

WHAT YOU NEED TO KNOW ABOUT ASTHMA

BREATHing is Life



Prevent Acute Lung Attacks



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HOW THE LUNGS WORK

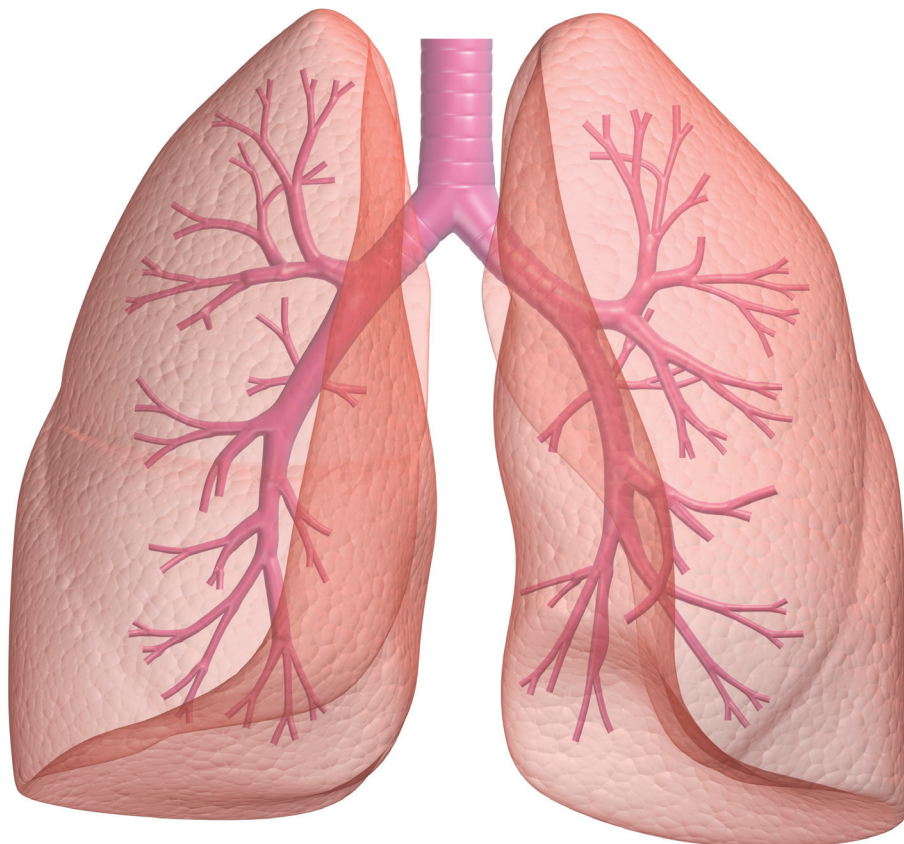
Your lungs are part of a group of organs and tissues called the respiratory system that all work together to help you breathe.

Every cell in your body needs oxygen, a gas, to live.

The air that comes into the body through the lungs contains oxygen.

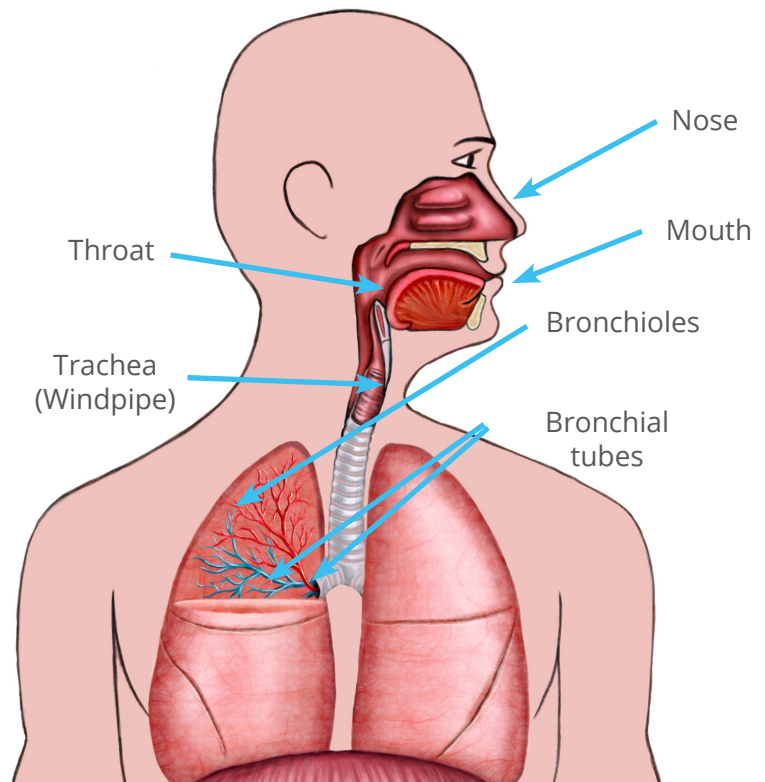
In the lungs, the oxygen is moved into the blood and carried through the body. At each cell in the body, the oxygen is replaced with carbon dioxide. The blood then carries carbon dioxide back to the lungs where it is removed from the body by breathing out.

This important process happens automatically by the lungs.

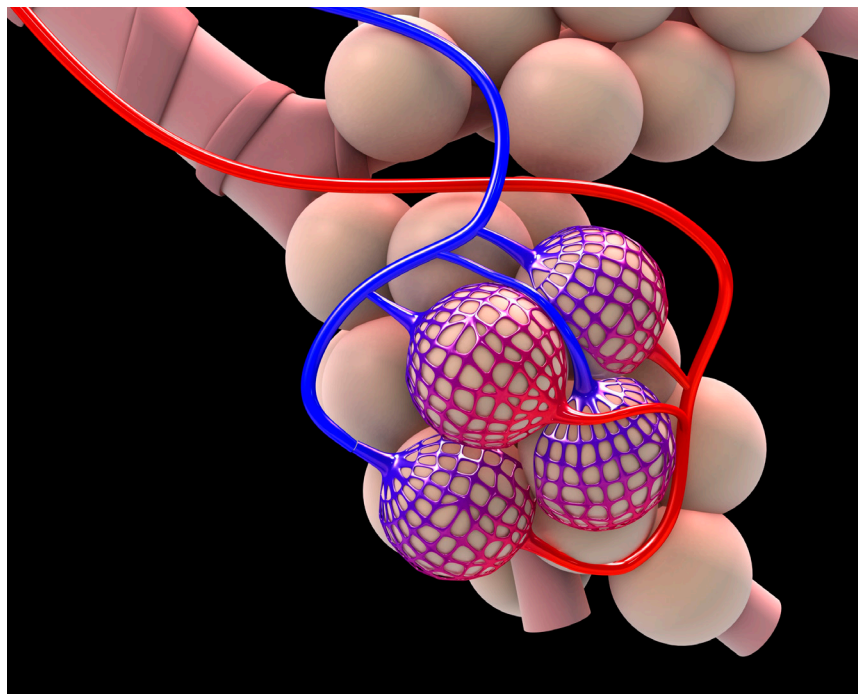


RESPIRATORY SYSTEM

Air enters through the nose or mouth and passes downward to the trachea (windpipe). The trachea is the passage leading from the throat to the lungs. The trachea divides into the two main bronchial tubes, one for each lung, which then subdivide into each lobe of the lungs. These divide further into the smallest parts of the bronchial tubes called bronchioles and end at the alveoli (air sac).



The alveoli are the very small air sacs that are the destination of air we breathe in. Oxygen is exchanged from the lungs to the blood and carbon dioxide is exchanged from the blood to the lungs.





WHAT IS ASTHMA?

Asthma is a lung disease that makes it harder to move air in and out of your lungs. People with asthma have sensitive airways that can easily become inflamed and swollen. The narrow airways and increased mucus make it difficult to breathe.

What you need to know about asthma:

- Asthma can be diagnosed at any stage in life from childhood to adulthood.
- While asthma cannot be cured, it can be controlled with medicine and lifestyle changes.
- Learning how to manage your asthma will help you live a healthy life.
- Asthma is not contagious.

- Asthma often runs in the family (hereditary).
- Asthma symptoms can range from mild shortness of breath to a life threatening asthma attack.

Asthma can be staged:

- Intermittent (seasonal)
- Mild
- Moderate
- Severe

NORMAL AND ABNORMAL AIRWAYS IN ASTHMA

NORMAL AIRWAY (CONTROLLED)

Airways are narrow, but air can still move in and out.

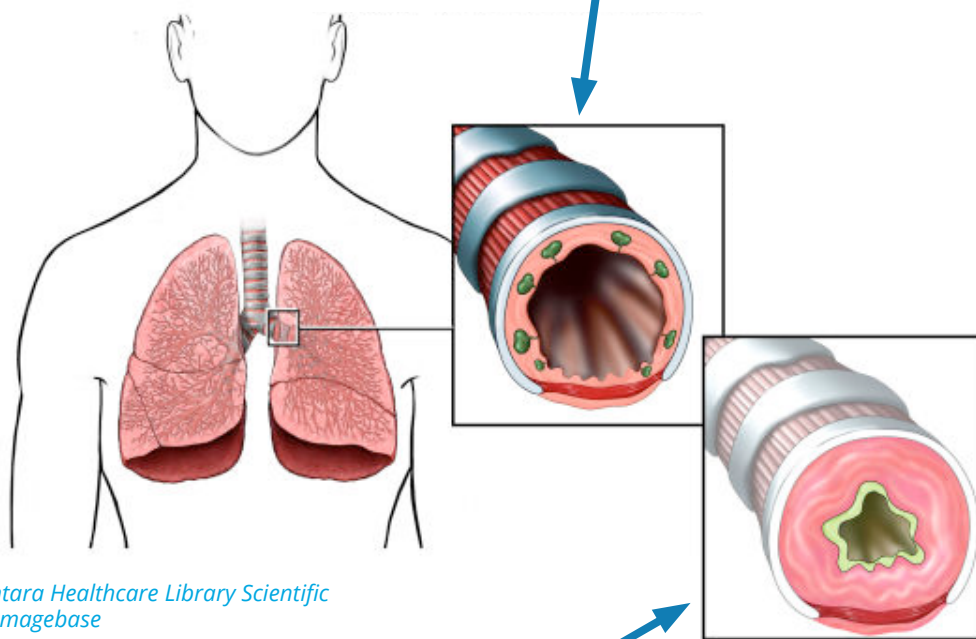


Image source: Sentara Healthcare Library Scientific and Medical ART Imagebase

ASTHMA ATTACK

Airways become very swollen and produce more mucus. The airways are so narrow that it is hard for air to move in or out. In some cases, the airways may even become completely blocked making it impossible to breathe.



Asthma attacks can be life threatening and should be treated as an emergency!

HOW ASTHMA IS DIAGNOSED

The diagnosis of asthma is based on:

- Physical exam
- Medical and family histories including allergies, eczema and environmental exposures
- Everyday lifestyle and activity
- Medicines you currently take
- Lung tests

The healthcare provider will ask you if you have any of the following symptoms and what causes them to start:

- Difficulty breathing
- Wheezing
- Coughing
- Tightness in your chest



You may need to see an asthma specialist if you:

- Need special tests to help diagnose asthma
- Had a life-threatening asthma attack
- Need more than one kind of medicine or higher doses of medicine to control your asthma
- Have overall problems getting your asthma well controlled
- Are thinking about getting allergy treatments

COMMON TESTS



WHAT

WHEN

Spirometry	<ul style="list-style-type: none">• A simple breathing test• Measures how much air you can breathe in and out• Measures how fast you can breathe out	<ul style="list-style-type: none">• Most common test<ul style="list-style-type: none">- at time of diagnosis- with check-ups
Pulmonary Function Tests (PFTs)	<ul style="list-style-type: none">• Several breathing tests that measure how well the lungs move air in and out and how well air exchanges	<ul style="list-style-type: none">• At time of diagnosis• Repeated as needed to monitor and adjust your treatment plan
Challenge Test	<ul style="list-style-type: none">• A breathing test using medicine that may be combined with exercise to see if airways react to triggers	<ul style="list-style-type: none">• If your symptoms and spirometry do not clearly show asthma
Arterial Blood Gases (ABGs)	<ul style="list-style-type: none">• A blood test to show how well your lungs are getting:<ul style="list-style-type: none">- oxygen into your blood- carbon dioxide out of your blood	<ul style="list-style-type: none">• As determined by your healthcare provider
Blood Work	<ul style="list-style-type: none">• IgE levels in blood measure response to allergy exposure.	<ul style="list-style-type: none">• As determined by your healthcare provider
Peak Flow	<ul style="list-style-type: none">• A simple breathing test that records how fast you breathe out	<ul style="list-style-type: none">• Daily

OTHER TESTS

Your healthcare provider may recommend other tests if more information is needed.

Allergy Testing

- Your healthcare provider may suggest that you get tested for allergies.
- The allergy test is a small sample of allergen(s) injected in your skin.
- Your allergy specialist will then examine your skin reaction and determine if you are allergic to that substance.
- After you know what you are allergic to, you may need allergy shots to help reduce triggering your asthma.

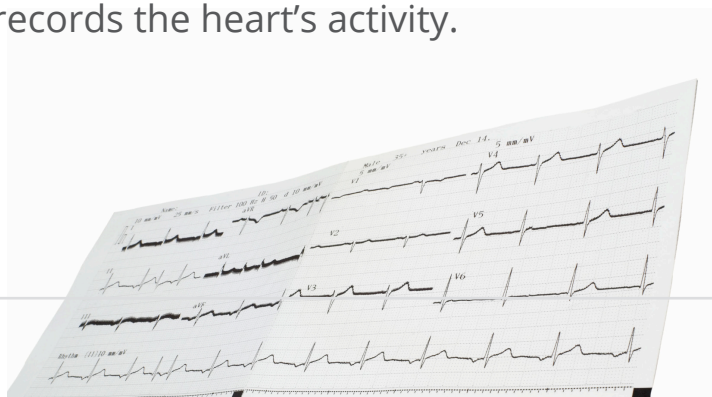
Chest X-Ray

- A picture of the lungs that shows if you have congestion.



Challenge Test

- An EKG records the heart's activity.





Dust Mites



Pollen



Smoking



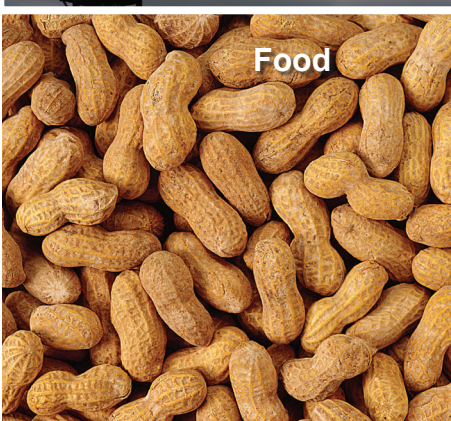
Cold or Infections



Sulfites



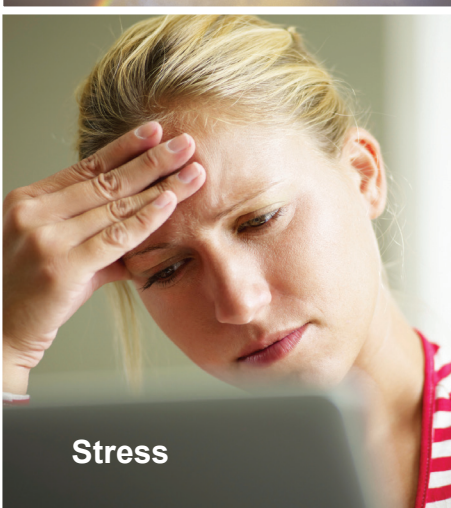
Air Pollution



Food



Weather



Stress

WHAT IS A TRIGGER?

- A trigger is anything that causes coughing, wheezing, trouble breathing and other symptoms in a person with asthma.
- Asthma triggers can start an asthma attack or make your asthma worse.
- Know your triggers and remove or modify the triggers in your environment to stay healthy!
- Your asthma may be better controlled if your living or work place has changed or you have moved away from the trigger.



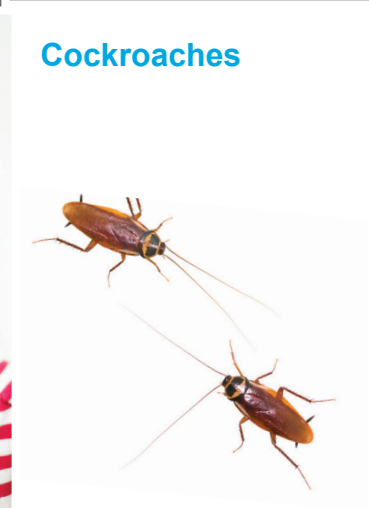
Mold



Medicines



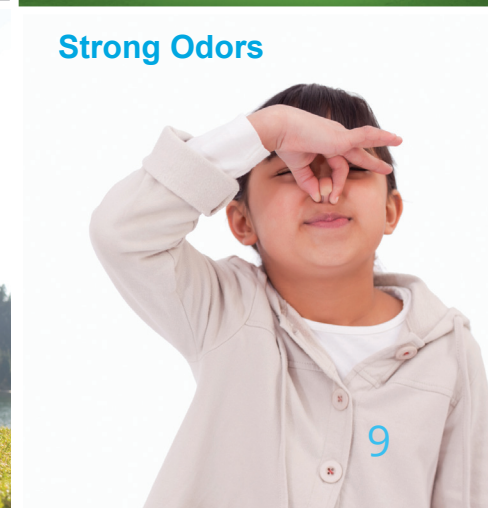
Pets



Cockroaches



Exercise/
Physical
Activity



Strong Odors

TRIGGERS: HOW TO AVOID THEM

ALLERGIES

Pet Dander, Hair, Feathers or Fur



- Remove pets from inside your home.
- If removing your pet is not an option, keep them out of your bedroom and keep your bedroom door shut.

Dust Mites



- Wash your sheets and comforters in water temperature hotter than 130 degrees once a week.
- Cover your mattress, box springs and pillows in a zippered, dust-proof cover.
- Replace old pillowcases.
- If possible, remove carpet (especially from the bedroom).
- Wash area rugs and curtains frequently.
- Use a dehumidifier in your bedroom/home to reduce humidity to between 30-60%.
- Remove or minimize cloth-covered furniture in your bedroom.
- Dust with a damp cloth and vacuum twice a week. Use a vacuum with a HEPA filter.



Pollen

- Avoid or limit fresh flowers with a lot of pollen in the house.
- During pollen season:
 - avoid or limit your time outdoors when pollen and mold counts are high (late morning to early evening).
 - shower after coming in from outside
 - do not open windows and doors
 - use your air conditioner

Cockroaches



- Keep all food in sealed containers.
- Put away uneaten pet food.
- Place all trash in closed containers.
- Take the trash out every day.
- Do not eat in the bedroom.
- Seal areas of the house where bugs can get in (holes, window sills and outside faucets).
- Use baits, traps or gels to get rid of cockroaches.
- Avoid bug sprays and foggers.
- If you use a spray or fogger, stay out of the room/ house until the odor is gone.

ALLERGIES *cont.*

Mold



- Use a cleaner that will remove mold and mildew; this should only be done with the windows and doors open.
- Repair leaky faucets and pipes right away.
- Replace or wash shower curtains frequently.
- Use a dehumidifier to reduce humidity to 30-60%.
- Limit the number of houseplants since mold can grow in the soil.
- Use an exhaust fan when taking a shower to reduce the moisture in the bathroom.

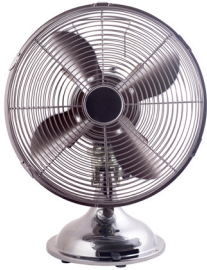
IRRITANTS

Smoking



- If you smoke, ask your healthcare provider for ways to help you quit.
- Ask people NOT to smoke around you.
- Do not allow smoking in your home or car.
- Avoid being around smokers in public areas.
- Eat and sit in non-smoking areas.

Strong Odors



- Avoid strong perfumes, cologne or powders.
- Ask your family and friends to limit/avoid using perfumed products while around you.
- Use unscented deodorant and lotions.
- Avoid the use of sprays: hairspray, household cleaning sprays, freshener.
- Avoid scented candles.
- Avoid the use of a wood-burning stove, kerosene heater or wood burning fireplace.
- Avoid fresh paint.
- Prevent the spread of strong odors by closing off the surrounding area and using a fan.

Weather



- If cold irritates you, cover your nose and mouth with a scarf while outdoors.
- If warm weather irritates you, avoid your triggers and use an air conditioner.

Air Pollution



- Stay inside if poor air quality is forecast.

OTHER TRIGGERS

Infection



- Speak with your healthcare provider and develop a treatment plan to follow if you start feeling sick
- Get a flu shot every year
- Get a pneumonia shot
- Avoid contact with others who have cold or flu symptoms.
- Get plenty of rest, eat a balanced diet, exercise and drink plenty of fluids



Exercise



- Make sure you take your medicines as prescribed by your healthcare provider if exercise or physical exertion triggers your asthma
- Warm up and stretch before activity
- Choose activities that require less effort
- Pace yourself and cool down afterward

Emotions



- Avoid situations that add stress and learn relaxation techniques
- Crying, shouting or laughing hard may also be triggers

Medicines



- Certain medicines can trigger asthma signs and symptoms.
- Speak with your healthcare provider or pharmacist if taking any of the following:
 - Beta-blocker
 - Aspirin
 - Non-steroidal anti-inflammatory drugs (NSAIDs)-like ibuprofen or naproxen
 - Cold medicine
 - Eye drops

Food Allergies



- Avoid foods that you are allergic to like:
 - eggs, milk
 - soy, nuts, wheat
 - fish, shrimp, shellfish
 - salad or fresh fruit
 - sulfites (found in foods and beverages such as beer, wine, dried fruit, processed potatoes or shrimp)



ASTHMA MEDICINES

Medicines your healthcare provider may prescribe for short-term and long-term relief of asthma symptoms are:

TYPES OF MEDICINE	MEDICINE CLASSES	WHAT THEY DO FOR YOU
Quick Relievers/Rescue <ul style="list-style-type: none">Used for sudden asthma symptoms	Short-acting Bronchodilators	<ul style="list-style-type: none">Provide quick relief of asthma symptomsOpen your airways letting more air come in and out of your lungsRelax the tight muscles in and around the airways
	Oral Corticosteroids	<ul style="list-style-type: none">Reduce swelling and inflammation in your airwaysHelp make airways less sensitive to triggersMay be given for moderate stage asthma or flare upsCan be used with short-acting bronchodilators to speed recovery

TYPES OF MEDICINE	MEDICINE CLASSES	WHAT THEY DO FOR YOU
Controllers/Maintenance <ul style="list-style-type: none"> Used regularly to prevent asthma symptoms 	Long-acting bronchodilators	<ul style="list-style-type: none"> Open your airways letting more air come in and out of your lungs Relax the tight muscles in and around the airways Will be combined with corticosteroid
	Inhaled corticosteroids	<ul style="list-style-type: none"> Reduce swelling and inflammation in your airways Help make airways less sensitive to triggers
	Immunomodulators	<ul style="list-style-type: none"> Lower or stop the body's reaction to allergy triggers May improve symptoms not controlled by inhaled corticosteroids
	Leukotriene modifiers	<ul style="list-style-type: none"> Reduce swelling and inflammation in your airways Lessen mucus production Decrease muscle tightness in and around the airways
	Methylxanthines	<ul style="list-style-type: none"> Open your airways to let more air come in and out of your lungs Relax the tight muscles in and around the airways

INFORMATION ABOUT MEDICINE DELIVERY DEVICES

USING MORE THAN ONE MEDICINE

Always follow your healthcare provider's direction on how long to wait between using two different inhalers and which inhaler to take first.



METERED DOSE INHALER (MDI)

An MDI consists of a pressurized canister of medicine and a mouthpiece. Pressing down on the MDI will release a mist of medicine that you breathe into the lungs.

How to use your MDI
(page 53)

How to prime your MDI
(page 48)






NEBULIZER

Used with a compressor, a nebulizer changes liquid medicine into fine droplets (in aerosol or mist form) that are inhaled thru a mouthpiece or mask.

DRY POWDER INHALER (DPI)

A DPI is similar to the MDI, but the medicine is in powdered form rather than liquid form. You will inhale a puff of powder instead of a mist of liquid.

See pages below for how to use your device:

Diskus	Flexhaler	Twisthaler
		
page 49	page 49	page 50

SPACERS



A spacer is a chamber that attaches to your metered dose inhaler. It holds the medicine so you can breathe it in easier. Do not use with other inhalers.

How to use your spacer:

1. Warm your inhaler by holding in your hand for 20 seconds.
2. Shake your inhaler 4-5 times.
3. Remove the mouthpiece from your inhaler.
4. Attach the spacer to the mouthpiece.
5. Close your lips firmly around spacer mouthpiece and breathe out through your nose slowly.
6. Press the inhaler to allow one puff of medicine to flow into the spacer.
7. Breathe in through your mouth slowly and deeply. If the spacer whistles, you have taken your breath in too fast.
8. Hold your breath for 5-10 seconds.
9. Breathe out normally.
10. Repeat the steps 5 through 9 again for each puff of medicine you need.
11. Store your clean, dry spacer in a re-sealable bag.

How to clean your spacer:

- Wash with mild soap and then rinse
- Drain and air dry

When to clean your spacer:

- Before first use
- At least weekly
- If you have not used your spacer in a while



ALWAYS USE YOUR SPACER!

YOUR MEDICINES

BRING YOUR CURRENT MEDICINE AND SUPPLEMENT LIST EACH TIME YOU GO TO YOUR HEALTHCARE PROVIDER.

Be sure you have included any over-the-counter medicines, herbal or dietary supplements you are taking.

When your healthcare provider changes your medicines, ask for information on side effects and an updated medicine list.

AVOID FOODS THAT MAY INTERACT WITH ANY OF YOUR MEDICINES.



HOW TO TAKE YOUR MEDICINES

- ✓ Medicine is important in controlling your asthma. Your medicine will help you breathe easier and feel better.
- ✓ Use your rescue inhaler as your healthcare provider discussed with you.
- ✓ If you are using your rescue inhaler more than two times in one week, talk with your healthcare provider.
- ✓ Take each of your medicines every day at the right times.
- ✓ Do not skip doses of your medicines, even when you feel good.
- ✓ If you think you are having side effects from your medicines, call and talk with your healthcare provider or pharmacist immediately.
- ✓ Whenever possible, have all of your medicines filled at the same pharmacy. It is helpful to have one pharmacist review all of your medicines to avoid drug interactions that could be harmful to you.
- ✓ Make sure you always have enough medicine.
- ✓ If you are having trouble paying for your medicine, talk with your healthcare provider.

**DO NOT LET YOUR
MEDICINE RUN OUT.**





TAKE ALL OF YOUR MEDICINES

Think of a way to take your medicines that will help you remember how and when to take them.

Keep a list of your medicines with instructions of how and when to take them.

Keep your medicine in a safe and convenient place that makes it easy for you to remember to take them.

**KEEP YOUR
RESCUE INHALER
WITH YOU
AT ALL TIMES.**

Some people like to use a pill box to put their medicines in for each day of the week. Fill the box on Sunday then you will know each day if you have taken all of your medicine.



If you are going to be away from home when your medicine is due, take your medicine with you.

- When you travel, bring your medicine in the original containers to identify what medicine you are taking.
- Do not pack all of your medicines in your checked bags.
- Plan ahead to be sure you will have enough to last the trip and return home.



FLU AND PNEUMONIA VACCINATIONS AND ASTHMA

Getting vaccinations is an important step you can take to prevent the spread of the flu and pneumonia.

Flu and pneumonia can be more serious when you have asthma and can make your asthma symptoms worse.

Flu Vaccine

- It is recommended to get the flu shot and not the flu nasal spray
- It is recommended that you get a flu vaccine every year.
- Flu vaccines are offered in many locations including healthcare providers' offices, clinics, health departments and your workplace.



Pneumococcal Vaccine

- Vaccination can help protect you from pneumococcal disease. Pneumococcal disease can lead to serious infections of the lungs (pneumonia), blood (bacteremia), and brain (meningitis).
- There are 2 types of pneumococcal vaccine: PCV13 and PPSV23. You may need to receive one or both of these vaccines depending on your age and health conditions.
- If you are 65 years of age or older it is recommended you receive at least 1 dose of PCV13 and at least 1 dose of PPSV23.
- If you are 19 to 64 years old and have an underlying medical condition such as COPD, it is recommended that you receive at least 1 dose of PPSV23. If you have other medical conditions you may also need the PCV13 vaccine.

Ask your healthcare provider when you should receive these vaccines.



MANAGING YOUR ASTHMA



Asthma attacks can be life threatening.
It is important to know when you
are in danger so you can
GET HELP QUICKLY!

Asthma is best managed by paying attention to how you feel, doing your peak flows every day and following your **Asthma Action Plan**.

PEAK FLOWS

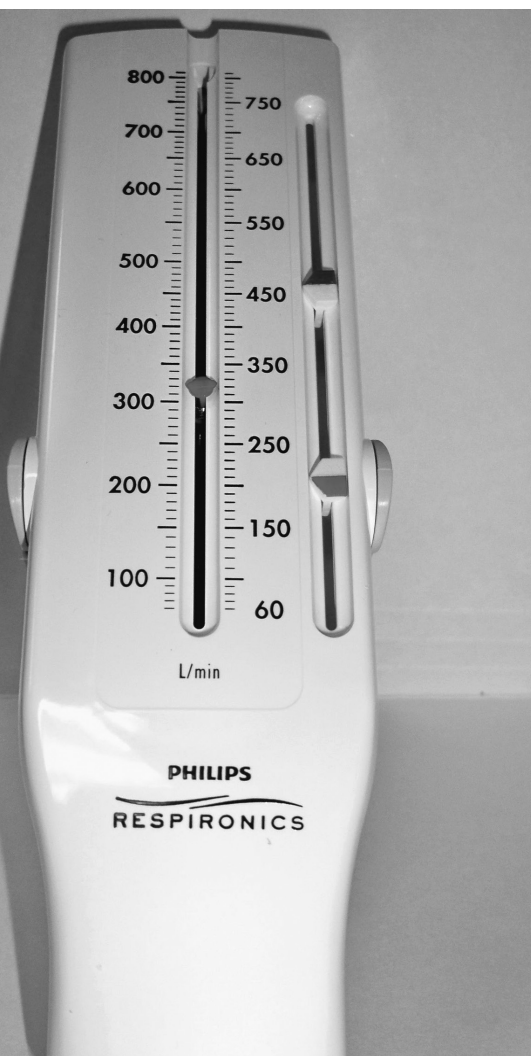
A peak flow is a measurement of how fast air comes out of your lungs when you blow out forcefully. Unlike blood pressure or cholesterol there is no normal peak flow measurement that applies to everyone.

You need to determine what peak flow value is normal for you.

Personal Best or Baseline

When you are feeling well and symptom free:

- Do three peak flow measurements and take the best of the three.
- This is the number you will aim for each day when you do your peak flows to enter into your log.



HOW TO USE YOUR PEAK FLOW LOG

Your “personal best” is your highest peak flow recorded when your asthma is under control. This number is used to determine if your peak flows are changing.

A normal range would be between 80 and 100 percent of your personal best.

Peak flow readings below your personal best:

- Are a sign that your airways are narrowing
- Can happen before your asthma symptoms develop (wheezing or shortness of breath.)

Do your peak flows every day, write them down in your log and follow your Asthma Action Plan.

DATE	SUN	MON	TUES	WED	THU
<div><div>MM</div><div>DD</div><div>YY</div></div>					
NOTES:					

DATE	SUN	MON	TUES	WED	THU
<div><div>MM</div><div>DD</div><div>YY</div></div>					
NOTES:					



How to do a peak flow measurement.

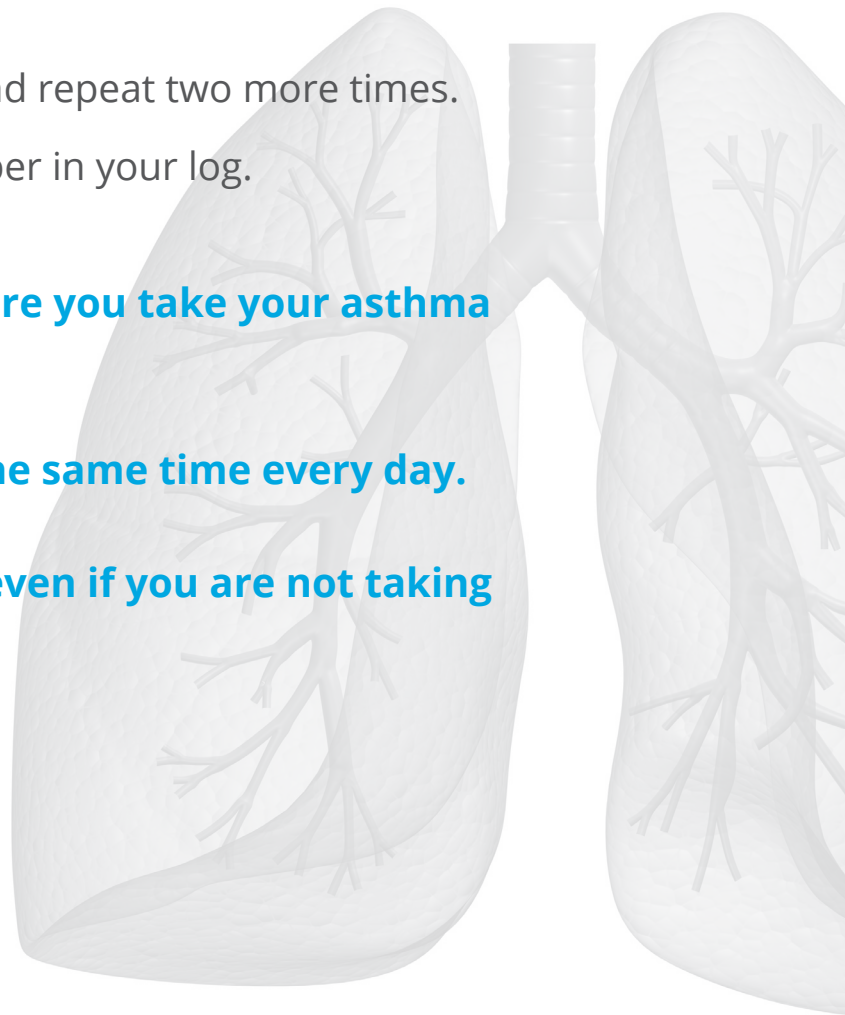
These are general instructions. Work with your healthcare provider to be sure you are doing your peak flow measurements correctly.

1. Be sure peak flow meter is set at zero.
2. Use the peak flow meter while standing up straight.
3. Take a deep breath, place peak flow meter in mouth and close lips tightly around the mouthpiece.
4. In one breath, blow into the peak flow device as hard and fast as you can.
5. Take a few normal breaths and repeat two more times.
6. Write down the highest number in your log.

Measure your peak flow before you take your asthma medicine every day.

Measure your peak flow at the same time every day.

Do your peak flow each day even if you are not taking your medicine.



HOW TO COMPLETE YOUR PEAK FLOW LOG

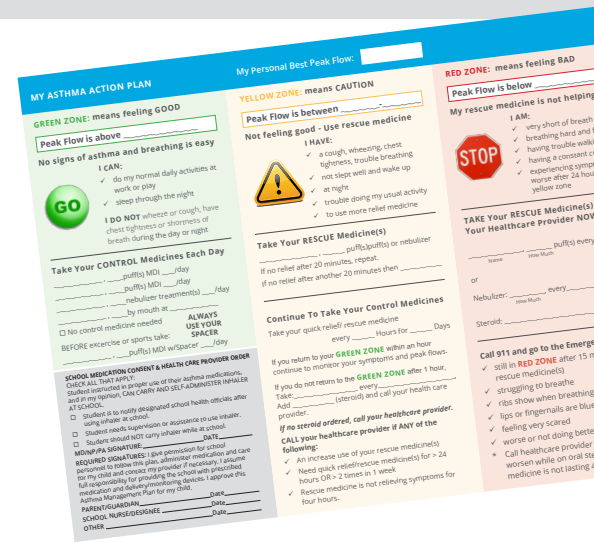
Complete the log provided each day.

1. At the top of the log fill in your personal best number.
2. Fill in your green zone, yellow zone and red zone ranges from your Asthma Action Plan.
3. Each day write in your peak flow value.
4. It is best to do your peak flow at the same time each day.
5. The log allows you to record your peak flow number each day of the week for 4 weeks.
6. By recording the peak flows each day, you can see if your numbers are falling below normal.
7. Take the log with you when you see your healthcare provider.

MY ASTHMA ACTION PLAN

To help you manage your asthma you will work with your healthcare provider to complete your Asthma Action Plan.

The plan will tell you how to treat your asthma each day. The Asthma Action Plan is divided into three zones - green, yellow and red.



GREEN ZONE: feeling good, symptoms are controlled.

You are free of symptoms and can do your usual activities. Peak flow readings are 80% to 100% of your personal best. You're doing well. If you use daily control medicine, you should take it as usual.



YELLOW ZONE: feeling worse (caution), symptoms have changed (or not controlled)

You have symptoms of asthma or your peak flow readings are between 60% and 80% of your personal best. Your asthma is worsening. You may need medicine to prevent a more serious asthma attack.



RED ZONE: feeling terrible (danger), no relief with medicines (uncontrolled)

You have symptoms of an asthma emergency. Peak flow readings are 60% or lower of your personal best. You are having a severe attack and need asthma emergency treatment.

MANAGING MY ASTHMA IN THE GREEN ZONE



I am in the green zone when I:

- Get a good night's sleep
- Maintain a normal activity level
- Do not cough or wheeze during the day or night
- Do not miss work or school

I will follow these steps of My Asthma Action Plan:

- Know my medicines, symptoms, triggers, and what to do for an asthma flare up, attack or emergency
- Do daily peak flows and record in my log
- Always have a rescue inhaler on hand
- Keep all regular checkups even when feeling well



MANAGING MY ASTHMA IN THE YELLOW ZONE



Even though I am following my action plan, I may have days when my symptoms get worse.

I know that my asthma symptoms are worsening when I:

- Cannot reach my daily peak flow in the green zone
- Have trouble breathing or shortness of breath
- Am wheezing and coughing
- Feel tightness in my chest
- Have trouble doing daily activities
- Wake up at night

I will follow these steps of my Asthma Action Plan:

- Get away from the trigger immediately
- Take my rescue medicine as directed
- Recheck and record my peak flow daily
- Continue to take my daily control medicines as directed

I will call my healthcare provider if:

- I have increased use of my rescue medicine
- I need rescue medicine for more than 24 hours or twice in one week
- My rescue medicine is not helping
- I have a fever greater than 100.4 and chills
- I have nausea and vomiting

MANAGING MY ASTHMA IN THE RED ZONE



**I know that I am experiencing asthma
DANGER SIGNS when:**

- My peak flows are less than 60% of my green zone range
- I am very short of breath
- I have trouble walking or talking because I am out of breath
- I cough all the time
- My lips or fingernails are blue
- My ribs show when breathing
- I feel scared
- My symptoms are the same or worse after 24 hours in the yellow zone

Call 9-1-1

**Do not drive to the
emergency room**



ASTHMA CONTROL TEST™

ACT™ Score

When you visit your healthcare provider, you may be asked to complete the Asthma Control Test (ACT™).

The ACT™ test and ACT™ score are tools to help you and your healthcare provider manage your asthma.

Asthma Control Test™					SCORE
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	
2. During the past 4 weeks, how often have you had shortness of breath?					
More than once a day ①	Once a day ②	3-6 times a week ③	Once or twice a week ④	Not at all ⑤	
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	
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	
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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DAILY CHECKLIST

- ✓ Have I done my peak flow at the same time every day and did I write it down?
- ✓ Is my peak flow changing?
- ✓ Am I coughing, wheezing or short of breath?
- ✓ Is my chest tight?
- ✓ Did I sleep through the night?
- ✓ Can I do my normal, everyday activities?
- ✓ Do I have my rescue medicine with me always?



Early warning signs of worsening asthma or an **asthma attack**.

- Drop in peak flow reading
- Itchy or watery eyes
- Increase in thirst
- Feel tired or moody
- Have dark circles under your eyes





LIVING WELL WITH ASTHMA

Top 10 Tips

1. Quit smoking – Stay away from second-hand smoke.
2. Avoid things that trigger your asthma.
3. Take all your medicines as directed.
4. Wash your hands often.
5. Eat healthy.
6. Stay physically active.
7. Get enough sleep.
8. Manage stress.
9. Stay social by joining activities in your community.
10. Make friends that choose a healthy lifestyle.

SMOKING AND YOUR LUNGS



By quitting now, you will:

- Reduce your risk of asthma attacks
- Breathe easier
- Have more energy
- Improve the blood flow to your heart, lungs, brain and other organs
- Lower your chance of having a stroke, heart disease, lung cancer, emphysema and chronic bronchitis
- Protect your family and friends from the effects of second hand smoke

DO NOT SMOKE OR USE TOBACCO!

It is NEVER too late to quit
even if you have smoked for many years.

Talk with your healthcare provider about quitting.

For more information and resources on smoking cessation call:

1-800-SENTARA (1-800-736-8272)

or

1-800-QUIT NOW (1-800-784-8669)

Smoking is a major risk factor for lung and heart disease.

Cigarette smoke contains poisonous gases and chemicals that damage your heart, lungs and other body organs.

The inhaled smoke **increases mucus** and damages the airway, making it harder to cough out the mucus.

Nicotine, found in cigarettes and tobacco products, **damages your blood vessels** by making them smaller and slowing the blood flow to the heart and lungs. This increases your risk of stroke, heart attack and kidney failure.

Smokers are more likely to get sick with respiratory illness.

If you continue to smoke, your asthma will be more difficult to control and you risk damaging your lungs even more.





EXERCISING WITH ASTHMA

Stay active for your physical and mental health. Asthma is not a reason to avoid exercise. You can enjoy the benefits of exercise without experiencing asthma symptoms.

Talk to your healthcare provider about how much and what type of activity is right for you. They may prescribe medicine before you exercise.

- Activities such as swimming, biking, aerobics, walking, volleyball, gymnastics, baseball and wrestling are possible.
- Activities with long periods of exertion, such as soccer, distance running, basketball, and cold weather sports may be more of a challenge.

CONTROLLING ASTHMA DURING EXERCISE

Asthma symptoms may start soon after you start or stop exercising.

Talk to your healthcare provider if asthma symptoms prevent you from exercising.

- Do not get discouraged.
- Begin slowly.
- Exercising will get easier.
- Choose activities that make your heart beat a little faster.
- After a couple of weeks, add 5 minutes of activity. Continue to add 5 minutes until you can exercise for 30 minutes most days of the week.
- Do not exercise when you are not feeling well.

When you begin exercise:

1. Keep rescue inhalers close by.
2. Warm up before and cool down after.
3. Exercise indoors or cover your mouth and nose with a scarf or mask when the weather is cold.
4. Avoid outdoor activities when pollen counts or air pollution is high.

If you have asthma symptoms during exercise:

1. Take your quick relief medicine.
2. If your symptoms completely go away, you can continue the exercise.

If your symptoms return:

1. Stop exercising.
2. Repeat your rescue medicine and call your healthcare provider for further advice.

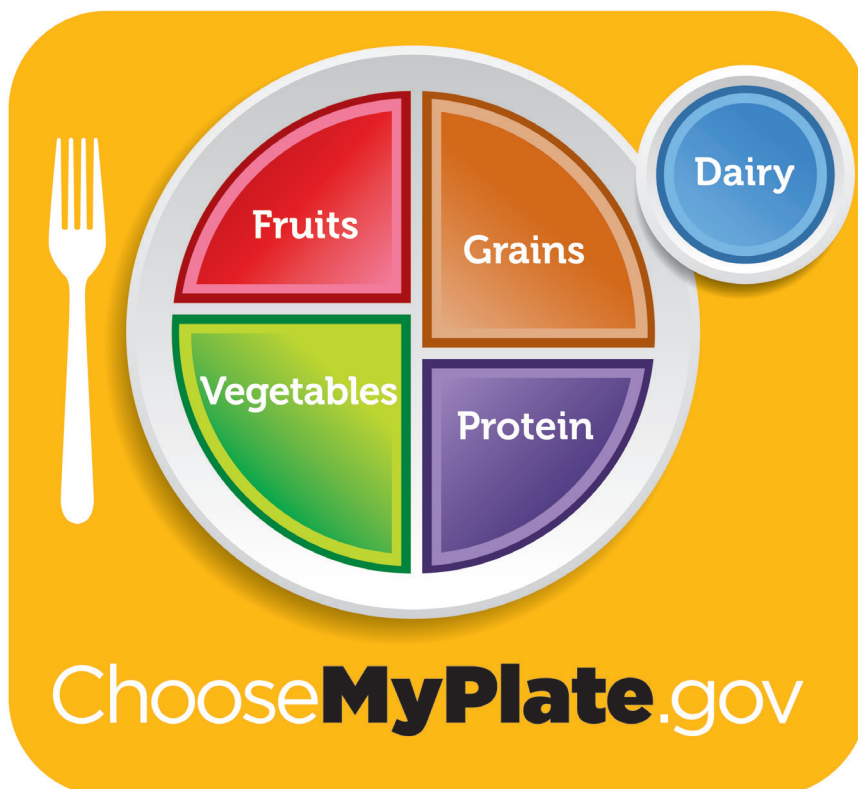


NUTRITION

While there is not a special diet for asthma, a well balanced diet is needed for overall health.

Talk to your healthcare provider about

- Special considerations for your diet.
- Daily vitamin and mineral supplements



Without good nutrition, your body is more susceptible to illness that can trigger asthma symptoms and attacks

- Avoid food allergies
- Avoid foods that may interact with any of your medicines



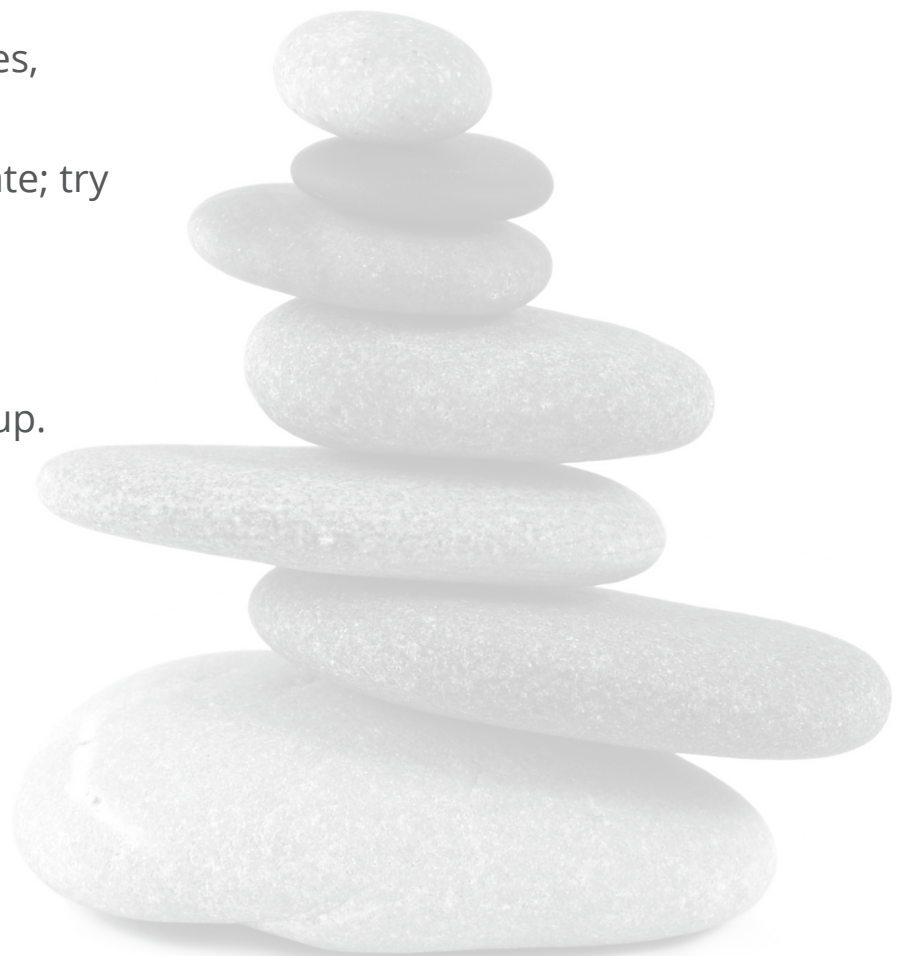
STRESS MANAGEMENT

Too much stress is unhealthy and may worsen asthma symptoms.

Stress may cause increased heart rate, shortness of breath, chest pain, chest tightness, dizziness, heart palpitations, tremors or sweating.

Learn to reduce stress before it contributes to asthma symptoms.

- Get enough rest and sleep.
- Eat a healthy diet.
- Stay active
- Keep a positive attitude.
- Focus on activities you like (hobbies, reading, and music).
- Relax - take a deep breath; meditate; try yoga.
- Spend time with family, friends or community groups.
- Think about joining a support group.



SPECIAL CONSIDERATIONS

Let your healthcare provider know as soon as you become ill or need surgery.

Together you will review your Asthma Action Plan and make changes if necessary. Be sure to discuss all the medicines you are taking, not just your asthma medicines.

ILLNESS

You may find that your asthma symptoms may change or that your sensitivity to certain triggers is different when sick.

SURGERY

Take your Asthma Action Plan to show the surgeon and anesthesiologist. They need to know your medications and how to treat you before and after surgery.





PREGNANCY

Asthma can be controlled during pregnancy. You can have a healthy, normal pregnancy.

Let your healthcare provider know as soon as you know you are pregnant.

Do not stop taking your medicine. The risk to the baby from taking asthma medicine is small compared to the risk of having a serious asthma attack.

How pregnancy may affect your asthma is unpredictable. Your asthma symptoms may:

- Experience improvement
- Get worse
- Stay about the same

The symptoms tend to be at their worst during weeks 24-36.

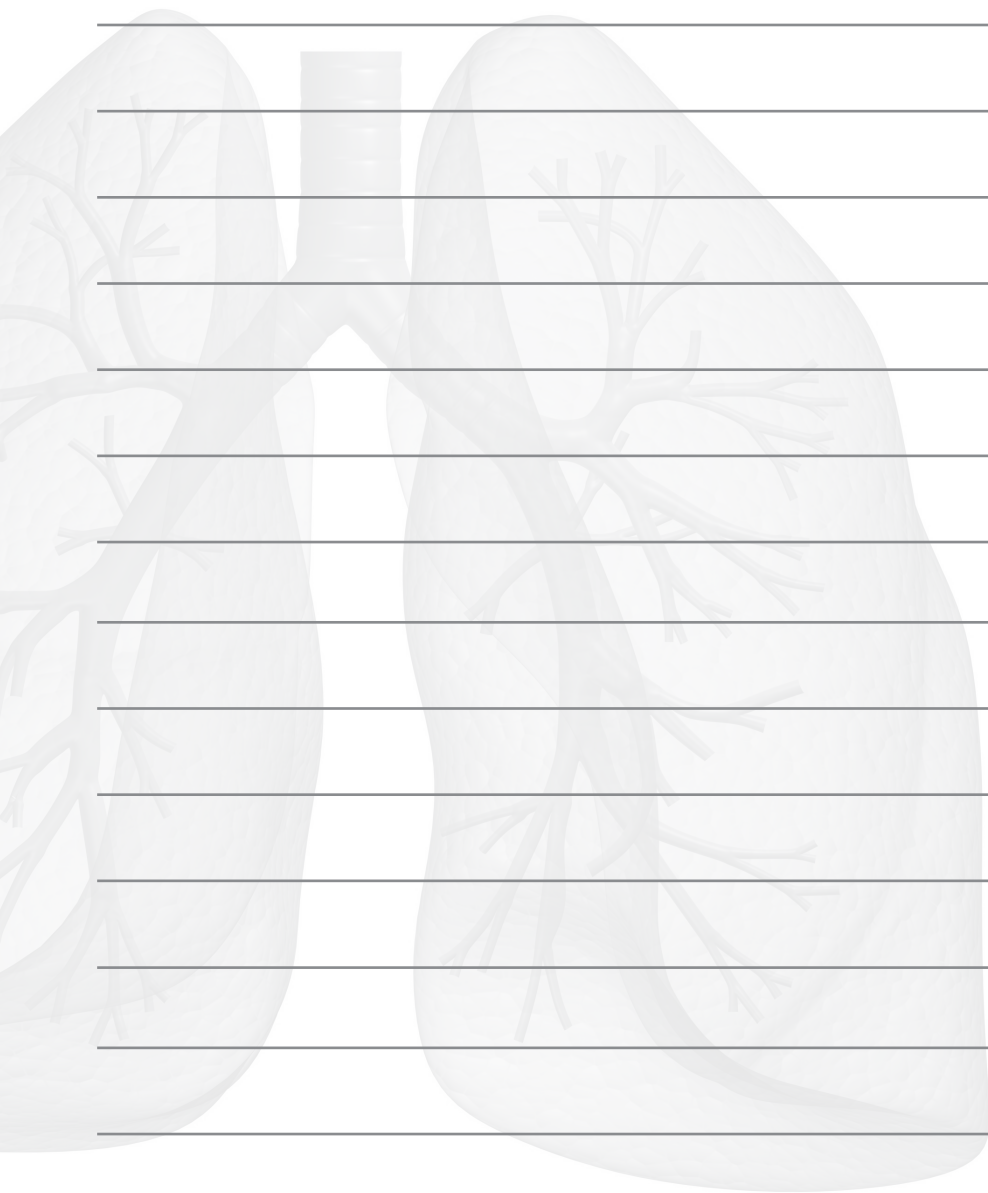
After having your baby, your asthma symptoms may change. Be sure to follow up with your healthcare provider.

PATIENT EDUCATION CHECKLIST

- ☐ I have received asthma education.
- ☐ I have a clear explanation of my diagnosis of asthma.
- ☐ I have reviewed my medicines and know how and when to take them.
- ☐ I understand the importance of using a spacer with my inhaler.
- ☐ I understand the importance of doing peak flows every day.
- ☐ I understand the importance of keeping the peak flow log.
- ☐ I understand the importance of keeping follow-up appointments with my healthcare provider, even when feeling well.
- ☐ I know when to call my healthcare provider and what to tell them.
- ☐ I will follow my Asthma Action Plan.
- ☐ I understand what to do if I am in the Green zone.
- ☐ I understand what to do if I am in the Yellow zone.
- ☐ I understand what to do if I am in the Red zone.
- ☐ I know how to avoid my triggers.
- ☐ I know what a healthy diet is for me.
- ☐ I know how much exercise I need.
- ☐ I know what to do to keep my stress manageable.



NOTES:



APPENDICES: DEVICE APPENDIX

How to use your Metered Dose Inhaler (MDI)



1. Hold the MDI in palm of hand to warm it to body temperature.
2. Remove the mouthpiece cap and inspect the mouthpiece for foreign objects.
3. Shake the MDI well (3 or 4 shakes).
4. If the MDI is new or has not been used recently, you will need to prime your medicine by pressing the canister down to release test spray into the air away from your face. See page 53 for your medicine's specific priming instructions.
5. Attach the spacer to your MDI. (Page 20 for spacer use)
6. Breathe out fully through your mouth, away from the MDI.
7. Hold the MDI upright, with the mouthpiece aimed at the mouth and place the mouthpiece between the lips.
8. As you breathe in slowly and deeply through the mouth, press the MDI canister down once.
9. Continue to inhale until the lungs are full.
10. Move the mouthpiece away from the mouth and hold breath for 5 to 10 seconds (or as long as comfortable).
11. Breathe out slowly. Be sure not to exhale into the device.
12. Wait 1 minute between doses.
13. Repeat for the prescribed number of doses.
14. Recap the mouthpiece.
15. If using a corticosteroid MDI, gargle and rinse the mouth with water or mouthwash after completing the dose. Spit out and do not swallow.

REORDER when your supply gets low so that you do not run out.

Clean your MDI

- Follow the directions specific to your device
- Clean at least once a week

How to Use Your Dry Powder Inhaler Diskus



1. Open the device for mouthpiece to appear and snap into position.
2. Slide the lever from left to right to load dose.
3. Breathe out normally; do not exhale into the device.
4. Hold the device horizontally and place the mouthpiece into the mouth with lips closed tightly around the mouthpiece.
5. Breathe in quickly and deeply through the device.
6. Remove the mouthpiece from the mouth and hold breath for 10 seconds (or as long as comfortable).
7. Be sure not to exhale into the device.
8. Store the device in a cool dry place.
9. Observe the counter for the number of doses remaining, and replace when appropriate.
10. If the diskus contains a corticosteroid, gargle and rinse the mouth with water or mouthwash after complete the dose. Spit out and do NOT swallow.

REORDER when your supply gets low so that you do not run out.

How to Use Your Flexhaler



1. Hold inhaler in upright position (cover points upward)
2. Twist and remove cap.
3. If first time using, must prime. To prime: Use one hand to hold inhaler in the middle. Use other hand to twist the bottom as far as it will go in one direction, then fully back in the opposite direction, until it clicks. (See page 53 for your medicine's specific priming instructions.)
4. To prepare to take the medicine, repeat step 3.
5. Breathe out fully away from the device; do NOT blow into the Flexhaler.
6. Place the mouthpiece into the mouth and close lips tightly around the mouthpiece.
7. Breathe in quickly and deeply; inhaler may be held upright or horizontally when breathing in.
8. Remove the mouthpiece from the mouth and hold breath for 10 seconds (or as long as comfortable).
9. Breathe out slowly. Be sure not to blow into the device.
10. Replace the cover and twist to close.
11. Contains a corticosteroid, so gargle and rinse the mouth with water or mouthwash after completing the dose. Spit out and do not swallow.
12. Store the device in a cool, dry place.
13. When a red mark appears at the top of the dose indicator window, there are 20 doses remaining.

DEVICE APPENDIX

How to use your Twisthaler



1. Hold the inhaler straight up with the pink portion (the base) on the bottom.
2. While it is in the upright position, hold the pink base and twist the cap in a counter-clockwise direction to remove it.
3. As the cap is lifted off, the dose counter on the base will count down by 1. This action loads the dose.
4. Make sure the indented arrow located on the white portion (directly above the pink base) is pointing to the dose counter.
5. Breathe out fully away from the device; Do NOT exhale into the twisthaler.
6. Holding in a horizontal position, place the mouth piece into the mouth, with the mouthpiece facing toward you, and close the lips tightly around it.
7. Inhale the dose quickly and deeply while holding the Twisthaler horizontal. Do NOT cover the ventilation holes while inhaling.
8. Remove the mouthpiece from the mouth and hold breath for 5 to 10 seconds (or as long as comfortable).
9. Breathe out slowly. Be sure not to exhale into the device.
10. Wipe mouth piece dry and replace the cap, with indented arrow in line with dose counter.
11. Turning in a clockwise direction, gently press down and listen for “click” to assure that the next dose is properly loaded.
12. Contains a corticosteroid, so gargle and rinse the mouth with water or mouthwash after completing the dose. Spit out and do not swallow.
13. Store device in cool, dry place.
14. The dose counter displays the number of doses remaining. When the unit reads 01, this indicates the last remaining dose.
15. Throw away inhaler 45 days after removal from foil pouch or when dose counter reads “00” – whichever comes first.

REORDER when your supply gets low so that you do not run out.

DO NOT Clean the DPI

- The dry powder inhaler should not be cleaned.
- It is important to keep the device dry, as moisture will decrease drug delivery.
- If necessary, the mouthpiece can be wiped with a dry cloth.

How to Use Your Nebulizer

1. Assemble tubing, nebulizer cup, and mouthpiece (or mask).
2. Connect to power source
3. Sit in an upright position.
4. Place specified dose/volume of medicine into the nebulizer cup
5. Lift nebulizer and seal lips around mouthpiece or apply mask
6. Breathe normally with occasional deep breaths until sputter or no more aerosol is produced.
7. Keep nebulizer vertical during treatment.
8. Clean nebulizer after each use as directed by package instructions.

Reorder when your supply gets low so that you do not run out.

Cleaning the jet nebulizer (home use)

After each use:

- Remove the tubing from the compressor and set it aside – this tubing should not be washed or rinsed.
- Shake remaining solution from the nebulizer cup.
- Disassemble the nebulizer cup and mouthpiece with either sterile water or distilled water.
- Shake off excess water and air dry on an absorbent towel.
- Store the nebulizer cup in a zip lock bag.

Once or twice a week:

- Disassemble the nebulizer cup and mouthpiece and wash it in a mixture of warm, soapy tap water.
- Soak the nebulizer cup and mouthpiece for 1 hour in a solution that is one part distilled white vinegar and three parts hot water. Discard the vinegar solution after use.
- Rinse the nebulizer parts with sterile or distilled water.
- Shake off excess water and air dry on a clean towel.
- Store the nebulizer in a zip lock bag.
- Clean the surface of the compressor with a damp cloth or sponge. An alcohol or disinfectant wipe can also be used. Never put the compressor into water.

MEDICINE/DEVICE APPENDIX

Refer to the pages listed for instructions on how to use your medicine device.

Rescue	Device/Reference Page
Atrovent (ipratropium)	MDI, Nebulizer.....48, 51
Combivent, Duoneb (albuterol + ipratropium)	MDI, Nebulizer.....48, 51
Proventil, Ventolin, ProAir (albuterol)	MDI, Nebulizer.....48, 51
Xopenex (levalbuterol)	MDI, Nebulizer.....48, 51
Controller	Device/Reference Page
Advair (salmeterol + fluticasone)	MDI, Diskus.....48, 49
Asmanex (mometasone)	Twisthaler50
Dulera (formoterol + mometasone)	MDI48
Flovent (fluticasone)	MDI, Diskus.....48, 49
Pulmicort (budesonide)	Flexhaler, Nebulizer.....49, 51
Qvar (beclomethasone)	MDI48
Symbicort (formoterol + budesonide)	MDI48

PRIMING THE INHALER

Find your medicine listed below to know how many times you need to prime your device prior to first use or after non use.

When priming the device, spray the test sprays into the air away from your face.

Medicine	Time to Prime	# of Sprays
Advair HFA® - MDI	Prior to first use	4
	More than 4 weeks of non use	2
Atrovent®	Prior to first use or with 3 or more days of non use	2
Combivent®	1 or more days of non use	3
Dulera®	Prior to first use or with more than 5 days of non use	4
Flovent®	Prior to first use	4
	7 or more days of non use	1
	If more than 7 days of non use	1
ProAir® HFA	Prior to first use and more than 2 weeks of non use.	3
Proventil® HFA	Prior to first use and more than 2 weeks of non use.	4
Pulmicort®	Prior to first use	See product patient instructions
QVAR®	Prior to first use or with 10 days of non use	2
Symbicort®	Prior to first use and more than 7 days of non use.	2
Ventolin® HFA	Prior to first use or with 2 weeks of non use	4
Xopenex HFA	Prior to first use or with 3 or more days of non use	4

NOTES:

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GLOSSARY

Acute - A sudden, severe worsening of symptoms that usually lasts a short period of time

Allergy - An abnormal reaction by the body to something in the environment

Allergens - Something that causes an allergic reaction

Anti-inflammatory - Something that reduces swelling or inflammation. In asthma it may also reduce mucus production.

Beta agonist - The most common type of bronchodilator medicine. It helps by relaxing and opening the airways.

Chronic disease - A disease that lasts a long time and may progress to different stages (mild, moderate, severe)

Compressor - A device that powers the nebulizer with air to create a mist and deliver your medicine

Contagious - Capable of carrying and spreading a disease from one person to another through direct or indirect contact

Dust mites - Microscopic bugs, too small to see, that live in household dust. They are commonly found in pillows, bedding and stuffed animals.

Dehumidifier - A household appliance that reduces the humidity in the air. Reducing humidity can help control mold, mildew, dust mites and cockroaches in your home environment.

Dietary supplements - A preparation that is added to a diet to provide additional nutritional or caloric support that may be lacking. They can be in the form of a vitamin, protein bar, nutrition shake, etc.

Eczema - A chronic skin condition where the areas of skin appear to be leather-like or red and inflamed. People who have eczema often have asthma.

Heart palpitations - You feel like your heart is racing or pounding.

HEPA filter - A special filter that can trap very small particles that regular vacuum filters or home air filters may miss. A HEPA filter can

prevent these particles (possible allergens) from recirculation in your home environment.

Inhaler - A device used to treat asthma that quickly delivers medication through the mouth to the lungs. Common inhalers are the MDI and DPI. It is effective if you are able to take a deep breath and hold for 5-10 seconds.

Mucus - Secretions from the lining of the mucous membranes help to lubricate the lungs and to trap inhaled particles so that they can be coughed out. In asthma, the mucus that is produced is excessive and can block the airways making it harder to breathe.

Prime (medicine) - Prepare your medicine device to deliver an accurate dose of medication when first using your inhaler or if you have not used it in some time. (see page 53 for how to prime your inhaler)

Reflux - A chronic digestive disease that can cause stomach contents to back up into the esophagus irritating it. Heartburn and difficulty swallowing are some signs of gastroesophageal reflux disease. It can worsen your asthma symptoms.

Side effects - An undesirable effect of a medication

Status Asthmaticus - Form of asthma that does not respond to home medicines and requires treatment in the hospital.

Sulfites - A preservative in food or medicines that can cause an allergic reaction

Support group - Groups of people who all share a certain problem or concern that meet regularly to provide support or practical advice to each other.

Tremors - An involuntary trembling or shaking of the body.

Virus - Causes illness (for example a cold) and is not treated with an antibiotic.

Wheeze - A high pitched whistling sound usually associated with difficulty breathing. The sound is made when air flows through narrowed breathing tubes.

PATIENT RESOURCES

**American Academy of Allergy,
Asthma, and Immunology**

800-822-2762

Web site: www.aaaai.org

**American College of Allergy,
Asthma, and Immunology**

800-842-7777

Web site: www.allergy.mcg.edu

**American College of Chest
Physicians**

800-343-2227

Web site: www.chestnet.org

American Lung Association

800-586-4872

Web site: www.lungusa.org

**Asthma and Allergy Foundation
of America**

800-727-8462

Web site: www.aafa.org

**National Jewish Medical and
Research Center (Lung Line®)**

800-222-5864

Web site: www.njc.org

ACKNOWLEDGEMENTS & REFERENCES

**National Heart Lung and Blood
Institute NHLBI Guidelines for the
Diagnosis and Treatment of Asthma**

[www.nhlbi.nih.gov > Clinical Practice
Guidelines](http://www.nhlbi.nih.gov/ClinicalPractice/Guidelines)

GSK (GlaxoSmithKline)

<http://gsk.com>

**AARC (American Association for
Respiratory Care)**

<http://www.aarc.org>

Centers for Disease Control

<http://www.cdc.gov/asthma>

American Lung Association

[http://www.lung.org/lung-disease/
asthma](http://www.lung.org/lung-disease/asthma)

National Jewish Health

[http://www.nationaljewish.org/
healthinfo/conditions/asthma](http://www.nationaljewish.org/healthinfo/conditions/asthma)

Mayo Clinic

[http://www.mayoclinic.com/health/
asthma/DS00021](http://www.mayoclinic.com/health/asthma/DS00021)

National Library of Medicine

[http://www.ncbi.nlm.nih.gov/
pubmedhealth/PMH0001196/](http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001196/)

Pharmaceutical Inserts, Merck

<http://merck.com>

BI Pharmaceuticals

[https://www.boehringer-ingelheim.
com](https://www.boehringer-ingelheim.com)



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