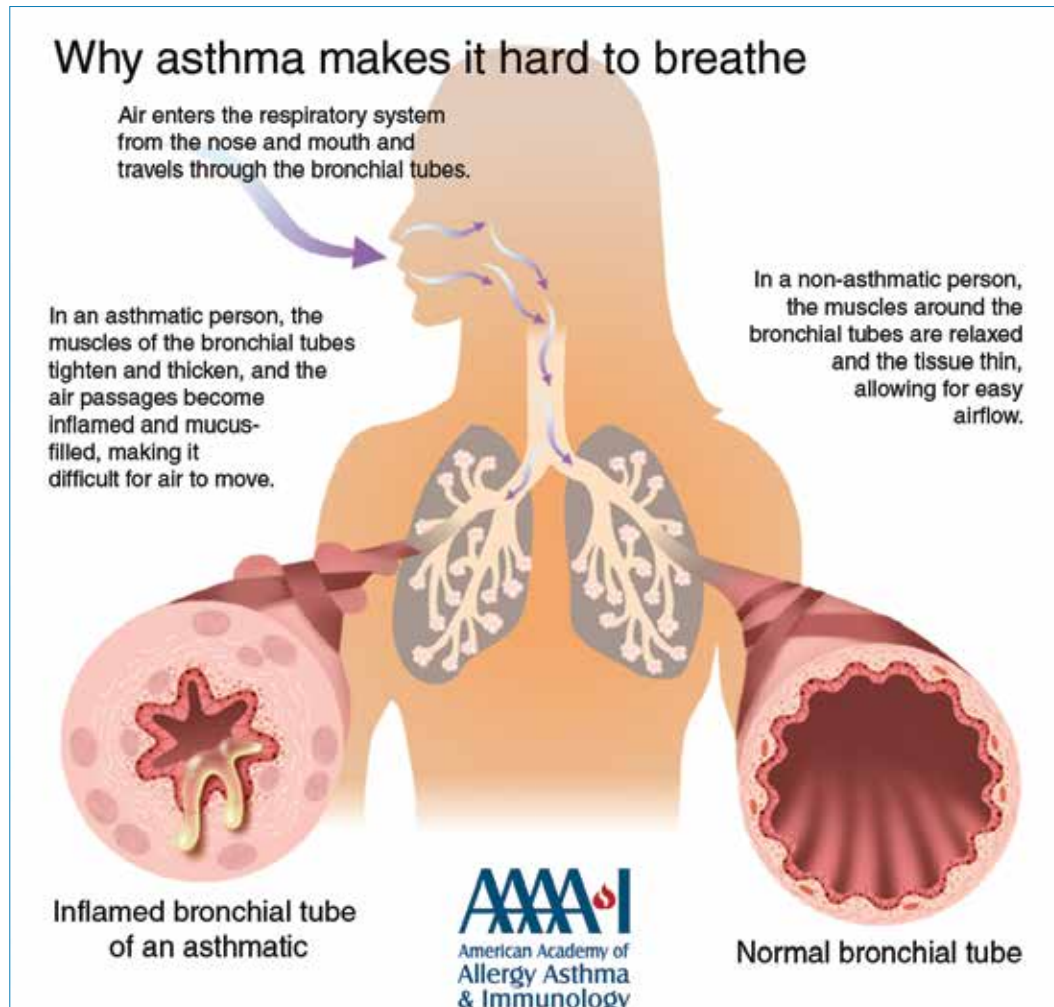
Anyone can get asthma — people of all ethnic groups, male and female, young and old, city dwellers and rural dwellers. Asthma is common among school-age children and teens; about three students in an average classroom of 30 have asthma. More children receive treatment for asthma than ever before. Asthma can be life-threatening if not well controlled and managed.

While no one knows for sure why some children develop asthma and others don't, we do know that it is a combination of family history and environment.

Asthma makes it hard to breathe. It can cause coughing and wheezing. Airways in your lungs are extra sensitive when you have asthma. Certain things called 'triggers' can make your asthma worse because airways overreact.

There is no cure for asthma. Once you have asthma, you will have the disease for the rest of your life. Although there is no cure for asthma yet, asthma can be controlled through medical treatment and management of environmental triggers.

Lungs: Normal Airways & Airways Affected by Asthma



Asthma Can Be Controlled

The following goals are possible when asthma is controlled:

- have no signs of asthma
- need rescue medicine less than three times per week
- exercise and play like other children
- sleep through the night
- go to school and work regularly
- have no asthma-related hospital or emergency room visit

Asthma is a disease of the lungs, that makes it hard to breathe. Symptoms may come and go. Some people with asthma only have symptoms when they get a cold or exercise, others have symptoms during certain seasons of the year.

When an asthma attack occurs, three things happen in the lungs:

- Breathing tubes get swollen and inflamed.
- Thick mucous plugs up the breathing tubes.
- Muscles squeeze tight around breathing tubes making it hard to get air in and out.

What Happens During an Asthma Attack

The swelling, mucous and tight muscles cause coughing, wheezing and difficulty breathing.

Signs of Asthma

Each child may have different warning signs that an asthma attack is starting. However, there are some common signs and symptoms.

Early Warning Signs	Late Warning Signs
<p>These are the first signs that asthma is beginning to get out of control. Follow the Yellow Zone of your Asthma Action Plan.</p> <ul style="list-style-type: none"> • coughing — day or night • wheezing — day or night • funny feeling in chest • cold symptoms: sneezing, runny nose, congestion, itchy throat • feeling tired • stomachache • headache • glassy eyes • poor appetite • peak flow: _____ (between 50-80% of best) 	<p>These mean EMERGENCY! Follow the Red Zone of your Asthma Action Plan.</p> <ul style="list-style-type: none"> • tight chest • hard or fast breathing • trouble walking, talking, or eating • constant coughing • using neck or stomach muscles to breathe • vomiting • not wanting to play • feeling very tired or dizzy • blue lips or nails • peak flow: _____ (below 50% of best)

Controlling Asthma Triggers

A trigger is something that causes asthma to get worse. Triggers are different for everyone. Controlling or avoiding triggers is important in controlling asthma. Below are some of the **most common triggers and some ways to control them.**

Mold and Pollen

- Shower/bathe after playing outside, at school may wash face and hands after outdoor activities.
- Use air conditioning and avoid opening windows and doors when mold and pollen counts are high.
- Clean or change filters on air conditioner or heater once a month.
- Use a dehumidifier if living area is damp.
- **Do not use** a vaporizer or humidifier.

Dust Mites

- Use zippered plastic or allergy-proof mattress and pillow covers.
- Wash bed linens, pajamas and stuffed toys weekly in hot water.
- Vacuum and dust weekly with child out of the room.
- Limit carpet and curtains.

Dogs, Cats and Birds

- **Do not have** feathered or furry pets in the home.
- Avoid things made with feathers, like pillows or down comforters.

Cockroaches and Mice

- Keep food contained, kitchen clean
- Call pest control.

Weather

- Asthma can be sensitive to weather and weather changes. Watch closely for signs of asthma on days of weather changes.

Colds and Viruses

- Good handwashing is important.
- Colds and viruses are the most common triggers in young children.
- Avoid people with colds, the flu, or viruses.
- Ask your doctor or nurse for a flu shot.
- Sinus infections

Irritants

- Many things can irritate the lungs if you have asthma. Smoke, dust, strong odors, paint, perfume and cleaning supplies are just some of the irritants that may trigger asthma.
- **Do not** smoke in your house or car, even if the child who has asthma is not present. **Do not** let any guests smoke in your house or car.

continued on next page

Exercise

- Playing hard at recess, gym, or in sports can trigger an attack in some children. However, exercise is very important for all children—even those with asthma. Children with asthma can do the same activities as their friends and classmates if their asthma is under control and they take their medicine as directed by their doctor or nurse.
- Ask your doctor for a medicine plan that allows for exercise.
- Have quick-relief/rescue medicine available during exercise.
- Tell coaches about asthma medicine.

Follow Your Asthma Action Plan

Everyone with asthma needs an **Asthma Action Plan**. Contact your doctor or nurse to get an Asthma Action Plan specially designed for your child. Everyone who cares for your child will need a copy, especially your child's school, babysitters, sports coaches and relatives.

Make sure to see your doctor regularly and to have your child's plan reviewed and updated frequently, especially at the beginning of the school year.

In the Zones

GREEN Zone:

Your child is well! No signs of asthma. They can do normal activities and sleep well at night.

- Watch for early signs of asthma.
- Take daily medicines as directed to keep asthma under control.
- Use pre-exercise medicine as directed.

YELLOW Zone:

Watch out! Your child is having early signs of asthma. Take action to get control.

- Follow your Action Plan and take quick-relief/rescue medicine. Call your doctor if quick-relief/rescue medicine doesn't work.
- Continue your Green Zone medicines.

RED Zone:

Danger! Your child is having late signs of asthma. This is an emergency!

- Follow your Action Plan and take quick-relief/rescue medicine. Contact your doctor or nurse immediately.
- If quick-relief/rescue medicine does not work, repeat it and call 911 or the emergency number in your area.

We're Ready for Your Call

To enroll in **Asthma Control Education** classes that may help you and your child better understand asthma, please call: St. Louis Children's Hospital **Healthy Kids Express: 314.286.0947** or **healthykidsexpress@bjc.org**. Parents, grandparents, other family members or caretakers, and children 5 and older are welcome to attend.



Parent/Guardian Checklist

- Obtain an Asthma Action Plan (AAP)**
- Obtain and submit all completed health forms prior to your child starting or transferring school**
 - Student health history
 - Release of confidential information
 - Medication authorization (albuterol, etc.)
 - Provide all necessary medication and aerochamber/spacer
- Talk to your school nurse/designee about your child's asthma**
- Participate in team planning meeting for your child**

Note: it may be necessary to develop:

 - Individual Health Plan (IHP)
 - 504 Accommodation Plan/Individualized Education Plan (IEP)
- Prevention**
 - Inform and educate all who come in contact with your child (give copy of AAP)
 - Provide emergency contact information
 - Know your child's asthma triggers and helpful control measures
 - Know the signs and symptoms of an asthma attack/episode
 - Know how to use your child's inhaler with spacer or nebulizer
 - Always send quick-relief/rescue medication and spacer when child is not with you
 - Follow Child's AAP
 - Pre-treat prior to exercise or activities if on AAP
 - Pre-treat child if will be exposed to triggers if on AAP
- If your child has an asthma attack/episode**
 - Follow up with his/her healthcare professional before child returns to school
- Best Practice**
 - Inform school nurse/designee of your child's asthma
 - Know your child's early warning signs and take action
 - Obtain medical identification (ID) jewelry based on the child's developmental stage
 - Take Child to the doctor at least **2 times a year** for asthma check-up
 - Post AAP in an area of your home that can be seen by all
 - Carry child's quick-relief/rescue medication **at all times**
 - Pre-treat prior to physical activities if indicated on the AAP

HOW ASTHMA-FRIENDLY IS YOUR SCHOOL?

NATIONAL HEART, LUNG AND BLOOD INSTITUTE
National Asthma Education and Prevention Program
NAEPP School Asthma Education Subcommittee

Students who have asthma need proper support at school to keep their asthma under control and be fully active. Use this checklist to find out how well your school serves students who have asthma:

YES	NO	Are the school buildings and grounds free of tobacco smoke at all times?
YES	NO	Are all school buses, vans, and trucks free of tobacco smoke?
YES	NO	Are all school events, like field trips and athletic events (both “at home” and “away”) free from tobacco smoke?
YES	NO	Does your school have a policy or rule that allows students to carry and use their own asthma medicines ?
YES	NO	If some students do not carry their asthma medicines, do they have quick and easy access to their medicines?
YES	NO	Does your school have a written emergency plan for teachers and other staff to follow to take care of a student who has an asthma attack?
YES	NO	In an emergency, such as a fire, weather event, or lockdown, or if a student forgets his or her medicine, does your school have standing orders and quick-relief medicines for students to use?
YES	NO	Do all students who have asthma have updated asthma action plans on file at the school? (An asthma action plan is a written plan from the student’s doctor to help manage asthma and prevent asthma attacks.)
YES	NO	Is there a school nurse or other school health staff in your school building during the school day?
YES	NO	Does a school nurse or other school health staff identify, assess, and monitor students who have asthma at your school?
YES	NO	Does a school nurse or other school health staff help students with their medicines and help them to participate fully in exercise and other physical activity, including physical education, sports, recess, and field trips?
YES	NO	If a school nurse or other school health staff is not full-time in your school, is a nurse readily and routinely available to write and review plans and give the school guidance?
YES	NO	Does an asthma education expert teach all school staff about asthma , asthma action plans, and asthma medicines?
YES	NO	Is asthma information incorporated into health, science, first aid, and other classes as appropriate?
YES	NO	Can students who have asthma participate fully and safely in a range of exercise and other physical activity , including physical education, sports, recess, and field trips?
YES	NO	Are students’ quick-relief medicines nearby before, during, and after exercise and other physical activity?
YES	NO	Can students who have asthma choose a physical activity that is different from others in the class when it is medically necessary?
YES	NO	Can students who have asthma choose another activity without fear of being ridiculed or receiving reduced grades?
YES	NO	Does the school help to reduce or prevent students’ contact with allergens or irritants—indoors and outdoors— that can make their asthma worse? Are any of the following are present? <input type="checkbox"/> Cockroach droppings <input type="checkbox"/> Excessive dust and/or carpets, pillows, cloth-covered or upholstered furniture, or stuffed toys that harbor dust mites (tiny bugs too small to see) <input type="checkbox"/> Mold or persistent moisture <input type="checkbox"/> Pets with fur or hair <input type="checkbox"/> Strong odors or sprays, such as paint, perfume, bug spray, and cleaning products
YES	NO	Does your school have a no-idling policy for vehicles on school grounds, such as school buses and carpools?
YES	NO	Does your school monitor daily local Air Quality Index (AQI) information to help reduce students’ exposure to unhealthy air quality?
YES	NO	Does your school partner with parents and health care providers to address students’ asthma needs?
YES	NO	Does your school work with an asthma specialist in the community?

If the answer to any question is “no,” then it may be harder for students to have good control of their asthma. Uncontrolled asthma can hinder a student’s attendance, participation, and progress in school. School staff, health care providers, and families should work together to make schools more asthma-friendly to promote student health and education.

Asthma cannot be cured, but it can be controlled.
Students who have asthma should be able to live healthy, active lives with few symptoms.



Is My Child's Asthma Out of Control?

1. Does your child use their quick-relief/rescue inhaler more than 2 times a week?

YES NO

2. Does your child wake up with asthma symptoms more than 2 times a month?

YES NO

3. Do you refill their quick-relief/rescue inhaler more than 2 times a year?

YES NO

If you answered YES to any of these questions, your child's asthma may be out of control. Please talk to your child's doctor and report times and frequency of asthma symptoms.

Note: Use of quick-reliever for Exercise Induced Asthma (EIA) is not to be counted.



Childhood Asthma Control Test for children 4 to 11 years.

How to take the Childhood Asthma Control Test

- ▶ **Step 1** Let your child respond to **the first four questions (1 to 4)**. If your child needs help reading or understanding the question, you may help, but let your child select the response. Complete the remaining **three questions (5 to 7)** on your own and without letting your child's response influence your answers. There are no right or wrong answers.
- ▶ **Step 2** Write the number of each answer in the score box provided.
- ▶ **Step 3** Add up each score box for the total.
- ▶ **Step 4** Take the test to the doctor to talk about your child's total score.

19
or less

If your child's score is 19 or less, it may be a sign that your child's asthma is not controlled as well as it could be. Bring this test to your doctor to talk about your results.

Have your child complete these questions.

1. How is your asthma today?

 0 Very bad	 1 Bad	 2 Good	 3 Very good	SCORE <input type="text"/>
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2. How much of a problem is your asthma when you run, exercise or play sports?

 0 It's a big problem, I can't do what I want to do.	 1 It's a problem and I don't like it.	 2 It's a little problem but it's okay.	 3 It's not a problem.	<input type="text"/>
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3. Do you cough because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.	<input type="text"/>
--	---	---	--	----------------------

4. Do you wake up during the night because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.	<input type="text"/>
--	---	---	--	----------------------

Please complete the following questions on your own.

5. During the last 4 weeks, how many days did your child have any daytime asthma symptoms?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday	<input type="text"/>
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6. During the last 4 weeks, how many days did your child wheeze during the day because of asthma?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday	<input type="text"/>
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7. During the last 4 weeks, how many days did your child wake up during the night because of asthma?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday	<input type="text"/>
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TOTAL



This material was developed by GlaxoSmithKline.

Asthma Control Test™ is:

- ▶ A quick test for people with asthma 12 years and older—it provides a numerical score to help assess asthma control.
- ▶ Recognized by the National Institutes of Health (NIH) in its 2007 asthma guidelines.¹
- ▶ Clinically validated against specialist assessment with spirometry.²

PATIENTS:

1. Write the number of each answer in the score box provided.
2. Add up the score boxes to get the TOTAL.
3. Discuss your results with your doctor.

1. In the past **4 weeks**, how much of the time did your **asthma** keep you from getting as much done at work, school or at home?

All of the time	1	Most of the time	2	Some of the time	3	A little of the time	4	None of the time	5
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SCORE

2. During the past **4 weeks**, how often have you had shortness of breath?

More than once a day	1	Once a day	2	3 to 6 times a week	3	Once or twice a week	4	Not at all	5
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3. During the past **4 weeks**, how often did your **asthma** symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?

4 or more nights a week	1	2 or 3 nights a week	2	Once a week	3	Once or twice	4	Not at all	5
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4. During the past **4 weeks**, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

3 or more times per day	1	1 or 2 times per day	2	2 or 3 times per week	3	Once a week or less	4	Not at all	5
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5. How would you rate your **asthma** control during the **past 4 weeks**?

Not controlled at all	1	Poorly controlled	2	Somewhat controlled	3	Well controlled	4	Completely controlled	5
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**If your score is 19 or less, your asthma may not be under control.
No matter what your score, share the results with the doctor.**


TOTAL

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HEALTHCARE PROVIDER:

- ▶ Include the Asthma Control Test™ score in your patient's chart to track asthma control.

References: 1. US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3 2007)*. NIH Item No. 08-4051. <http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm>. Accessed March 31, 2017. 2. Nathan RA et al. *J Allergy Clin Immunol*. 2004;113:59-65.

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Students with Asthma Checklist

Follow Your Asthma Action Plan (AAP)

Join in Asthma Planning Meeting

Prevention

- Know your triggers and stay away
- Tell your friends and adults what triggers your asthma
- Pre-treat when you are going to be exposed to a trigger including activities/sports if on your AAP
- Always have your albuterol (quick-relief/rescue) medication and aerochamber/spacer
- Go to your doctor at least twice a year

If You Have an Asthma Attack, Go See Your Doctor in 1–2 Weeks or Prior to Returning to School

Best Practice

- Know your signs and symptoms of asthma
- Know your early warning signs
- Tell an adult if you are having asthma symptoms
- Carry your albuterol metered-dose inhaler and aerochamber/spacer at school and at all times
- Take your albuterol (quick-relief/rescue) medication if having early warning signs
- Report any teasing, threats, or bullying

Review

- Do you need your quick-relief/rescue before PE and sports
- Know to tell an adult when you're having an asthma episode or call 911
- Know where your quick-relief/rescue medicine is kept
- Know what number the counter is on so you don't run out

Is Your Asthma Under Control?

Student _____ **Date** _____

Your doctor has told you that you have asthma. These questions can help you decide if your asthma is under control. Put a checkmark next to your answer.

Activities

- Do you have trouble breathing or coughing when walking or doing easy chores?
- Does walking up hills or stairs, doing heavy work or lifting causes me to breathe harder or cough?
- Do you sometimes skip sports because you will have a hard time breathing or will cough?
- Do you wake up at night sometimes coughing or having a hard time breathing?

Symptoms that sometimes happen to me

- I cough a lot.
- My chest feels tight or funny.
- I can't breathe easy.
- I wheeze.

Triggers that seem to make me feel bad

- Dust, pollen and furry pets
- Cold weather
- Cigarette or tobacco smoke or other strong smells
- Colds or viruses seem to make it harder for me to breathe
- Exercise

Hospital Visits

- I have been to the emergency room or urgent care more than once in the last year because of my breathing problems.
- I stayed overnight in a hospital in the last year because of my breathing problems.

Medicines

- I use my reliever inhaler to stop asthma symptoms more than twice a week.
- I don't take my asthma medicine because I don't like the way it makes me feel.
- My asthma medicine doesn't seem to work.

Feelings

- Does your breathing problems keep you from doing things like having fun with friends, playing games?
- Do you worry about your breathing problems a lot?

Put a checkmark next to your answer.

What Are Your Asthma Triggers?

Circle all your triggers.

Season Changes



Exercise



Smoke



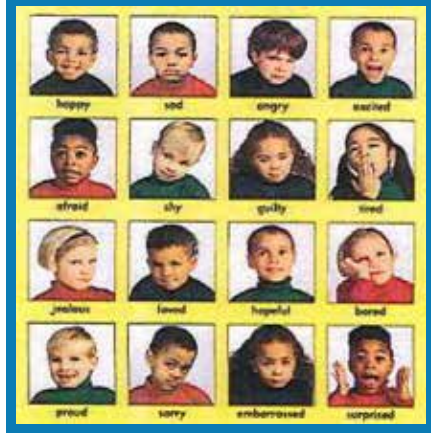
Pollen



Dust



Emotions



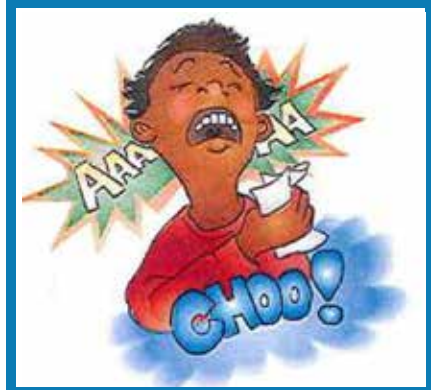
Furry Animals



Strong Smells



Cold and Viruses



Cockroaches



Asthma Triggers

Triggers are things that make your asthma worse. Some triggers are things you are allergic to and some just irritate your airways. You can reduce how often your asthma flares up by reducing exposure to your triggers.

Triggers

What you can do to reduce your triggers

Cigarette Smoke

Tobacco smoke can make asthma worse.



- Do not allow smoking in your home, car, or around you.
- If you smoke, ask your health care provider for ways to help you quit. Ask family members to quit, too.
- Ask your health care provider for a referral to a quit smoking program, or call the US Network of Quitlines: **800-QUIT-NOW (800-784-8669)**.

Colds, Flu, Bronchitis

When you're sick, your asthma is more likely to flare up.



- Wash your hands often.
- Don't touch your eyes, nose, or mouth.
- Get a flu shot every year, preferably in the fall.
- Avoid contact with people who have colds.

Dust Mites

These tiny bugs live in cloth, carpet, and bedding and are too small to see with the naked eye.



- Get special dust mite-proof covers for your pillows and mattresses.
- Wash sheets and blankets in hot water every week.
- Wash stuffed animals frequently and dry completely.
- Avoid having carpeting, if you can.
- Vacuum carpet weekly with a HEPA vacuum cleaner.

Pollen & Outdoor Air Pollution

Some people are allergic to molds or pollen from trees, grass, and weeds.



- Try to keep your windows closed during pollen season and when mold counts are high.
- Plan to do indoor activities on high pollen days.
- Ask your health care provider about taking medicine during allergy season.
- Get daily air quality forecasts at www.airnow.gov

Animals

Some people are allergic to skin flakes (dander), urine, or saliva from animals and birds.



- Keep pets with fur or feathers out of your home.
- If you can't keep a pet outdoors, then keep the pet out of your bedroom, and keep the bedroom door closed.
- Keep pets off upholstered furniture and away from stuffed toys.
- Wash your hands after petting or playing with pets.

Mice, Rats, and Cockroaches

Some people are allergic to the droppings from these pests.



- Do not leave food or garbage uncovered.
- Clean up spills and food crumbs right away.
- Store food in airtight containers.
- Store cooking grease in the refrigerator.
- Keep food out of the bedroom.

Indoor Mold

This can be a trigger if your home has high moisture.



- Fix leaking faucets, pipes, or other sources of water.
- Clean moldy surfaces with hot water and soap.
- Use a dehumidifier in the basement if it is damp and smelly.

Wood Smoke, Strong Odors, and Sprays

These can reduce air quality and irritate airways.



- Avoid strong odors and sprays, like perfume, powders, hair spray, paints, incense, cleaning products, candles, and new carpeting.
- Avoid inhaling smoke from burning wood.

Exercise or Sports

These can trigger an asthma attack for some people.



- Take your rescue medicine before sports or exercise to prevent symptoms if directed by your health care provider.
- Warm up / cool down for 5-10 minutes before and after sports or exercise.

Other Triggers

Cold air, changes in weather, and strong emotions can set off an asthma attack!



- Cover your nose and mouth with a scarf when it gets cold.
- Sometimes laughing or crying can be a trigger.
- Some medicines and foods can trigger asthma.

PLANNING TO WIN

Name: _____ Date of birth: _____

Emergency contact: _____

Primary care physician: _____ Telephone: _____

Allergist: _____ Other specialist: _____



SET A GOAL

What would life be like without asthma symptoms slowing you or your family down? Check the areas you'd like to improve.

- sleep through the night
- exercise and play sports
- not have to use so much medicine
- avoid going to the emergency clinic
- not miss so many work or school days
- take a vacation or travel without worrying about asthma attacks
- other _____



SORT IT OUT

Do you know which allergens, irritants and activities set off your symptoms? Knowing for sure means you can take steps to avoid unnecessary exposure and possibly reduce the amount of medicine you need. Talk with your medical care provider about this list and any tests you need.

WHAT MAKES MY ASTHMA WORSE (check all that apply)

- Exercise
- Smoke
- Furry animals
- Dust mites
- Mold
- Cockroaches
- Pollen
- Air pollution
- Colds and viruses
- Foods _____
- _____
- Cold or sudden temperature change
- GERD (gastroesophageal reflux)
- Sinus congestion or infection
- Strong odors or perfumes
- Other _____
- _____

WHAT I CAN DO TO PROTECT MY LUNGS (check all that apply)

- Stop smoking and ask others not to smoke in the house or car
- Keep pets out of the bedroom
- Keep my bedroom dust-free; cover pillows and mattress with dust-mite covers
- Get a home humidity monitor and keep humidity below 50%
- Prevent pests by keeping kitchen counters clean and keeping food and crumbs out of bedrooms
- Get AANMA's Indoor AirRepair kit (download at www.aanma.org) for more ways to improve indoor air quality
- Ask my healthcare provider about using a peak flow meter
- to monitor my airways
- Eat well and exercise
- Prevent colds and flu; wash hands often
- Get yearly flu vaccination; consider a pneumonia vaccination
- Do not eat food you're allergic to; read food labels carefully
- Wear a scarf or mask over mouth and nose when going outside or into cold air
- Use unscented cleaners at home and skip the air fresheners; ask friends to not use perfume
- Reduce nasal symptoms with nasal washes
- Other: _____
- _____
- _____



LISTEN TO YOUR BODY

Your body will tell you when asthma is beginning to get worse, even before the coughing and wheezing begin. Recognize your early warning signs and stop symptoms from escalating into an asthma attack. Here are some common early warning signs. (Check all that apply, and add your own)

- Breathing pattern changes; may be faster
- Listlessness; no interest in activities
- Poor appetite
- Dry cough
- Dark circles under the eyes
- Irritability
- Decreasing peak flow meter reading
- Itchy neck, chest or upper back
- Excessive yawning, sighing
- Changes to voice
- Shortness of breath with light exertion
- Other: _____

ALLERGYASTHMANETWORK.ORG

Asthma Medicines: Rescue and Controllers

Quick-Relief/Rescue Medicine

Asthma quick-release/rescue medicine may come as an inhaler or go in a nebulizer.

What does it do?

- Works within 15 minutes
- Relaxes the muscles around your airways

When should I use it?

- For quick relief
- When you have any warning signs of asthma—coughing, wheezing, funny feeling in the chest, stomach ache, feeling tired, trouble walking, talking, or eating.
- Before exercise or activity, if needed
- 30 minutes before you know you will be around one of your triggers

My quick-relief/rescue medicine: _____

Long-Term Controller Medicine

Asthma controller medicine may come as an inhaler or go in a nebulizer.

What does it do?

- Reduce swelling in the airways
- These are long acting or slow release medicines

When should I use it?

- These medicines are not for rescue.
- Use every day (as directed by your doctor).
- When directed to use every day, this medicine can help control or prevent warnings signs of asthma.
- Always rinse your mouth and spit or brush your teeth after using a controller medicine.

My controller medicine(s): _____

Important Tips

- If you have warning signs of asthma, use your quick-relief/rescue medicine.
- Use your controller medicine every day.
- Even if you take a controller medicine **every day**, you **may** still need to use a quick-relief/rescue medicine when you have asthma warning signs.

Names of Quick-Relief/ Rescue Medicines

- Albuterol
- Pro-Air[®]
- Proventil[®]
- Ventolin[®]
- Xopenex[®]

Albuterol (ProAir HFA, Proventil HFA®, Ventolin HFA®, ProAir Respiclick®) and Levalbuterol (Xopenex™)

This Medicine Is Used to

- Provide quick relief for wheezing in patients with asthma.
- Relax the muscles around the airway and open up the airway.

How to Give this Medicine

- This medicine may be given by inhaler or nebulizer.
- A spacer should be used with an inhaler. A spacer helps the medicine get to the lungs.
- Prime the inhaler before using it for the first time by spraying it 4 times into the air. Prime it again if it has not been used in more than one week.
- The respiclick does not require use of a spacer or holding chamber.

Call your child's regular doctor NOW (night or day) if albuterol or levalbuterol:

- Does not work in 15 to 30 minutes.
- Is needed more often than every 4 hours.
- Is needed every 4 hours for more than 1 day.

Most Common Side Effects

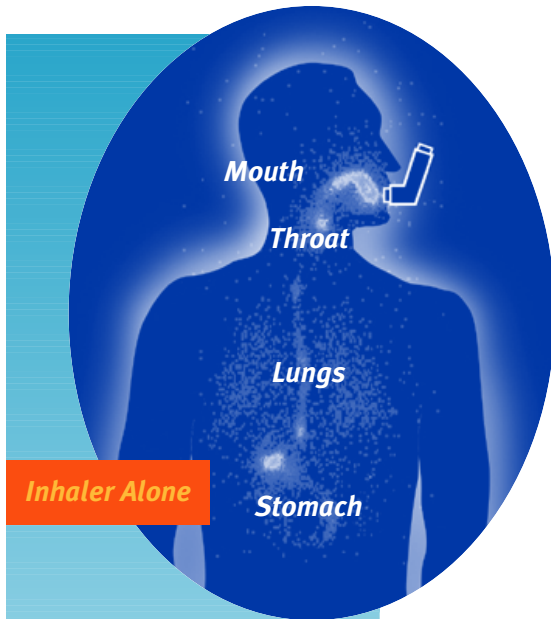
- Shakiness
- Nervousness
- Fast heart beat
- Nausea
- Increased activity
- Trouble sleeping

Important Information to Know

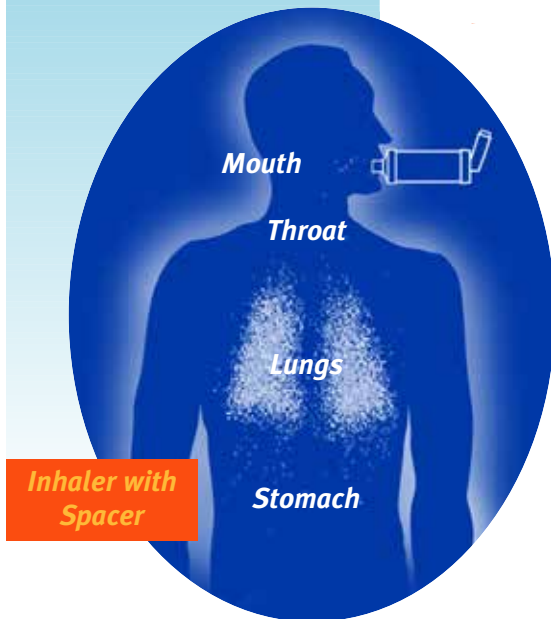
- Keep this medicine with your child at all times.
- An asthma action plan is recommended for children with asthma. Ask your child's doctor if your child does not have an asthma action plan.
- For additional information about albuterol or asthma, ask your child's medical provider.



Why Should I Use a Holding Chamber or Spacer with My Inhaler?



- ◀ When an inhaler is used alone, medicine ends up in the mouth, throat, stomach and lungs.
- ◀ Medicine left in the mouth, throat and stomach may cause unpleasant taste and side effects.



- ◀ When an inhaler is used with a spacer, more medicine is delivered to the lungs, where it works.



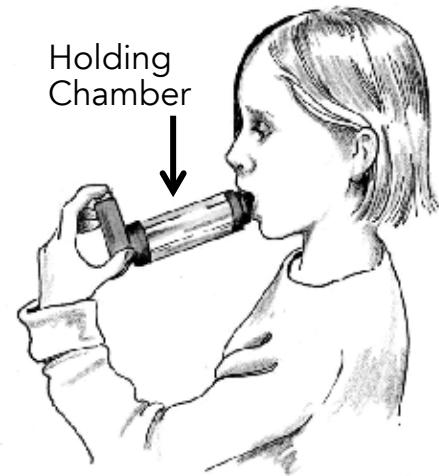
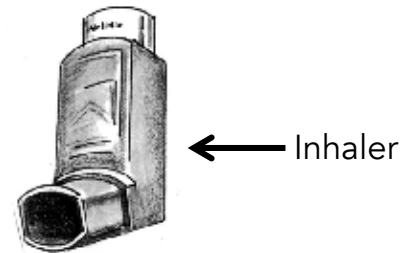
Spacers should be used by patients of all ages.

Metered Dose Inhaler with a Holding Chamber

A holding chamber is used with some inhalers to help more medicine get into the lungs.

How to Use the Holding Chamber

1. Take the caps **off** the inhaler and the chamber.
2. **Shake** the inhaler well.
3. Place the inhaler into the rubber end of the chamber.
4. Take a deep breath and slowly breathe out completely.
5. Place the mouthpiece of the chamber into your mouth and close your lips and teeth around it.
6. Press down on the inhaler 1 time to give 1 puff of medicine into the chamber.
7. Take a slow deep breath through your mouth. Hold your breath for **10 seconds** and then breathe out.
8. **Wait** 1 minute before taking another puff.
9. **Repeat** steps 2 to 8 for all puffs ordered by your doctor.
10. Put caps back on the inhaler and the holding chamber.



Reminders

- **Prime** the inhaler before using it the first time by spraying it **4 times** into the air. Prime again if not used in more than one week.
- If the holding chamber whistles when you inhale, you are breathing in too fast.
- **Clean** the holding chamber at least once a week with warm, soapy water. Soak it for 15 minutes. Then rinse. **Do not** use a dishwasher. Let it air dry.
- Keep track of the number of puffs used by checking the counter on the inhaler. This is important so refills are ordered before the inhaler is empty.

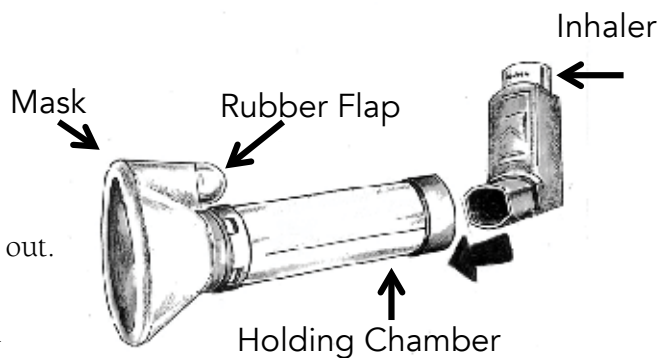
Asthma Video: Go to www.stlouischildrens.org and search “How to use an inhaler.”

Holding Chamber with Mask

A holding chamber with a mask is used with some inhalers to help young children breathe more medicine into the lungs.

How to Use the Holding Chamber with Mask

1. Take cap off the inhaler and shake it well.
2. Place the inhaler into the rubber end of the holding chamber.
3. Place the mask over the child's nose and mouth. It is important to have a **good seal** on the child's face so the medicine does not leak out.
4. Press down on the inhaler 1 time to give 1 puff of medicine into the chamber. Keep the mask on the child's face and watch for 6 breaths. Rubber flap will move with each breath. See picture.
5. Wait **1 minute** before taking another puff.
6. **Repeat** steps 3 to 5 for all puffs ordered by your doctor.
7. Put the cap back on the inhaler.



Reminders

- **Prime** the inhaler before using it for the first time by spraying it **4 times** into the air. Prime again if not used in more than one week.
- Clean the holding chamber and mask at least once a week with warm, soapy water. Soak it for 15 minutes. Then rinse. Do not use a dishwasher. Let it air dry.
- Keep track of the number of puffs used by checking the counter on the inhaler. This is important so refills are ordered before the inhaler is empty.

Asthma Video: Go to www.stlouischildrens.org and search (How to Use an Aerochamber)

How to Use Your Asthma Medicine: The Diskus[®]

The Diskus[®] is a Dry Powder Inhaler (DPI) to deliver asthma medicine. The Diskus[®] can be used to deliver the medicine Advair[®].

How to Use the Diskus[®]:

1. Open:

While holding Diskus[®] in **left hand**, place thumb of **right hand** on thumb grip and open to expose lever underneath. **Push** thumb away from you until the **mouthpiece** appears and the grip snaps into place.

2. Click:

Push the lever all the way to the right until you hear a “click.” Hold the Diskus[®] level or flat after clicking. **Do not turn** or tip. **Do not** move the level more than once.

3. Inhale:

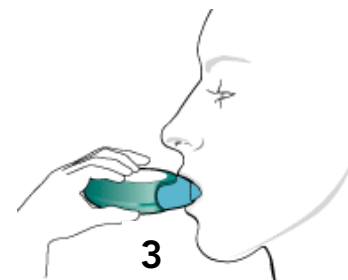
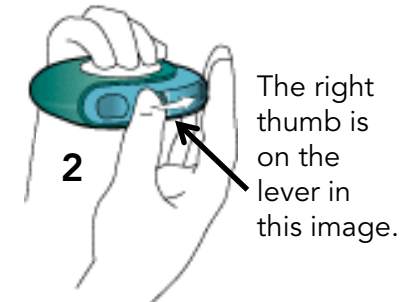
Take a deep breath in and gently blow out before putting the Diskus[®] to your mouth. (**Do not** blow into Diskus[®])

- Put teeth and lips tightly around mouthpiece.
- Breathe in **quickly** and **deeply**.
- Remove Diskus[®] from mouth and hold your breath for **10 seconds**.
- Breathe out and close the Diskus[®].

Tips for Using Your Diskus[®]

- There is a window on the Diskus[®] that shows the number of doses remaining.
- **Do not** get the Diskus[®] wet. Store in a cool, dry place.
- **Rinse mouth** with **water** and **spit after** taking Advair[®].
- Follow the directions from your child’s doctor or nurse about how often to use the medicine.
- Always check with your medical provider or pharmacist before starting any new medicine, over the counter medicine, or herbal product.

Asthma Video: Go www.stlouischildrens.org and search How to use Diskus

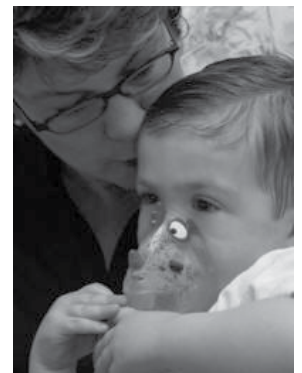
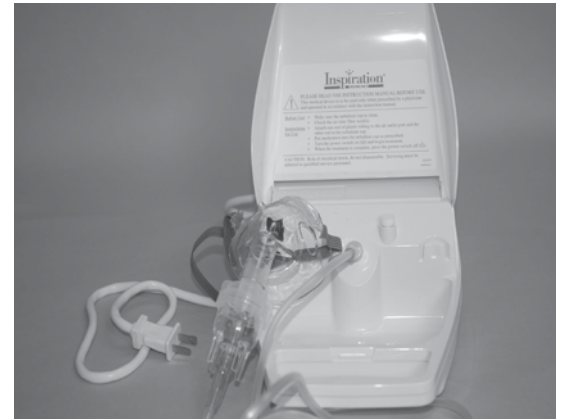


How to Use a Nebulizer

A nebulizer holds liquid medicine. A machine forces air through the nebulizer. The medicine becomes a fine mist that is breathed into the lungs.

How to Use a Nebulizer

1. Read machine directions and wash hands.
2. Twist the top off the plastic vial and squeeze the medicine into the nebulizer cup.
3. Connect the mask or mouthpiece to the nebulizer cup.
4. Connect the tubing to the nebulizer cup and to the machine. Both ends of the tubing are the same.
5. Turn the machine on and check to make sure the machine is misting.
6. When using a nebulizer, sit in a comfortable, upright position. Young children may be held on an adult's lap.
7. Use a mask or mouthpiece to breathe in the mist.
 - **If using a mask**—be sure that the mask fits over the mouth and nose. Use the elastic band around the back of the head to keep the mask on the face.
 - **If using a mouthpiece**—place the mouthpiece between the teeth and close lips around the mouthpiece. The child must be able to breathe in through their mouth without using their nose.
8. **Breathe** in and out normally until the machine stops misting and the medicine is gone from the cup.



Helpful Tips

- After using the nebulizer, rinse the cup and let it air dry. Clean the nebulizer according to instructions.
- **Do not** rinse the tubing. Throw away tubing if it becomes cloudy or wet as it will not dry.
- Change the filter when it looks dirty. Keep the machine clean and dry.
- Always use the mask or mouthpiece. The medicine will not reach the small airways if it is just blowing towards the face.
- **Call** your home health company that delivered the nebulizer machine or pharmacy if:
 - any parts of the nebulizer are lost
 - the nebulizer or machine is not working
 - you need a new filter
 - you need a new nebulizer kit or tubing

Asthma Video: Go to www.stlouischildrens.org and search How to Use Nebulizer

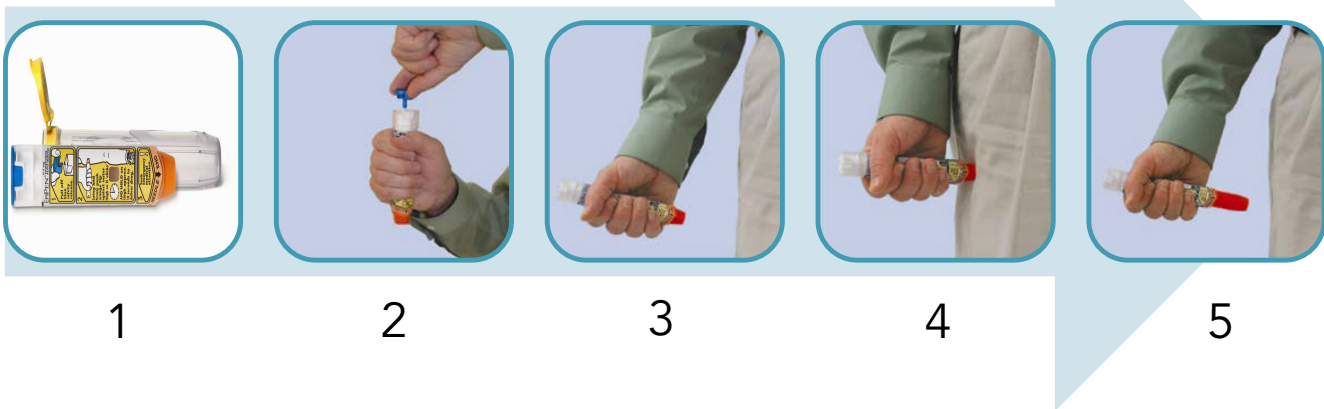
EpiPen Auto-Injector[®]

Call 911 or an ambulance immediately after using EpiPen[®]

- The effects of the EpiPen[®] begin to wear off after 10 to 15 minutes.
- It is very important to call 911 or the emergency number in your area immediately after using the EpiPen[®]. Your child could have another reaction and needs to be observed in the emergency department for at least 4 hours.
- Bring the EpiPen[®] with you to the hospital or give the EpiPen[®] to the emergency personnel when they arrive, and they will safely dispose of it.

Steps in Using an EpiPen[®]

1. Remove the EpiPen from the carrier tube.
2. Form a fist around the EpiPen with the orange tip pointing down. Pull off the blue safety release.
3. Hold the EpiPen with the orange tip pointing toward the middle of the outer thigh.
4. Swing and press the orange tip **firmly** into the outer thigh until you hear a “click”. Keep holding it firmly against the thigh for 3-5 seconds. Note that the EpiPen may be used through clothing or directly on the skin.
5. Remove the EpiPen from the thigh and massage the area for 10 seconds.
6. **Call 911 and seek immediate medical attention.** Tell them that your child has had an allergic reaction and that the EpiPen was used.
7. Be prepared to use a second EpiPen if symptoms do not improve or worsen in 10 to 15 minutes. Each EpiPen is for **Single Use Only!**



continued on next page

A doctor will prescribe an EpiPen for patients with life-threatening allergies. The EpiPen is an epinephrine shot that is used to treat severe allergic reactions (anaphylaxis). A severe allergic reaction can become fatal within minutes if untreated. Using the EpiPen gives the lifesaving time needed to get further medical attention.

The EpiPen® should be used immediately for symptoms of anaphylaxis:

Mouth: Itchy, swelling of tongue and/or lips

Throat: Itchy, tightness/closing, hoarseness, trouble breathing/swallowing

Skin: Itchy, hives, redness, swelling, red watery eyes

Gut: Nausea, vomiting, cramps, diarrhea

Lung: Shortness of breath, wheezing, constant cough

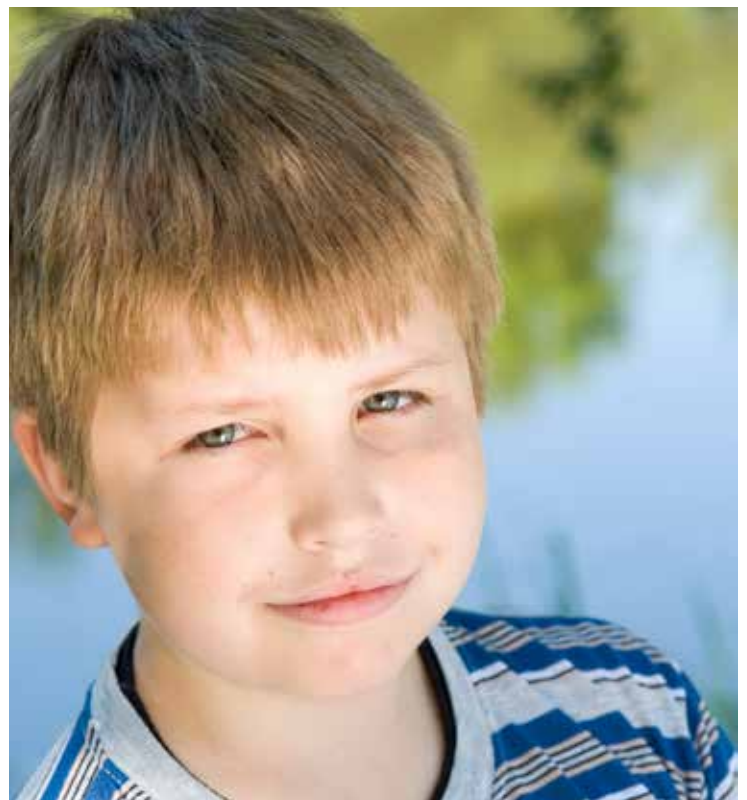
Heart: Pale or blue skin color, dizziness/fainting, weak pulse

Neurological: Sense of “impending doom,” irritability, change in alertness, mood change, confusion

Tips about the EpiPen®

- The EpiPen comes in 2 strengths, depending on the child’s weight. A trainer EpiPen may be included in the box with the real EpiPen. It has no medicine or needle and is used only for practice
- Store the EpiPen at room temperature. Do not put in refrigerator. Do not keep the EpiPen in the car during hot or cold weather. Do not expose it to direct sunlight.
- Make sure the medicine in the viewing window is clear and colorless.
- Check the expiration date of the EpiPen. If expired, get a refill.
- Have a Food Allergy Action Plan from your child’s doctor or nurse available for all caregivers. (school, daycare, sports activities, relative’s homes)

Additional Resource: www.epipen.com



Asthma Action Plan

Green Zone: Well

- No signs of asthma
- Able to do normal activities
- No problems while sleeping

• Peak flow above: _____
(above 80% of best)

*Rinse mouth after this medicine



Give these medicines every day:

MEDICINE:	HOW MUCH:	WHEN:
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Yellow Zone: Watch Out!

Early Signs of Asthma:

- Cold symptoms
- Coughing day or night
- Wheezing day or night
- Funny feeling in chest

• My first sign: _____

• Peak flow: _____
(50-80% of best)



First — give:

■ Albuterol _____ 2-4 puffs or 1 nebulizer _____ 1-3 times in first hour

■ Call your Doctor or Nurse if not in Green Zone after first hour.

Next — if asthma is better after first hour, you may give:

■ Albuterol _____ 2-4 puffs or 1 nebulizer _____ every 4 hours as needed

Call your Doctor or Nurse if:

- Albuterol needed more often than every 4 hours.
- Albuterol needed every 4 hours for more than 1 day.

Keep taking other Green Zone medicines.

Red Zone: EMERGENCY!

Late Signs of Asthma:

- Tight chest
- Breathing hard or fast
- Using neck or stomach muscles to breathe
- Constant coughing
- Trouble talking or walking
- Vomiting
- Lips or nails blue

• Peak flow below: _____
(below 50% of best)



First — give *now*:

■ Albuterol _____ 6 puffs or 1 nebulizer _____
■ AND call your Doctor or Nurse.

Next — if you cannot reach your Doctor or Nurse *immediately*, give:

■ Albuterol _____ 6 puffs or 1 nebulizer _____

(oral steroid)

■ AND go to the nearest emergency room or call 911.

Patient/Parent/Guardian Signature Date

RN/MD Signature Date

Phone number of Doctor or Nurse:

Day: _____

Night: _____

Asthma Action Plan

DATE: ____ / ____ / ____ PATIENT NAME _____
 WEIGHT: _____ PARENT/GUARDIAN NAME _____ PHONE _____
 HEIGHT: _____ PRIMARY CARE PROVIDER/CLINIC NAME _____ PHONE _____
 DOB: ____ / ____ / ____ WHAT TRIGGERS MY ASTHMA _____

Baseline Severity

Best Peak Flow

Always use a **holding chamber/spacer with/without** a mask with your inhaler. (*circle choices*)

GREEN ZONE DOING WELL GO!

You have ALL of these:

- Breathing is good
- No cough or wheeze
- Can work/play easily
- Sleeping all night

Peak Flow is between:

 and

80-100% of personal best

Step 1: Take these controller medicines **every day**:

MEDICINE	HOW MUCH	WHEN

Step 2: If exercise triggers your asthma, take the following medicine **15 minutes before** exercise or sports.

MEDICINE	HOW MUCH

YELLOW ZONE GETTING WORSE CAUTION

You have ANY of these:

- It's hard to breathe
- Coughing
- Wheezing
- Tightness in chest
- Cannot work/play easily
- Wake at night coughing

Peak Flow is between:

 and

50-79% of personal best

Step 1: Keep taking **GREEN ZONE** medicines and **ADD** quick-relief medicine:

_____ puffs or 1 nebulizer treatment of _____
 Repeat after 20 minutes if needed (for a maximum of 2 treatments).

Step 2: Within 1 hour, if your symptoms aren't better or you don't return to the **GREEN ZONE**, take your **oral steroid** medicine _____ **and** call your health care provider today.

Step 3: If you are in the **YELLOW ZONE more than 6 hours**, or your symptoms are **getting worse**, follow **RED ZONE** instructions.

RED ZONE EMERGENCY GET HELP NOW!

You have ANY of these:

- It's very hard to breathe
- Nostrils open wide
- Ribs are showing
- Medicine is not helping
- Trouble walking or talking
- Lips or fingernails are grey or bluish

Peak Flow is between:

 and

Below 50% of personal best

Step 1: Take your quick-relief medicine **NOW**:

MEDICINE	HOW MUCH

or 1 nebulizer treatment of _____

AND

Step 2: Call your health care provider **NOW**

AND

Go to the emergency room **OR CALL 911** immediately.

_____ This Asthma Action Plan provides authorization for the administration of medicine described in the AAP.
 _____ This child has the knowledge and skills to self-administer quick-relief medicine at school or daycare with approval of the school nurse.

DATE: ____ / ____ / ____ MD/NP/PA SIGNATURE _____

This consent may supplement the school or daycare's consent to give medicine and allows my child's medicine to be given at school/daycare. My child (*circle one*) **may / may not** carry, self-administer and use quick-relief medicine at school with approval from the school nurse (*if applicable*).

DATE: ____ / ____ / ____ PARENT/ GUARDIAN SIGNATURE _____

FOLLOW-UP APPOINTMENT IN _____ AT _____ PHONE _____

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Asthma Action Plan

For: _____ Doctor: _____ Date: _____

Doctor's Phone Number _____ Hospital/Emergency Department Phone Number _____

GREEN ZONE

- Doing Well**
- No cough, wheeze, chest tightness, or shortness of breath during the day or night
 - Can do usual activities

And, if a peak flow meter is used,

Peak flow: more than _____
(80 percent or more of my best peak flow)

My best peak flow is: _____

Before exercise _____ 2 or 4 puffs _____ 5 minutes before exercise

YELLOW ZONE

- Asthma Is Getting Worse**
- Cough, wheeze, chest tightness, or shortness of breath, or
 - Waking at night due to asthma, or
 - Can do some, but not all, usual activities

-Or-

Peak flow: _____ to _____
(50 to 79 percent of my best peak flow)

Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.



_____ 2 or 4 puffs, every 20 minutes for up to 1 hour
(short-acting beta₂-agonist) Nebulizer, once

If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:



-Or- Continue monitoring to be sure you stay in the green zone.

If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:

Take: _____ 2 or 4 puffs or Nebulizer
(short-acting beta₂-agonist)

Add: _____ mg per day For _____ (3–10) days
(oral steroid)

Call the doctor before/ within _____ hours after taking the oral steroid.

RED ZONE

- Medical Alert!**
- Very short of breath, or
 - Quick-relief medicines have not helped, or
 - Cannot do usual activities, or
 - Symptoms are same or get worse after 24 hours in Yellow Zone

-Or-

Peak flow: less than _____
(50 percent of my best peak flow)

Take this medicine:

_____ 4 or 6 puffs or Nebulizer
(short-acting beta₂-agonist)

_____ mg
(oral steroid)

Then call your doctor NOW. Go to the hospital or call an ambulance if:

- You are still in the red zone after 15 minutes AND
- You have not reached your doctor.

DANGER SIGNS

- Trouble walking and talking due to shortness of breath
- Lips or fingernails are blue

Take 4 or 6 puffs of your quick-relief medicine AND

Go to the hospital or call for an ambulance _____ NOW!

(phone)

This guide suggests things you can do to avoid your asthma triggers. Put a check next to the triggers that you know make your asthma worse and ask your doctor to help you find out if you have other triggers as well. Then decide with your doctor what steps you will take.

Allergens

Animal Dander

Some people are allergic to the flakes of skin or dried saliva from animals with fur or feathers.

The best thing to do:

- Keep furred or feathered pets out of your home.
- If you can't keep the pet outdoors, then:

- Keep the pet out of your bedroom and other sleeping areas at all times, and keep the door closed.
- Remove carpets and furniture covered with cloth from your home.

If that is not possible, keep the pet away from fabric-covered furniture and carpets.

Dust Mites

Many people with asthma are allergic to dust mites. Dust mites are tiny bugs that are found in every home — in mattresses, pillows, carpets, upholstered furniture, bedcovers, clothes, stuffed toys, and fabric or other fabric-covered items.

Things that can help:

- Encase your mattress in a special dust-proof cover.
- Encase your pillow in a special dust-proof cover or wash the pillow each week in hot water. Water must be hotter than 130° F to kill the mites.
- Cold or warm water used with detergent and bleach can also be effective.
- Wash the sheets and blankets on your bed each week in hot water.
- Reduce indoor humidity to below 60 percent (ideally between 30—50 percent). Dehumidifiers or central air conditioners can do this.
- Try not to sleep or lie on cloth-covered cushions.
- Remove carpets from your bedroom and those laid on concrete, if you can.
- Keep stuffed toys out of the bed or wash the toys weekly in hot water or cooler water with detergent and bleach.

Cockroaches

Many people with asthma are allergic to the dried droppings and remains of cockroaches.

The best thing to do:

- Keep food and garbage in closed containers. Never leave food out.
- Use poison baits, powders, gels, or paste (for example, boric acid).
- You can also use traps.
- If a spray is used to kill roaches, stay out of the room until the odor goes away.

Indoor Mold

- Fix leaky faucets, pipes, or other sources of water that have mold around them.
- Clean moldy surfaces with a cleaner that has bleach in it.

Pollen and Outdoor Mold

What to do during your allergy season (when pollen or mold spore counts are high):

- Try to keep your windows closed.
- Stay indoors with windows closed from late morning to afternoon, if you can. Pollen and some mold spore counts are highest at that time.
- Ask your doctor whether you need to take or increase anti-inflammatory medicine before your allergy season starts.

Irritants

Tobacco Smoke

- If you smoke, ask your doctor for ways to help you quit. Ask family members to quit smoking, too.
- Do not allow smoking in your home or car.

Smoke, Strong Odors, and Sprays

- If possible, do not use a wood-burning stove, kerosene heater, or fireplace.
- Try to stay away from strong odors and sprays, such as perfume, talcum powder, hair spray, and paints.

Other things that bring on asthma symptoms in some people include:

Vacuum Cleaning

- Try to get someone else to vacuum for you once or twice a week, if you can. Stay out of rooms while they are being vacuumed and for a short while afterward.
- If you vacuum, use a dust mask (from a hardware store), a double-layered or microfilter vacuum cleaner bag, or a vacuum cleaner with a HEPA filter.

Other Things That Can Make Asthma Worse

- Sulfites in foods and beverages: Do not drink beer or wine or eat dried fruit, processed potatoes, or shrimp if they cause asthma symptoms.
- Cold air: Cover your nose and mouth with a scarf on cold or windy days.
- Other medicines: Tell your doctor about all the medicines you take. Include cold medicines, aspirin, vitamins and other supplements, and nonselective beta-blockers (including those in eye drops).



U.S. Department of Health and Human Services
National Institutes of Health



National Heart Lung and Blood Institute

For More Information, go to: www.nhlbi.nih.gov

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