

THE  LUNG ASSOCIATION™

ASTHMA HANDBOOK



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Respiratory Educator's Note. The Lung Association's Asthma Handbook is a comprehensive guide that is written in a clear, easy-to-understand style. People with asthma and their caregivers will benefit from this information on the diagnosis and management of asthma. The Asthma Handbook will help you become an active member of your health care team, along with your physician and certified respiratory educator.

Jan Haffner, BPT, *Certified Respiratory Educator and member of the Canadian Respiratory Health Professionals, The Lung Association*

Doctor's Note. Asthma is a common disorder of both children and adults. This Asthma Handbook has been put together to meet the educational needs of those newly-diagnosed with asthma.

This Handbook is an excellent and timely resource which should be made available as a reference guide to people with asthma and their families. The important, positive message here is that asthma can be managed.

Together in partnership with your health care provider, this Handbook will provide you with latest information and resources on asthma management, allowing you to have a normal, active lifestyle.

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Section 1: What is Asthma?

Asthma is a serious lung disease that makes breathing difficult. Asthma is a chronic disease — you have it all the time, even when you are not having breathing problems. Asthma affects almost 3 million children and adults in Canada.

Everyone’s asthma is different. Asthma can be mild or severe and even fatal. However, people with asthma can live well by making lifestyle changes to manage the asthma.

If you have asthma, your airways (breathing passages) are very sensitive. When near your triggers, or things that make your asthma worse, your sensitive airways react by becoming swollen or inflamed.

- Inflammation or swelling of the airways happens if airways are exposed to triggers. Constant exposure to triggers will cause sustained swelling of the airways and healing cannot occur.
- Mucus is produced and gathers in the airways. It takes up space and causes more narrowing.
- Bronchoconstriction, or tightening of the muscles around the airways, causes more narrowing.

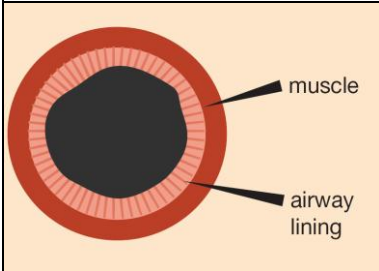
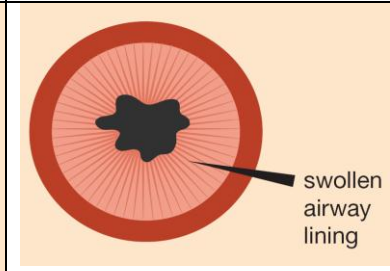
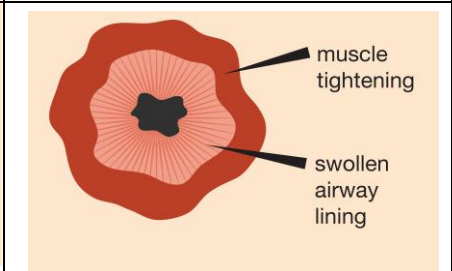
Asthma symptoms

Asthma signs and symptoms can change over time or depending on the situation.

People with asthma often have **one or more** of these symptoms:

- Wheezing
- Chest tightness
- Coughing
- Shortness of breath

This narrowing makes it harder for the air to pass through. When your airways become more swollen, they become more sensitive (may be called “twitchier” or hyperresponsive).

Normal airways - a person without asthma	Airways of a person with asthma – swelling (inflammation)	Airways of a person with asthma — tightened muscles (bronchoconstriction)
 <p>muscle</p> <p>airway lining</p>	 <p>swollen airway lining</p>	 <p>muscle tightening</p> <p>swollen airway lining</p>
<p>In people without asthma, the muscles around the airways are relaxed and open. There is no swelling and little mucus inside the airways.</p>	<p>In people with asthma, the inside of the airways can swell and fill with mucus.</p>	<p>In people with asthma, the muscles around the airways can tighten. This leaves less room for air to pass through.</p>

What are symptoms of asthma?

Common symptoms of asthma are wheezing (or whistling in the chest), chest tightness (feels like someone is sitting on your chest), coughing, and shortness of breath. People with asthma often have one or more of these breathing problems.

How is asthma diagnosed?

Only your doctor can decide if your breathing problems are due to asthma. Your doctor will:

- **Take a detailed medical history.** You will be asked questions about you and your family's health histories and your breathing problems.
- **Do a physical examination.** This may include listening to your lungs and looking inside your nose.
- **Test your breathing by using spirometry.** Spirometry is a quick, simple breathing test that measures how much air you can blow out of your lungs. For this test, you will be asked to blow fast and hard through a tube attached to a small machine. The machine will show how much air you can push out of your lungs and how fast. Because spirometry takes some coordination, children under five years old are not usually asked to do this test.

Your doctor may order other tests:

- **chest x-ray and lab tests.**
- **allergy tests:** Your doctor may refer you to an allergist. The allergist will test for specific allergies, ask what your symptoms are and when you notice them. A "skin prick" test may be used to help find out what allergies make your asthma worse.
- **challenge tests:** These tests are done in a hospital. They help to tell the doctor how "twitchy" your airways are.

Your doctor may also give you asthma medications to try. If these medications improve your symptoms, this may help to make the diagnosis of asthma.

With a proper diagnosis, your doctor and asthma health care team can help you manage your asthma.

How do my lungs work?

Your lungs bring oxygen into your body and remove the carbon dioxide and other waste gases that your body does not need.

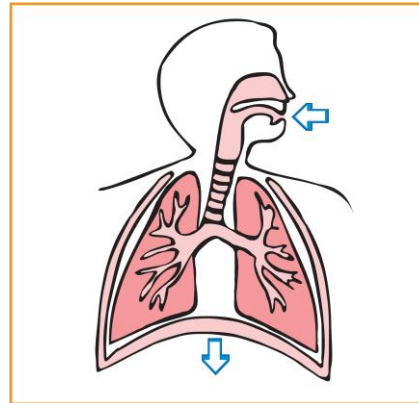
When you breathe in (inhale), you use the muscles of your rib cage — especially the major muscle, the diaphragm. Your muscles tighten, allowing you to suck air into your lungs. To breathe out (exhale), your muscles relax. This naturally lets the air out of your lungs.

You inhale air through your mouth and nose. The mucus membranes in your mouth and nose warm and moisten the air and trap particles of foreign matter (like dirt and dust). The air then passes through the throat into the trachea (windpipe).

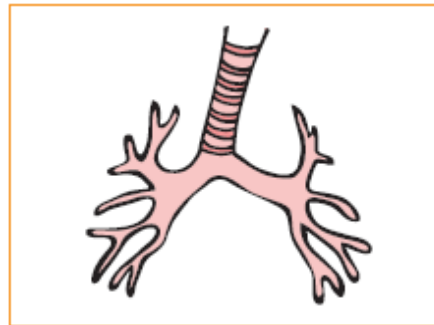
The trachea divides into the left and right large airways called bronchi. Like the branches on a tree, each bronchus divides again and again, becoming smaller and smaller.

Your smallest airways end in the alveoli, the small, thin air sacs that are arranged in clusters like bunches of grapes. When you breathe in, the alveoli expand as air rushes in. When you breathe out, the alveoli relax and air moves out of the lungs. Tiny blood vessels surround each of the 300 million air sacs in the lungs.

Oxygen moves across the walls of the air sacs into the blood, where it is carried to the rest of the body. Carbon dioxide and waste gas pass into the air sacs from the blood and is then breathed out.



Breathing



Branches of the trachea



Blood vessels of the alveoli

Section 2: Asthma Causes & Triggers

Asthma cannot be cured but it can be managed. With good asthma management, you can enjoy an active life.

What causes asthma?

The exact cause of asthma is not known. However, experts know that there are some things that make a person more likely to have asthma:

Family history

Asthma tends to run in families. If family members have allergic diseases such as asthma, hay fever, or eczema, there is a higher chance you will have asthma.

Air pollution indoors and out

Kids whose mothers smoked while pregnant, and who grow up in a smoky house are more likely to have asthma. Some research shows that living near major highways and other polluted places may cause asthma.

Work-related asthma

If you work in a place with polluted air, there is a greater chance you will have asthma. If your breathing problems improve when you are at home or are away from work for a period of time, then talk to your doctor. People who work in certain types of jobs can get asthma from things they work with (for example, latex, certain types of dust, spray paints, metals and fumes).

Viral infections

Breathing problems may get worse if you have a cold or influenza (the flu). Asthma symptoms may last longer after an infection. For some children, a viral infection can sometimes lead to the development of asthma.

Second-hand smoke

Second-hand smoke harms everyone's lungs.

For people with asthma, exposure to second-hand smoke may cause:

- a worsening of breathing problems
- a need for more medication
- more emergency room visits.

Other possible factors

Sinusitis is an inflammation or swelling of the sinuses. Many people with asthma also have sinusitis. If you have both, you may notice that when your sinusitis flares up, your breathing problems from asthma also increase.

Rhinitis, or **hay fever**, is an inflammation or swelling of the nose tissue usually due to an allergy. Treatment of the rhinitis often improves the asthma.

Gastroesophageal reflux disease (GERD), better known as heartburn, occurs when stomach acid backs up into the esophagus (the main tube leading from the mouth to the stomach). The stomach acid may cause breathing problems when it comes in contact with the lining of the throat and airways.

Extreme cleanliness in homes may account for the increase in asthma. This theory suggests that when infants and toddlers are raised in very clean homes, their immune systems do not learn how to handle common germs. When exposed to these germs later in life, their immune systems over-react and the result is asthma.

What are asthma inducers?

Although triggers bring on the symptoms of asthma in someone who already has the disease, they do not cause asthma. Things that cause asthma are called inducers. Contact with asthma inducers begins the airway swelling and increased sensitivity which can lead to asthma.

Common asthma inducers include:

- viral infections (colds and the flu)
- allergies (read more about allergies in Section 5)
- asthma due to exposure in the workplace.

What are asthma triggers?

A trigger makes your asthma worse by irritating your airways. This makes it hard for you to breathe. By knowing what triggers your asthma and by avoiding those things, you can help to control your asthma.

Asthma triggers cause breathing problems that:

- may come on suddenly
- may not last very long
- may be easy to relieve with rescue medication (blue puffer).

Everyone has their own asthma triggers. Common asthma triggers include smoke, fumes, some weather conditions, air pollution, strong emotions, exercise, allergies, workplace factors, and viral infections.

The following pages give more details about asthma triggers

Common asthma triggers and how to avoid them

Exercise

People with asthma should exercise. However, exercise can be a trigger if the asthma is not under control.

How to avoid problems during exercise:

- Make sure your asthma is under control before exercising.
- Warm up slowly before exercising and cool down after.
- Keep your blue puffer close by.
- Follow your asthma action plan.
- Take your blue puffer before or during exercise if needed.
- Slowly exercise for longer and longer to get in better shape.

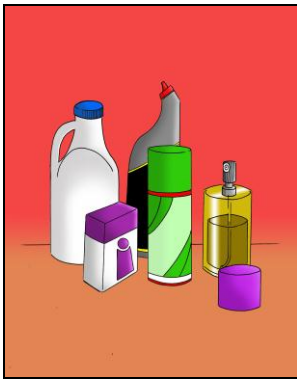


Scents

Fumes from perfume, cologne, air fresheners and other products can make breathing worse.

How to avoid scents:

- Avoid using perfumes and colognes. Ask the people you live with or work with to avoid them, too.
- Make sure your soap, body lotion, shampoo and cleaning products are scent-free.



Hormones

Some women notice more breathing problems at the time of their period or during pregnancy.

How to avoid problems:

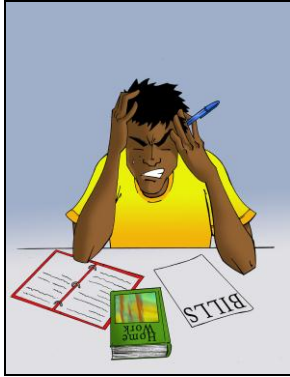
- Follow your asthma action plan if you are having trouble breathing.
- Pay special attention to your asthma during pregnancy.

For more details, see Section 6: Asthma and Pregnancy.



Emotions, anxiety

Feeling fear, stress, excitement, worry or anger can make asthma worse. Feeling worried about having an asthma attack can make your asthma worse. If you know what to do when you begin to have breathing problems and take action, you feel more in control of the asthma.



How to avoid problems:

- Take your blue puffer as ordered by your doctor.
- Try relaxation and breathing techniques.
- Ask a certified respiratory educator for help in coping with concerns about asthma. The educator can help you understand your asthma, what to expect, and what to do if you begin to have problems breathing.

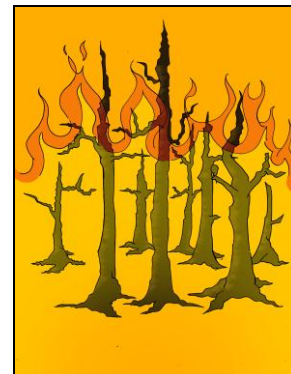
See your health care provider for more advice on how to cope if you feel a lot of stress and your asthma is getting worse. People who learn how to relax and control their stress may have less problems breathing.

Fumes and pollution

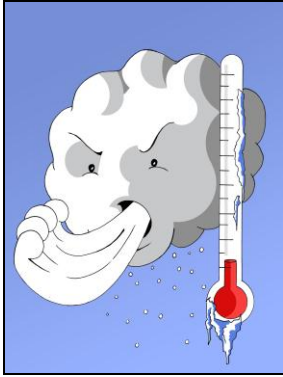
There are many sources of fumes indoors or outdoors: smoke from fireplaces, grills and wood heaters contains many harmful chemicals. Wood smoke can cause breathing problems right away and make asthma worse over time. Exhaust fumes from cars and trucks can trigger breathing problems and cause long-term damage to the lungs. Household chemicals with strong fumes (for example, cleaning products, glue and paint) can trigger breathing problems.

How to avoid fumes and pollution:

- If possible, do not heat your home with wood. If you must use wood, visit our website (www.lung.ca) for tips on how to improve the safety and efficiency of your wood-burning appliance.
- Avoid outdoor bonfires and other open burning.
- If possible, avoid places that are less than 150 meters (500 feet) from a busy road or near a road used by diesel trucks.
- Use safe, environmentally-friendly cleaning products such as vinegar and baking soda.
- Wear a protective mask when working with chemicals, and work in a well-ventilated area.



Cold air



Outside in cold weather or indoors at an ice rink, cold air can cause problems breathing.

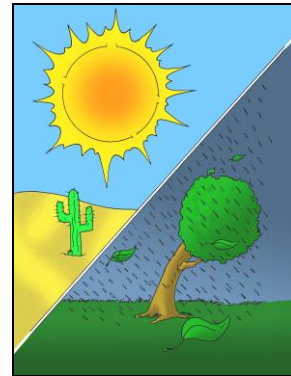
How to avoid cold air:

- Drape a scarf loosely over your nose and mouth to warm and moisten the air before you breathe it in. You can also buy a cold-weather face mask made for this purpose.
- Breathe through your nose. Your nose can warm and moisten the air.
- If your action plan recommends it, use your blue puffer before you go outside.

Hot, humid air

How to avoid hot, humid air:

Stay indoors in an air-conditioned room, especially on days that are smoggy or there is a high pollen count.



Smoke

From cigarettes, cigars, pipes and marijuana, smoke hangs around after it is done. Smoke stays in clothes, hair, curtains, furniture, walls and stuffed animals. Smoke trapped in all these places makes asthma worse.

How to avoid smoke:

- Do not smoke. If you do smoke, ask your health care provider for help to quit.
- If you live with a smoker, be supportive of efforts to quit. Be firm about the need for a smoke-free home.
- Ensure that your home and your car are always smoke-free.
- Talk to your employer about ways to make your workplace smoke-free.
- Stay away from smoky places, such as bars and clubs. Ask for smoke-free hotel rooms when travelling.

Thirdhand smoke

Thirdhand smoke is the toxic chemicals in smoke that remain on surfaces after the smoker has put out the cigarette, cigar, or pipe.

Thirdhand smoke is especially harmful to infants who they breathe more quickly and who spend more time on the floor. They can take in 20 times more thirdhand smoke than adults.

Most triggers are inhaled. Asthma symptoms may also be triggered by things you eat, drink, or swallow. For example:

- sulphites: used to preserve some food, such as dried fruit and red wine
- monosodium glutamate (MSG): used to boost flavour in some foods
- Aspirin: never let a child or teen take Aspirin.

Some people with asthma also have food allergies. People with any allergy that causes severe symptoms that could be life-threatening (or anaphylactic) should always carry their EpiPen.

For more details, see Section 5: Asthma and Allergies.

Section 3: Asthma Management

Because asthma is a chronic disease, you must manage it at all times, even when you feel fine. When you manage your asthma, you can:

- lead a normal life
- sleep well without interruption
- exercise
- do the activities you want to do
- go to work or school without interruption

If you have symptoms or asthma attacks, your asthma is not under proper control. Ask your doctor or certified respiratory educator for help.

How do I know if my asthma is under control?

Take the 30 Second Asthma Test®:		
Do you cough, wheeze, or have a tight chest because of your asthma? (4 or more days a week)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Does coughing, wheezing, or chest tightness wake you at night? (1 or more times a week)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Do you stop exercising because of your asthma? (In the past 3 months)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Do you ever miss work or school because of your asthma? (In the past 3 months)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Do you use your rescue medication (blue puffer) 4 or more times a week?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If you answer YES to one or more questions, talk to your doctor or certified respiratory educator about how you can better manage your asthma.		
The 30 Second Asthma Test is a registered trademark, used under license by GlaxoSmithKline Inc.		

How to Manage Your Asthma

1. Learn more about asthma.

Information in this Handbook is based on current Canadian guidelines for the management of asthma. These guidelines were developed by a group of family doctors and lung specialists from across Canada.

To learn more about asthma, you can also talk to a certified respiratory educator who has special training in asthma management. To find a certified educator, call The Lung Association nearest you at 1-888-566-LUNG (5864).

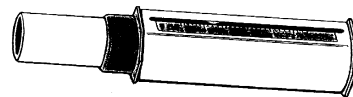
2. Use your action plan when you begin to have breathing problems.

Your asthma action plan is a written set of instructions developed with your doctor and certified educator. It explains what medication you should be taking on a regular basis when feeling well. It also explains how to increase your medication if you start to have breathing problems. Your asthma action plan takes the guesswork out of what action you should take when breathing problems first start. Using your asthma action plan can help you control your asthma.

Ask your doctor to fill out the asthma action plan on the next page with you. Make sure you understand what the plan means. If you have any questions, ask your health care provider or certified educator.

An asthma action plan can be used with or without a peak flow meter. A peak flow meter is a tool that measures how fast you can blow air out of your lungs. This measurement is called your peak flow rate. The more open the airways are, the easier it is to move air out of the lungs, and the higher the peak flow rate will be.

A peak flow meter is useful for checking if your asthma is under control. A peak flow meter is not for everyone. Talk to your health care provider to see if a peak flow meter can help you manage your asthma.



My Asthma Action Plan

Name _____ Date _____

Doctor _____ Doctor's Phone Number _____

Educator _____ Educator's Phone Number _____

GREEN LEVEL My asthma is under control.

SYMPTOMS

- My breathing is normal.
- I have no trouble sleeping.
- I am not coughing or wheezing.
- I can do all my normal activities.

PEAK FLOW _____ **or greater**
(personal best)

WHAT SHOULD I DO?

I should continue using my usual medications as directed by my doctor, and avoid my triggers.

Medication	Dose	Take it when?

YELLOW LEVEL My asthma is getting worse.

SYMPTOMS

- I have symptoms, like wheezing or coughing, with activity or at night. They go away when I use my reliever.
- I am using my reliever more than 3 times a week.
- I cannot do my usual activities.

PEAK FLOW _____ **to** _____
(personal best)

WHAT SHOULD I DO?

A problem is beginning. I should increase my medication as directed below until I am in the green level for ___ days or more.

If my symptoms do not improve within _____ days, I will call my doctor.

Medication	Dose	Take it when?

RED LEVEL I am having an asthma emergency.

SYMPTOMS

- My breathing is difficult.
- I am wheezing often when resting.
- I am having difficulty walking and/or talking.
- My lips and/or fingernails are blue or grey.
- My reliever does not help in 10 minutes
OR is needed every 4 hours or more often.

PEAK FLOW _____ **or less**
(personal best)

WHAT SHOULD I DO?

I need to go to the hospital now.

I should use my reliever as much as I need to on the way to the hospital.

I will not drive myself.

3. Use a diary form to keep track of your symptoms.

A diary form (also called a diary card) can help you keep track of your symptoms on a daily basis. Working with your health care team, you can use your diary form to see if there is a pattern to your asthma symptoms; for example, are there certain days or times when your asthma is worse? The diary form can also show if changes to your asthma medications are relieving your breathing problems. If you use a peak flow meter, a diary form can also show trends in your peak flow rates, which can help you to manage your asthma. An example of a diary form is on the next page.

How should I use a diary form? To help track your breathing problems, use a check mark in the time of day when you have that breathing difficulty. For example, if you have some shortness of breath while awake on Thursday, you would put a check in the box under the “Day” section of Thursday.

You should also list the asthma medications that you take in the Asthma Medications section. Record when you take each medication. For example, if you take your medication while awake on Thursday, you would put one check in the box under the “Day” section of Thursday. If you take it two times while awake on Thursday, you would put two checks in the box under the “Day” section of Thursday.

4. Avoid your triggers.

Each person has specific triggers. Know your triggers and learn how to avoid them. Follow the suggestions listed in Section 2: Asthma Causes and Triggers.

5. Take your medications as directed by your doctor.

It is important to take your asthma medications exactly as ordered by your doctor. You should always have a filled prescription.

If you have questions about the medications or how to take them properly, talk to your doctor, pharmacist or certified educator. Taking your medication regularly means you can avoid asthma emergencies. You can find more information about asthma medications in Section 4: Asthma Medications.

Have your symptoms gone away?

If you are symptom-free, talk to your doctor. Your doctor may slowly reduce your medication (according to your asthma action plan) and you may eventually not have to take it. However, you should always carry a rescue inhaler.

My Asthma Diary Form

Name _____ Doctor _____ Educator _____

Date _____ Doctor's Phone Number _____ Educator's Phone number _____

	SUNDAY		MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY	
SYMPTOMS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Shortness of breath														
Coughing														
Wheezing														
Chest tightness														
OTHER	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Missed work/school due to asthma														
Saw a doctor for asthma symptoms														
ASTHMA MEDICATIONS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
PEAK FLOW READINGS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
500														
400														
300														
200														
100														
0														

6. Use your medication delivery device properly.

If the asthma medication is not getting to where it is needed in the airways, it is not helping you control your asthma. Ask your doctor or certified educator to watch you take your medication. They may offer suggestions on how to improve your technique so that the medication goes to your lungs. Refer to the section beginning on page 26 for more information about how to use your delivery device properly.

7. Avoid getting the flu, colds and viral infections.

Viruses, such as the common cold and the flu, can infect your airways. Viral infections can both trigger and cause asthma symptoms, especially for children. If you have a runny nose or you cough up mucus from your lungs, pay attention to your symptoms. If your symptoms get worse, follow your asthma action plan.

Here are some ways to prevent getting viral infections:

- Get a flu shot each fall. Flu shots can protect against the flu that is caused by viruses. Note: if you have an allergy to eggs, you should not get the flu shot because eggs are used to make the flu vaccine. Ask your health care provider about other options.
- Wash your hands. Proper hand washing can help reduce the spread of germs, including the flu. Always wash your hands:
 - before eating or preparing meals
 - before breastfeeding
 - after using the toilet
 - after helping your child use the toilet or changing a diaper
 - after blowing your nose or wiping your child's nose
- Eat healthy by following Canada's Food Guide.



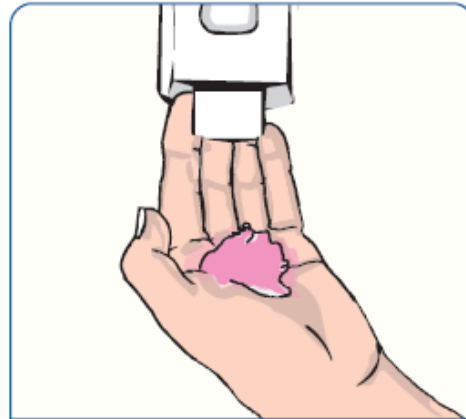
8. Keep active.

People with asthma can exercise safely. Regular exercise can strengthen your immune system and help you fight off colds and infections. Exercise should not be avoided due to asthma. For more information about this, see Section 7: Asthma and Exercise.

FIGHT GERMS BY WASHING YOUR HANDS!



1 Wet your hands



2 Soap



3 Lather and scrub - 20 sec

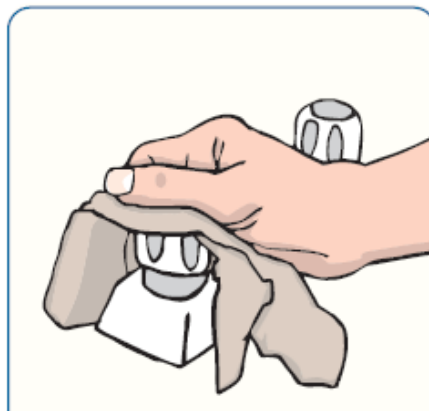


DON'T FORGET TO WASH:

- between your fingers
- under your nails
- the tops of your hands



4 Rinse - 10 sec



5 Turn off tap



6 Dry your hands

Section 4: Asthma Medications

There are many safe medications that can help you manage your asthma. You need a prescription for these medications. You also need to know when to take and how to use each medication.

Because asthma symptoms may change, you need to know how to adjust your medications. An asthma action plan will help you adjust your medication depending on your breathing problems.

Most asthma medication can be inhaled into your lungs. This is the preferred route because the medication goes straight to the lungs and has fewer side effects.

Preventer and rescue medications work together

There are two main kinds of asthma medications: **preventer** medication and **rescue** medication. Each medication is important. Each medication acts differently in your lungs.

Most people with asthma will use both kinds of medication:

Asthma preventer medication: the preventer medication is taken every day, even if you have no symptoms, to prevent swelling and mucus in the airways.

Asthma rescue medication: always carry your rescue medication on hand and take it when you need it — during an asthma attack, if your breathing gets bad, or before exercising.

Some people think they can only use the rescue medication. This is dangerous. The rescue medication alone will not control your asthma.

If you have been prescribed a preventer medication, use it.

To make sure you get all your medication into your lungs, be sure you know how to properly use your inhalation device (puffer, spacing chamber, Turbuhaler, Diskus, etc.).

How can health professionals help?

Your doctor, pharmacist or certified educator can:

- explain how each of your asthma medications works.
- answer your questions.
- show you how to use your medication inhalation device (your metered-dose inhaler, spacing chamber, Turbuhaler[®], Diskus[®] etc.).
- teach you how to use a peak flow meter to monitor your breathing, if needed.

Asthma preventer medications

It is important to take your preventer medication as directed, even when you do not have symptoms. Without your preventer medication, you will be more sensitive to triggers and more likely to have an asthma attack.

If you take your preventer medication as directed:

- your asthma will be better controlled
- you will help prevent asthma attacks
- you will not need to use your rescue medication (blue puffer) as often

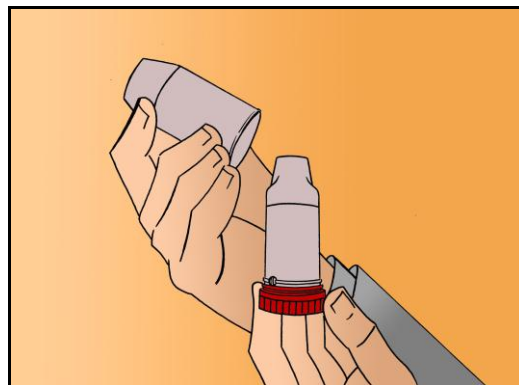
Preventer medication:

- is often in an orange, brown or red-coloured inhaler (it may be purple or red and white for combination drugs)
- needs to be taken regularly to be effective
- usually acts slowly
- works over the long-term
- can reduce swelling and mucus in your lungs.



There are different kinds of preventer medications:

- inhaled corticosteroids
- corticosteroid pills
- long-acting bronchodilators
- combination inhaled corticosteroids and long-acting bronchodilators
- leukotriene receptor antagonists
- theophylline.



Inhaled corticosteroids

Inhaled corticosteroids are the most common asthma preventer. They reduce swelling in the airways. They are inhaled so they go straight to your lungs and give you fewer side effects than pills. When you use inhaled corticosteroids, the dose is about 100 times less than taking corticosteroid pills. To get the most out of your medication, it is important that you know how to use your inhaler.

Corticosteroids for asthma are not the same as the muscle-building steroids that are banned. Inhaled corticosteroids are similar to the steroids that are produced in your body. You need more of these steroids to reduce and prevent swelling in the lungs. Inhaled corticosteroids do not have the same risks or effects as the muscle-building steroids.

Examples of inhaled corticosteroids:

- beclomethasone HFA (Qvar)
- budesonide (Pulmicort)
- ciclesonide (Alvesco)
- fluticasone (Flovent)

What inhaled corticosteroids do:

- reduce and prevent the swelling and mucus in your airways.

Side effects of inhaled corticosteroids:

- for a full list, see your doctor, pharmacist or certified educator. In most cases, inhaled corticosteroids have few side effects and are considered to be safe at the dose needed to control asthma.
- some side effects include:
 - hoarseness and sore throat
 - thrush or yeast infection (looks like a whitish layer on your tongue).

Preventing thrush

You can easily prevent thrush by rinsing your mouth, gargling and spitting out the water after using your puffer.

Your doctor can alter your dose so you get the best asthma control using the least amount of medication.

Using a spacer device with your puffer will also help.

Corticosteroid pills

Sometimes the swelling and mucus in your airways is severe; this may be caused by a chest infection. In cases of severe airway swelling, your doctor may prescribe corticosteroid pills. Corticosteroid pills are more powerful than inhaled corticosteroids. Doctors often prescribe these pills for a short time to get the swelling and mucus under control quickly. Keep taking your regular asthma medication in addition to these pills unless your doctor tells you otherwise. Tell your doctor if you have taken corticosteroid pills in the last year.

Examples:

- dexamethasone (Decadron)
- prednisone
- prednisolone (PediaPred)

What corticosteroid pills do:

- reduce the swelling and mucus in the airways.

Side effects:

- For a full list, see your health care provider, pharmacist or certified educator.
- For prescriptions lasting three to seven days, side effects may include:
 - increased appetite
 - mood changes
 - water retention
 - hyperactivity in children
- For prescriptions lasting longer, side effects may include:
 - increased appetite
 - weight gain
 - stomach irritation
 - bone thinning

If your asthma is not controlled by using only inhaled corticosteroids, your doctor may add on another preventer medication, such as a long-acting bronchodilator or leukotriene receptor antagonist. These preventers also need to be taken regularly.

Long-acting bronchodilators

Long-acting bronchodilators are inhaled medications. They may be prescribed with inhaled corticosteroids. Because some long-acting bronchodilators take many hours to open your airways, they **should not** be used as rescue medication. You should keep taking your inhaled corticosteroids while taking long-acting bronchodilators.

Examples:

- formoterol (Oxeze)
- salmeterol (Serevent)

What long-acting bronchodilators do:

- help keep airways open and muscles relaxed, preventing asthma attacks. Long-acting bronchodilators work slowly, over a 12-hour period.

Side Effects

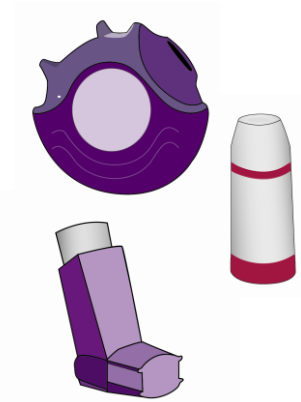
- trembling
- nervousness
- flushing
- increased heart rate

Combination inhaled corticosteroids and long-acting bronchodilators

If you need both a corticosteroid and a long-acting bronchodilator, your doctor may prescribe one device that contains both these medications. This makes it easier to take both your medications on a regular basis.

Examples:

- Advair: contains a corticosteroid (fluticasone/Flovent) plus a long-acting bronchodilator (salmeterol / Serevent).
- Symbicort: contains a corticosteroid (budesonide/Pulmicort) plus a long-acting bronchodilator (formoterol/ Oxeze).
- Zenhale: contains a corticosteroid (mometasone) plus a long-acting bronchodilator (formoterol/Oxeze).



Leukotriene receptor antagonists

If you are taking inhaled corticosteroids, your health care provider may also prescribe a leukotriene receptor antagonist to help control your asthma. By adding this medication, your doctor may be able to slowly reduce your dose of corticosteroid and still keep your asthma under control.

Leukotriene receptor antagonists come in pill form and must be taken every day. Not everyone responds to leukotriene receptor antagonists. Your health care provider will check your response after the first six to eight weeks.

Examples:

- montelukast (Singulair)
- zafirlukast (Accolate)

What leukotriene receptor antagonists do:

- help reduce inflammation or swelling in airways and keep airway muscles relaxed. In some people they reduce asthma symptoms triggered by cold air, exercise, allergens and Aspirin.

Side effects:

- For a full list, see your doctor, pharmacist or certified educator. In general, side effects from using leukotriene receptor antagonists are very rare.
- Occasionally, people may notice these side effects:
 - headache
 - heartburn
 - fatigue
 - dizziness
 - upset stomach

Theophylline

Theophylline is a bronchodilator that comes in a pill. It has not been commonly used for many years. If asthma symptoms occur at night, it may be taken in the evening, or daily, if asthma is severe. Theophylline levels can be affected by other medications — remind your health care provider about all medications you are taking, including over-the-counter drugs.

Examples:

- Phyllocontin
- TheoLair
- Uniphyl

What theophylline does:

- works directly on the airway muscle to relax it, making it easier for you to breathe.

Side effects:

- For a full list, see your doctor, pharmacist or certified educator.
- Some common side effects include:
 - diarrhea
 - heartburn
 - headaches
 - rapid heart beat
 - nausea
 - loss of appetite
 - nervousness
 - upset stomach

The dose needed to manage asthma while not causing serious side effects needs to be checked regularly by your doctor. Do not change the dose on your own.



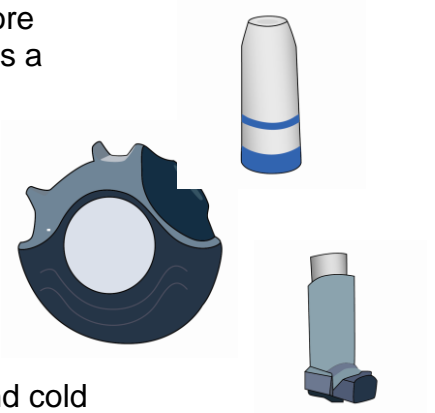
Asthma Rescue Medications

Rescue medication are taken only when you need them (when you have symptoms or before exposure to a trigger). You may also take it before exercising. It is important to keep your rescue medication with you at all times.

If your asthma is under control, you should not need to take your rescue medication more than three times a week (except once a day before exercise). If you use your rescue medication more than three times a week, talk to your doctor.

Rescue medication:

- is usually in a blue inhaler
- helps during asthma (or lung) attacks — take it right away
- acts quickly
- reduces the effects of asthma triggers, such as exercise and cold air
- relaxes your airway muscles



Rescue medications are fast-acting bronchodilators that you take:

- for quick relief during an asthma attack (you should feel relief within five to ten minutes)
- for relief of symptoms, such as cough, chest tightness, wheezing and shortness of breath
- fifteen minutes before exercising, as ordered by your doctor

Examples of rescue medications:

- formoterol (Oxeze) - which is both fast-acting and long-acting
- salbutamol (Ventolin, Apo-Salvent, Novo-Salmol, Gen-salbutamol, Airomir)
- terbutaline sulfate (Bricanyl)

Side effects:

- For a full list, ask your health care provider, pharmacist or certified educator.
- Some common side effects include:
 - trembling
 - nervousness
 - flushing
 - increased heart rate

Other Medications

Anti-IgE Agents

Antibody neutralizers are used in special cases when:

- the asthma is moderate to severe
- the asthma is triggered by allergies AND
- inhaled steroids are not helping.

This medication works by decreasing the amount of IgE (the substance in your body that causes airways to react during an allergic reaction) from binding onto other cells. This is a new type of medication and is not included in the current Canadian asthma guidelines.

Example:

- Xolair

Remember...

- Take your asthma medication as ordered by your doctor. Your medication is necessary to keep you healthy.
- Always tell your doctor if you are thinking about taking or are taking any other medication or alternative remedies of any sort. You have to make sure that these medications or remedies do not interfere with your asthma medication.

Common questions about asthma medications

What are the different devices I can use to take my asthma medication?

Some asthma medications are inhaled into your lungs through a specific device (for example, a puffer). There are two types of devices:

- MDI (metered-dose inhaler or puffer), used with a spacer
- Dry powder inhalers (Turbuhaler, Diskus)

Your doctor, pharmacist or certified educator can discuss which device best suits your needs. You should regularly review how to use your device with your doctor or certified educator to make sure the medication is getting where it is needed —your airways.

Should I use a nebulizer to take my medication?

Inhalers are the most common method of getting medication into your lungs. When an inhaler cannot be used, a nebulizer or compressor is another way in which you can take medications. A liquid form of the medication is placed in a container attached to a tube. The nebulizer changes the medication from a liquid to a mist. It can take up to 30 minutes of breathing mist from a nebulizer to get the same dose as you would get taking one or two puffs from an inhaler. Although nebulizers may be used in hospitals and the emergency department, proper use of inhalers is superior to using a nebulizer.

What are alternative therapies and can they help my asthma?

Alternative therapies are ways to deal with an illness that are not usually provided by your doctor or other conventionally-trained health care providers. Some examples of alternative therapies are acupuncture, chiropractics, homeopathy, naturopathy, osteopathy, herbal remedies, tai chi, yoga, reflexology, relaxation therapy and aromatherapy. Alternative remedies may be advertised to treat asthma, but these claims have not been scientifically proven.

What other drugs can affect my asthma?

Make sure your health care provider knows all of the medications you are taking, even over-the-counter drugs and alternative remedies. Check with either your health care provider or certified educator before you start any new treatment.

Drugs that could affect your asthma include:

- medications containing Aspirin or acetylsalicylic acid (ASA), such as cold remedies, painkillers and medications used for arthritis and muscle pain, may make asthma symptoms worse for some people.
- a class of medications called "beta-blockers" used to treat high blood pressure, angina, glaucoma and other conditions: can cause severe asthma attacks.
- ACE inhibitors, which are used to treat high blood pressure, heart disease and other conditions: can cause an increase in airway twitchiness. Examples of these medications are Captopril and Lisinopril.

What is bronchial thermoplasty and can it help my asthma?

Bronchial thermoplasty is a new procedure being developed as a potential treatment for asthma in adults. It involves use of thermal energy, or heat, to reduce muscle surrounding the airway. In this way it can reduce tightening of the muscle that makes it hard to breathe. People who have had bronchial thermoplasty still need to take asthma medications.

Medication Devices

The key to using all inhaled medications is proper technique. Here are some steps for making sure that every dose you take of your inhaler delivers the most medication into your lungs, rather than the back of your throat. Ask your certified educator or pharmacist to review your technique at each visit.

Always check the instructions included with your inhaler for directions on priming and proper use.

How to Use a Metered-dose Inhaler (MDI) or Puffer



- Remove cap.
- Shake the puffer well.
- Breathe normally and slowly.



- Breathe out.



- Tilt head slightly.
- Close mouth around puffer
- Breathe in slowly and depress canister once.
- Continue to inhale in a slow deep breath.
- Hold breath for 5 - 10 seconds.



- Breathe out slowly.
- Wait for 30 seconds if a second dose is required.
 - ♦ Repeat steps 1 – 4.
- Replace cap.

Care of a puffer

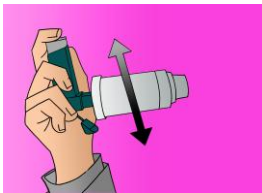
1. Once a week, remove the medication canister from the plastic casing and wash casing in warm, soapy water. Let dry. Replace the canister in the casing once the casing is dry. Replace the mouthpiece cap.
2. Ensure the hole is clear.
3. Check the expiry date.

How to keep track of how much is left in your puffer.

People have a hard time figuring out how much medicine is left in their puffer. Puffers have two ingredients in them: your medicine, which helps you breathe, and a propellant, which is there to help push the medicine out. If you hear something when you shake your puffer, it could be medicine and propellant, or it could be just propellant. If it is just propellant, and you use the inhaler, you will not get any benefit.

The only way to tell how many doses are left in the inhaler is to record the doses you have taken. The number of doses in your puffer is on the canister. You can keep a notebook and pen in a bag with your inhaler, and record each dose in the notebook.

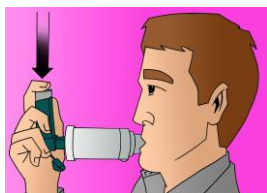
How to Use a Puffer with a Spacer



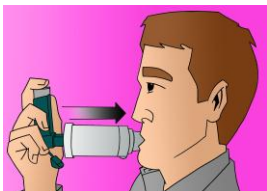
- Remove the caps from the puffer and spacer.
- Insert the puffer into the spacer.
- Shake the puffer well.



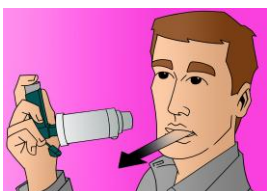
- Breathe out.



- Seal lips around mouthpiece.
- Depress canister once.

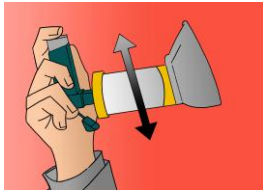


- Breathe in slowly and deeply.
- Hold breath for 5-10 seconds.



- Breathe out slowly.
- Wait for 30 seconds if second dose required.
 - ♦ Repeat steps 1 - 5.
- Replace caps.

How to Use a Puffer with a Spacer and Mask



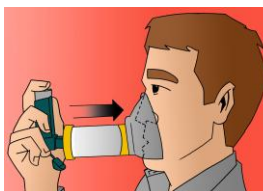
- Remove the cap from the puffer.
- Insert the puffer into the spacer.
- Shake the puffer well.



- Breathe out.



- Apply the mask to the face.
- Depress the canister once.



- Breathe in:
 - ♦ 5 – 6 breaths for children > 18 mo
 - ♦ 8 – 10 breaths for children < 18 mo
- For older children and adults, breathe in: one deep breath, slowly and deeply. If unable to hold breath, 3-4 breaths are adequate.



- Breathe out slowly.
- Wait for 30 seconds if second dose required.
 - ♦ Repeat steps 1 - 5.
- Remove puffer and replace cap.

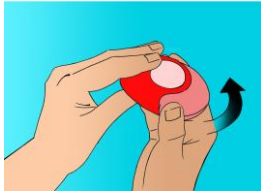
Care of a spacer with a mouthpiece and a spacer with mask

1. Clean the spacer once a week when you clean the puffer. Immerse the spacer in warm, mild-soap water and agitate.
2. Shake off excess water and leave to dry overnight.
3. Do not hand-dry the spacer.

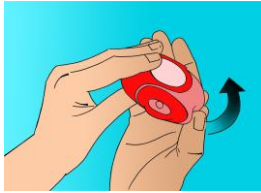
Do I need a spacer?

YES! Puffers are easier to use, and more effective if used with a spacer. A spacer holds the medication for a few seconds after the puffer is activated. It can also help to decrease side effects of inhaled steroids, such as thrush, hoarse voice and sore throat.

How to Use a Diskus



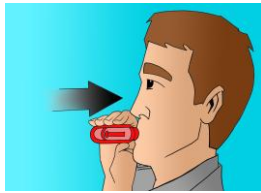
- Open the Diskus.



- Slide the lever.



- Breathe out.



- Seal lips around the mouthpiece.
- Breathe in quickly and deeply.
- Hold breath for 5-10 seconds.

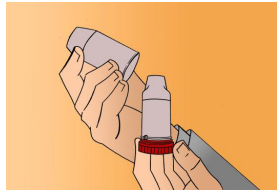


- Breathe out slowly.
- Close the Diskus.
- Repeat steps if second dose required.

Care of a Diskus

1. Store the Diskus in a dry place, not in a damp environment.
2. Keep the Diskus closed when not in use. Only slide open when ready to take the medication.
3. Keep Diskus away from direct frost, heat or sunlight and from high temperatures (above 30°C).
4. Check the number in the dose window counter to see how many doses are left. The indicator in the window will turn a different colour when there are 5 doses left in the inhaler.
5. Clean mouthpiece using a dry tissue or cloth, gently wiping away any particles which have collected inside the mouthpiece. Never wash the Diskus.

How to Use a Turbuhaler



- Remove the cap and hold upright.



- Turn the base in one direction & back.
- Listen for a 'click'.



- Breathe out.



- Place mouthpiece between lips.
- Breathe in quickly and deeply.
- Hold breath for 5-10 seconds.



- Breathe out.
- Replace cap.
- Repeat steps if second dose required.

Care of a Turbuhaler

1. Clean mouthpiece using a dry tissue or cloth, gently wiping away any particles which have collected inside the mouthpiece. Never wash the Turbuhaler.
2. Check the number in the dose window counter to see how many doses are left.
3. Some Turbuhalers may not have a window counter. When a coloured mark appears in the window underneath the mouthpiece, the Turbuhaler has approximately 20 doses left. When the coloured mark reaches the bottom edge of the window, the Turbuhaler is empty.

Section 5: Asthma & Allergies

Many people with asthma have allergies that make their asthma worse. If you have allergies and asthma, it is important to:

- know what you are allergic to
- avoid things you are allergic to
- take allergy medications as ordered
- know what to do if your asthma is getting worse by following your asthma action plan.

An allergy is a reaction that occurs in your body when you are exposed to things that you are sensitive to. The thing that causes this reaction is called an allergen.

Allergens can be inhaled, injected, swallowed or touched.

You may be severely allergic to one thing but only mildly allergic to something else.

Allergy Symptoms

Allergies can cause many symptoms including:

- itchy, watery eyes
- itchy, runny nose
- itchy skin
- eczema (rough, red skin)
- hives (swollen mounds on your skin)
- dark circles under and around the eyes
- headaches
- shortness of breath
- wheeze
- cough
- diarrhea
- stomach cramps

Allergic reactions in people with asthma

Anybody can have allergies, even people who do not have asthma. If you have both asthma and allergies, allergens can make your airways swollen and filled with mucus. Your airways can react right away or a few hours later:

- **Right away**, you can have breathing problems such as wheezing and shortness of breath. Your airways are extra-sensitive and can tighten as soon as you start breathing in allergens. These early symptoms can usually be relieved by your rescue medication (blue puffer).
- **A few hours after** you breathe in the allergen, you may feel a second wave of symptoms. These symptoms are caused by your airways gradually swelling. Because there is a delay, it can be hard to recognize what caused the reaction. Taking a preventer medication regularly can help prevent this reaction from occurring and treat the swelling when it does happen.

What am I allergic to?

Everyone has their own allergens. You can react to one or many things. You might be very allergic to cats, but feel fine around pollens. Another person may be very allergic to pollen and mould, but feel fine around cats.

See your doctor to find out what you react to. Your doctor may refer you to an allergist. The allergist will test for specific allergies, and ask what your symptoms are and when you notice them. A “skin prick” test may be used to help find out what allergies make your asthma worse.

Skin prick or scratch testing

This test usually takes about 20-30 minutes. The allergist will put tiny drops of possible allergens on your arm or back. You may be tested for many allergens at once, so you may have rows of tiny drops on your skin. The allergist will then scratch or prick your skin underneath each drop of allergen, so the allergen can get under your skin. The allergist will see how your skin reacts to each scratch. There may be redness and swelling in some spots. Based on your reaction and your medical history, the allergist can tell you what you may be allergic to.

You can be mildly or severely allergic to something

You may have a slight reaction when you are near one of your allergens, and a more serious reaction when you are near another. For example, you may sneeze when cutting the lawn. However, when you are near a dog, you cough, wheeze and feel awful. Your allergist can tell you which of your allergies are the strongest.

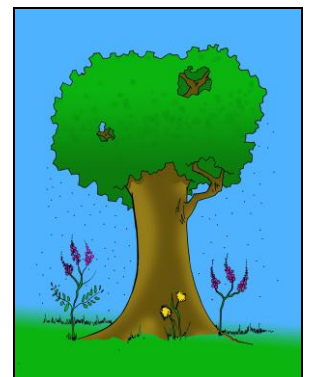
Common allergens and how to avoid them

Pollen

This includes the spores produced by grasses, weeds, flowers, trees and other plants.

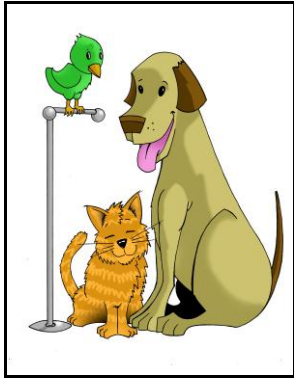
Tips to avoid pollen:

- Close your windows to keep pollen out.
- On days when there is a high pollen count, avoid hanging clothes outside to dry because pollen will cling to clothing and be carried inside.
- In hot weather, spend more time indoors where there is an air conditioner, if possible.
- Avoid being outside in humid weather, especially when pollen counts are highest.
- Check the pollen counts in your area to see when the pollen you react to is at its worst.
- If you have been outside during high pollen counts, take a shower to wash the pollen out of your skin and hair, and change into clean clothes.



Animal proteins (secretions)

This includes oils from the skin, dander, saliva, urine and feces (poop) of the animal. Pet dander can be the flakes of skin, hair, or feathers from warm-blooded animals, including dogs, cats, birds, and rodents like mice, hamsters and gerbils. The length of hair does not matter.



Tips to avoid pet allergens:

- Find a loving home for your pet.
- If you keep your pet, keep it out of your bedroom and off the furniture.
- Have someone else feed your pet.
- Have someone else wash and brush your pet every week.

Dust mites

These are tiny bugs that feed on skin shed by humans. Dust mites like to gather in warm, moist places with lots of human skin, such as mattresses, pillows, carpet and bedding. People with house dust allergies can react to the droppings (poop) of dust mites.

Tips to avoid dust mites:

- Cover your mattress and pillow with dust mite covers or with plastic or vinyl covers. Tape the zipper or cover for a complete seal.
- Wash your bedding in hot water and dry in a hot dryer every week.
- Keep the humidity in your house below 50%.
- Keep your bedroom free of clutter. Books, boxes and clothes lying around can all collect dust.
- If you can, remove carpets, rugs, and heavy curtains from your bedroom.
- Vacuum rugs and carpets at least once a week (the person with a dust allergy should not do the vacuuming).
- Avoid giving children with asthma stuffed toys because toys can collect dust.
- Have someone else dust every week with a damp cloth. If you must dust, wear a N95 respirator (you can purchase one at a hardware store) or a strip of damp, clean cotton over your face.



Mould

This includes spores produced by fungus. Mould exists indoors and outdoors usually in humid places. It can live year-round.

Tips to avoid mould:

- Outdoor mould:
 - Keep windows closed during times of high humidity.
 - Avoid outdoor activities like cutting grass, raking or handling hay. If you cannot avoid these activities, wear a mask.
- Indoor mould:
 - Avoid using a humidifier. If you must, make sure that the indoor humidity is less than 50%. Clean the humidifier according to the manufacturer's instructions.
 - Use an air conditioner or dehumidifier in the summer.
 - Ventilate your home properly.
 - Heat all rooms in cold weather.
 - Get rid of mouldy food.
 - Do not have carpeting in bedrooms and bathrooms.
 - Use exhaust fans when cooking and bathing.
 - Avoid sleeping in the basement if possible.
 - Check for signs of mould after flooding or water seepage.



Food and drink that can cause allergies

Food is not a common asthma trigger. Food allergies mostly affect children. Food reactions can be mild or severe. Common foods that cause allergies are peanuts, tree nuts, fish and shellfish, milk, and eggs. Tests for food allergies are more complex than skin tests.

What to do if you have food allergies

- Know what you are allergic to and avoid it.
- If you have a severe allergy, carry an emergency kit that includes an EpiPen. Make sure you know how to use it.
- With a severe reaction, use your EpiPen immediately (if you have one), call 911 and go to the nearest hospital immediately.
- Wear a MedicAlert® bracelet.
- Avoid cutting boards, cutlery, plates and anything that has come in contact with the food you react to. Even small amounts of the food can cause a severe reaction.
- Use caution when eating anything that has not been prepared by you, a family member or another trusted source.
- Ask questions about ingredients and how the food was cooked when dining out.
- Always check ingredient lists. Some allergic reactions can result from eating foods with preservatives (for example, beer, wine, dried fruit, frozen seafood, some salad bars, and frozen French fries).



Medication to treat allergies

The best way to treat allergies is to avoid the things that you react to. If you cannot avoid an allergen, you may need medication for your symptoms. In some cases, allergy shots may be used.

Nasal corticosteroids:

- require a prescription
- are sprayed in your nose to reduce the swelling inside your nose

Antihistamines:

- do not require a prescription (can be bought over-the-counter)
- reduce or prevent histamine from being released in the body (histamine causes many allergy symptoms)
- may cause drowsiness and may make stuffiness worse

Decongestants:

- do not require a prescription (can be bought over-the-counter)
- reduce congestion (the plugged up feeling in your nose and head)
- may not work very well
- should not be taken by people with high blood pressure and heart problems

Always read the label when buying over-the-counter drugs. You can ask your pharmacist for help in understanding what the label means.

Allergy shots

Allergy shots are a less common way to treat allergies. This involves getting a needle, or shot, with a little bit of your allergen, so your body might learn to be less sensitive to it.

Allergy shots do not work for everyone or for every kind of allergy. They can take awhile to start making a difference.

You should always avoid your triggers and take your regular asthma medication.

Your doctor or allergist can tell you if allergy shots might be right for you.

Common questions about asthma and allergies

What is anaphylaxis?

Anaphylaxis is an extreme reaction of the body's immune system to a particular allergen, such as food, insect stings and medications. Anaphylactic reactions can be mild to life-threatening.

The most common food products that cause anaphylactic reactions are peanuts, tree nuts, sesame, soy, fish, wheat, eggs, milk and seafood. The most common insect stings that cause anaphylactic reactions are hornets, wasps and bees. Some people have severe allergic reactions to natural latex rubber.

Signs and symptoms of anaphylaxis:

- itching of skin
- a raised rash (hives)
- flushing
- swelling of the lips, throat, tongue, hands and/or feet
- wheezing, shortness of breath, coughing, hoarseness
- headache
- nausea, vomiting, abdominal cramps
- sense of impending doom
- loss of consciousness

What to do if you experience symptoms of anaphylaxis:

- Use your EpiPen immediately.
- Tell someone.
- Go immediately to the nearest hospital emergency room.

**DO NOT DRIVE
YOURSELF**

Here are some suggestions on how to protect yourself:

- Once you have had an anaphylactic reaction to something, you must avoid it or death may occur.
- Find out from your doctor, pharmacist or certified educator how to use an EpiPen.
- Always carry an emergency kit containing your rescue inhaler, an antihistamine and an EpiPen.
- After injecting the EpiPen, call 911 or go to the nearest hospital as quickly as possible. The medication in your EpiPen does not last long and you may still be in a life-threatening situation. Do not drive yourself.
- Wear a MedicAlert bracelet that says "ANAPHYLAXIS: CARRIES EPIPEN" so others can help you in an emergency.

Should I get rid of everything in our house that could possibly cause allergies?

No. It is expensive and time-consuming to get rid of all possible triggers from your home. You only need to identify and remove the triggers that affect you.

How to improve the air quality in your home

When cleaning

- Target items that trap dust, such as shelves, drapes, and furniture as well as dust that collects underneath chairs and other large objects.
- Use a damp cloth; dry dusting sends dust back into the air.
- Work from the top down.
- Regularly replace furnace filters. Clean your heating ducts after home renovations.
- If you want to keep magazines and newspapers, store them in a cabinet where they will not collect dust. Recycle them once you are done with them.
- If possible, use a central vacuum system. It removes dirt without stirring up dust particles. Vent the vacuum to outside the home. If you cannot afford a central vacuum system, use a vacuum with a high-efficiency filter bag.

When doing laundry

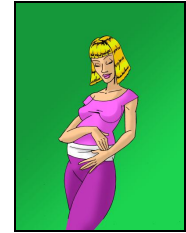
- Use unscented laundry soap marked with the Canadian Ecologo.
- Instead of using fabric softener, use a half a cup of vinegar in the rinse water.
- Make sure your dryer is vented to the outside and the hose is not blocked.

To control pests

- Clean up promptly after cooking and cover up leftover food.
- Regularly remove your kitchen garbage.
- Identify cracks and other openings that act as entry points for insects into your home, and seal these areas with caulking. If you have trouble with rodents, stuff some steel wool into the cracks where they get in (rodents cannot chew through steel wool), or place traps where they enter your home.
- If ants are a problem, try sprinkling cayenne pepper or borax mixed with icing sugar at the point of entry into the home.
- Use pesticide-free glue traps to catch crawling insects. Never use pest strips or other pesticides inside your house.

Section 6: Asthma & Pregnancy

Pregnant women are breathing for two or more. When asthma is controlled, pregnant women with asthma have no more problems during pregnancy and giving birth than women who do not have asthma. However, uncontrolled asthma during pregnancy can lead to serious problems for both mother and baby. Breathing problems in the mother can limit the oxygen supply to the baby. If you have asthma and you are pregnant, or are planning to become pregnant, see your health care provider or certified educator.



How your asthma changes when you are pregnant

In general, a third of pregnant women with asthma notice that their asthma symptoms improve during pregnancy, one third of women have asthma symptoms that stay the same, and one third of women have asthma symptoms that get worse. Also, each pregnancy may affect your asthma differently.

If you have uncontrolled asthma, there is a higher risk of:

- premature birth
- low birth weight
- maternal blood pressure changes (pre-eclampsia)

Managing asthma while you are pregnant

Asthma attacks reduce the amount of oxygen the baby receives. It is important to prevent an asthma attack during pregnancy, and labour and delivery by:

- Avoiding your asthma triggers.
- Continuing to take your asthma medications as ordered.
- Getting your flu shot if you have not already had it this year. A flu shot can be taken after the first three months of pregnancy.
- Exercising carefully as advised by your health care provider.
- Not smoking. A pregnant woman who smokes has a greater risk of having a severe asthma attack at some time during the pregnancy. This could reduce the oxygen supply to the baby, especially if the baby's blood already contains a large amount of carbon monoxide gas from cigarette smoke. Infants are three times more likely to die of Sudden Infant Death Syndrome (SIDS) if their mothers smoked during or after pregnancy.
- Avoiding second-hand smoke. Both you and your baby can be affected by second-hand smoke. Ask friends and family not to smoke near you or in your home or car.

Monitoring asthma control

When you are pregnant, your body goes through many changes. Some of these changes are due to asthma. You and your doctor need to monitor your asthma symptoms so that your medications can be adjusted.

Your doctor can monitor your asthma by using:

- **Spirometry:** This is a simple breathing test that measures how much air you can push out of your lungs and how fast.
- A **peak flow meter:** This is a device to measure the rate you can blow air out of your lungs. The goal is to try to maintain normal or near normal peak flow rates.

Your asthma is under control if you have:

- daytime symptoms less than four days a week
- night-time symptoms less than one night in two weeks
- normal physical activity
- mild and infrequent symptom flare-ups
- not missed school or work
- used your rescue medication (blue puffer) less than four doses a week

Your doctor will assess the health of your baby by using:

- **Ultrasound:** This test uses sound waves to create images showing your baby's growth. A gel is put on your abdomen and a handheld sensor projects an image of your baby onto a computer screen.
- **Electronic fetal heart rate monitoring:** A Doppler is a small device that is pressed against your abdomen and allows you to hear your baby's heartbeat.
- **Non-stress test:** This test monitors your baby's heart rate over a period of time.
- **Daily kick charts:** These charts are used to monitor your baby's activity. You can keep a record of when you feel your baby kick or move. The charts can be compared over a period of time to see your baby's activity pattern.

What to do if you have an asthma attack while pregnant:

- Stop all activity.
- Take your rescue medication (blue puffer) right away, as directed by your doctor.
- Sit down.
- Tell someone.

Call 911 right away if any of these things happen:

- The rescue medication (blue puffer) does not begin to help within 10 minutes.
- The rescue medication wears off and your symptoms return.
- Your symptoms keep getting worse.
- You feel extremely anxious and agitated.

Asthma medications and pregnancy

The risks of uncontrolled asthma are far greater than the risks to the mother or baby from the medications used to control asthma. If you are pregnant or plan to become pregnant, tell your health care provider. Taking care of your asthma needs to be addressed at the same time as taking care of your pregnancy. If possible, use the same doctor for both your asthma care and your pregnancy. If this is not possible, all your doctors need to work together with you for the health of you and your baby.

Drugs to avoid during pregnancy

Take your asthma medications as directed. Be careful about taking any other medications. There are many over-the-counter, prescription, and herbal medications that should not be taken during pregnancy. Check with your doctor or pharmacist before taking any non-prescribed medication when you are pregnant.

If you have any questions about medication use during pregnancy, please speak with your doctor, pharmacist or certified educator.

What can you expect when you go into labour

Monitoring during labour and delivery

When you are admitted to the hospital, you and your baby will be monitored. During labour, monitoring of you and your baby will continue. If your asthma is under control or you are considered low risk, continuous monitoring may not be necessary.

You may have your peak flow rate taken when you are admitted to the labour and delivery unit and every 12 hours after that. If asthma symptoms develop, peak flow rates may be measured after treatments. An intravenous, or IV, may be necessary to ensure you are well-hydrated. Painkillers can help limit the risk of asthma symptoms.

Medications during labour and delivery

- Your regular asthma medications should be continued during labour and delivery.
- If your asthma improved during pregnancy and your medications were appropriately reduced, you may need more medication immediately following delivery.
- If your asthma has not been under good control, your doctor may give you specific instructions to go to the hospital early in your labour.
- Do not hesitate to ask for a painkiller. This can help limit your risk of asthma symptoms.

What you can expect after your baby is born

After the baby is born, it may be necessary to change your asthma medications. Because some women have changes in the asthma during pregnancy, the asthma may change again following delivery. For this reason, you and your doctor should monitor your asthma very closely after your baby is born to make sure it is well-controlled.

Breastfeeding

- **Keep taking your medications as prescribed.** Theophylline can get into breast milk and can make the baby irritable. If you take theophylline, talk to your doctor about other options.
- **Do not smoke.** Infants are twice as likely to die of SIDS if their mother starts smoking again after giving birth.
- **Avoid second-hand smoke.** To keep your baby healthy, do not let anyone smoke around your child or in your home or car.
- **Avoid antihistamines** because they can cause sleeplessness and irritability in the baby. They can also reduce or prevent production of breast milk.

Common questions about pregnancy and asthma

I am pregnant and I smoke. Why should I quit?

Mothers who do not smoke are healthier. They have easier pregnancies and deliveries. They also recover faster with fewer complications after giving birth. Babies whose mothers are smoke-free are more likely to be born full-term, be healthy at birth and stay healthier as they grow.

When should I quit?

Quitting before you get pregnant is the best choice. If you are already pregnant, quitting as soon as possible is best for you and your baby. Some women actually find it easier to quit while pregnant because they may already feel nauseated from morning sickness. Talk to your doctor or certified educator about getting help to quit.

Will it be too hard on the baby for me to quit when I am pregnant?

No. Quitting smoking is the best thing you can do for you and your baby. Many of the chemicals found in tobacco smoke cross into your baby's blood, slowing growth and development. Babies born to mothers who smoke are more likely to be premature, have a low birth weight and have more problems at birth than babies whose mothers are smoke-free. As your body begins to recover from the stress of smoking, so does your baby.

What if my partner smokes?

Your partner should also try to quit because second-hand smoke can seriously harm the baby. Second-hand smoke puts your baby at risk for SIDS, allergies, asthma, ear infections and other illnesses. It is important for your child to live in a smoke-free home.

Be supportive of your partner's efforts to quit. If your partner is not ready or willing to quit, you can still insist on a smoke-free home. Never allow smoking in your home or car. It is not enough to ban smoking near your baby. The chemicals in tobacco smoke get trapped in clothing, carpet, furniture and curtains. These chemicals stay in your house and can make your baby sick. Do not take your baby to places where people are smoking or have been smoking.

Thirdhand smoke

Thirdhand smoke is the toxic chemicals in smoke that remain on surfaces after the smoker has put out the cigarette, cigar, or pipe.

Thirdhand smoke is especially harmful to infants who they breathe more quickly and who spend more time on the floor. They can take in 20 times more thirdhand smoke than adults.

Will my baby have asthma?

Maybe. There is a genetic link to asthma. The exact cause is not known. A family history for asthma or any related condition (eczema, hay fever) increases the chance of the baby having asthma. Asthma can develop at any age, but is more common in children.

You can help reduce your baby's chances of developing asthma by:

- not smoking, especially during pregnancy
- not allowing smoking in your house or car
- not having cats or dog in the house if either parent has allergies.



Section 7: Asthma & Exercise

If you have asthma, you can exercise regularly. As long as your asthma is under control, exercising is recommended to keep in good shape. Before starting a new exercise program, discuss it with your health care team.

Exercise does not cause asthma. However, exercise can be a trigger for people with asthma (known as exercised-induced bronchospasm).



Why does exercise sometimes trigger asthma symptoms?

Normally, people breathe through their noses. The nose acts as an air filter. It controls the temperature and humidity of the air before it reaches the lungs.

When you exercise, your body needs more air and you breathe faster. You start breathing through your mouth. Air that comes through your mouth has not been filtered, warmed, or moistened by your nose. This means the air that gets to your airways is cooler and drier than usual.

If you have asthma, your extra-sensitive airways may react to the cool, dry air. The muscles around the airways twitch and tighten. Tighter airways mean there is less space for the air to pass through. This makes you wheeze, cough or feel short of breath.

Tips for exercising

- Talk to your doctor about using your rescue medication (blue puffer) 15-20 minutes before exercising.
- Warm-up slowly for at least 10 minutes before exercising.
- Cool down slowly for at least 10 minutes after exercising. Do not stop suddenly.
- Avoid exercising outside on days when pollution or pollen counts are high. Exercise indoors instead.
- Cover your nose and mouth with a scarf or a special mask when exercising outdoors in cold weather. You may want to exercise indoors.
- Always carry your blue puffer with you.
- If you are running, biking or cross-country skiing alone, tell someone where you will be going and when to expect you back.

What to do when you have asthma symptoms while exercising:

- Stop exercising immediately.
- Take your blue puffer.
- Relax in a resting position (sitting up or standing against a wall) and wait a few minutes to see if your symptoms get better.
- If your symptoms improve, warm up again and slowly start exercising.
- If your symptoms are not getting any better, call for help and keep using your blue puffer until help arrives.
- If you are very short of breath, call 911.

Section 8: Asthma & Travel

Tips for traveling with asthma

- Take enough medication to last the entire time you are away and allow for increases due to flare-ups and travel delays. Take an extra prescription's worth in case of loss or theft.
- If you travel on a plane, keep your rescue medication (blue puffer) close at hand in case you need it. Airplanes contain many things that can trigger breathing problems, such as perfume and other strong smells. Do not store your rescue inhaler in the overhead bin!
- Keep medication in the original containers with your name on the prescription label. Sometimes pharmacists put the medication label on the outside of the puffer's box instead of on the puffer itself. If your puffer is not labelled, ask your pharmacist for a label before you travel.
- Make sure you are booked on smoke-free transport (plane, train, rental car, bus, boat, etc.).
- Always ask for a smoke-free room where you are staying.
- If you are traveling outside Canada, ask your pharmacist for a printout of your medications and ask your doctor for a letter listing your prescriptions.
- If you travel outside your province, make sure you have enough medical insurance in case of an emergency.
- If you are using a nebulizer to take your medications, make sure that the country that you are visiting has the same electrical voltage as Canada. If not, speak to the supplier where you bought the nebulizer. They can give you an adaptor, or you can rent a suitable nebulizer.
- If you do not already have one, ask your doctor for an asthma action plan in case you have problems while you are away. Speak to a certified educator about how to use the plan.
- Never stop taking your medication, even when you feel better.
- If you have lost or finished your medication while away, go to the nearest reputable health care centre as advised by your travel agency, insurance company or doctor.

What you should know about bringing medications on planes

Carry-on baggage rules affect medications. If you use inhalers and liquid medication, you need to pay special attention to the new rules for carry-on baggage.

According to the Canadian Air Transport Security Authority (CATSA):

- liquid prescription medicine is allowed as long as it is clearly labelled with a name that matches the passenger's ticket or boarding pass.
- other essential non-prescription liquid medicines are also allowed and are exempt from the container size restrictions. In addition, they are not required to be in a plastic bag.

Check the CATSA website (www.catsa-acsta.gc.ca) before you leave.

Section 9: Common Questions

Is there a cure for asthma?

Currently there is no cure for asthma. However, in the majority of cases, asthma can be managed so you can do the things you want to do.

Does asthma go away?

Asthma is a chronic disease which means that it never goes away. In a situation where asthma is caused by something in the workplace, removing the allergen can help minimize asthma. Many children seem to “outgrow” their asthma by puberty. Some of them remain symptom-free; for others, symptoms may reappear in adult life.

Can I die from asthma?

Yes, but it is very rare. About 300 Canadians die each year from asthma. In almost all cases, asthma deaths can be prevented by proper asthma education and management.

Who gets asthma?

Canadian children have a 20 per cent chance of being diagnosed with asthma by age 12. There is a further 20 per cent chance of being diagnosed with asthma between the ages of 12 and 40 years. Under age 12, boys are about twice as likely as girls to develop asthma. After age 12, girls are more likely than boys to develop asthma.

What happens if I do not avoid my asthma triggers?

If you do not avoid your triggers, you will experience constant breathing problems. You also risk having a severe asthma attack requiring a hospital visit.

Can having a pet in the home reduce the chances of getting asthma?

Maybe. Some studies suggest that there is some protective effect of having a pet if parents do not have asthma or allergies. However, if a child develops asthma, continued exposure to the pet can lead to ongoing asthma.

Is taking steroids for asthma dangerous?

No. Corticosteroids for asthma are not the same as the muscle-building steroids that are banned by some sports organizations. The corticosteroids used to treat asthma are similar to the steroid produced naturally by the body. Like most medications, corticosteroids can have unwanted side effects, especially when used in high doses for long periods of time. The dose of inhaled corticosteroids is about 100 times less than corticosteroid pills. Talk to your doctor, pharmacist or certified educator if you have questions about side effects or using steroids.

Will using an air cleaner help my asthma?

Indoor air quality is an important issue, particularly for those at high-risk including children, the elderly, pregnant women and people with a chronic lung condition.

You can improve indoor air quality by:

- identifying and eliminating the source of the problem, such as mould and cigarette smoke. See Section 5: Allergies and Asthma for tips.
- increasing the amount of ventilation within the home to help ensure air is fresh.
- As a last resort, the use of a high efficiency particulate air (HEPA) filter with activated charcoal may provide some benefit. There must be a large amount of air going through the filter to provide this benefit. Note: Electronic air cleaners or purifiers that produce ozone are not recommended as the ozone can make asthma worse.

For more information about what you can do to improve the quality of the air in your home, speak to a certified educator or contact The Lung Association nearest you at 1-888-566-LUNG (5864).

Will my asthma get better if I move to a different climate?

While some symptoms may improve in a different climate, moving may expose you to new triggers that can cause breathing problems. For example, a warmer climate may have more air pollution and higher humidity. To avoid replacing one trigger with a different one when you move, it is a good idea to spend a trial period of several weeks to months in the new location. Do not move until you are sure there is a real improvement in your asthma symptoms. Consider also that your improvement might be due to leaving a pet at home, being away from a workplace trigger, or having less stress on holiday — factors that have nothing to do with climate at all.

What is the difference between COPD and asthma? Can I have both?

Asthma is a chronic disease of the airways that is characterized by swelling, mucus production and tightening of the airway muscles. Asthma symptoms can be treated and managed through education, environmental control and proper use of medications. Chronic obstructive pulmonary disease (COPD; the new name for chronic bronchitis and emphysema) is a disease that makes it difficult to move air in to and out of the lungs due to permanent damage. This damage is caused by breathing in harmful materials, such as tobacco smoke, over a long period of time. In COPD, there is also swelling of the airways and mucus production but COPD symptoms are only partially improved by medications. A person **can have** asthma and COPD at the same time.

What are some other diseases and conditions that can affect asthma?

Gastroesophageal reflux disease (sometimes called GERD or acid reflux) is a chronic condition in which acid from the stomach backs up into your throat. The stomach acid may cause breathing problems when it comes in contact with the lining of your throat and airways. The exact connection between GERD and asthma is not completely understood.

Heart disease is a condition that affects the heart muscle or the blood vessels of the heart. A person with heart disease may be taking a medication that decreases blood pressure. This group of drugs (known as non-specific beta-blockers) should not be used by people who also have asthma because these drugs increase the risk of having a severe asthma attack.

Glaucoma is an eye disease in which the normal pressure of the fluid inside the eyes slowly rises, leading to vision loss or even blindness. There is a very low risk of developing glaucoma from using inhaled steroids to manage asthma. People 65 years or older who are taking high doses of inhaled steroids should have their eye fluid pressure monitored during their annual eye examination.

Arthritis is an inflammatory disorder that results in pain and swelling in the joints. Arthritis can be treated using drugs called non-steroidal anti-inflammatory drugs (NSAIDs). People with both arthritis and asthma should be aware of the possibility that they may also be sensitive to Aspirin.

Aspirin triad is a condition in which people have asthma, an Aspirin sensitivity and nasal polyps (soft, non-cancer growths that develop on the lining of the nose). Talk to your doctor or certified educator for more information on this condition.

Osteoporosis is a disease in which bones are fragile and more likely to break. One cause of osteoporosis is the long-term use of high doses of steroids, a type of medication used to treat swelling and inflammation. The risk of developing osteoporosis from using inhaled steroids for asthma is very low. People on high doses of inhaled steroids or those at risk of developing osteoporosis should discuss having their bone density measured with their doctor.

How should I prepare for a visit with my doctor?

- Prepare a list of the questions you want your doctor to answer. At the doctor's office, it is easy to forget things.
- Bring a pad of paper to record what the doctor tells you about your asthma and about any tests or medications you may need.
- Keep a list of all the symptoms you are feeling. Be honest. If you do not tell the doctor the details of your health, you will not get the treatment you need.
- Bring along all the medications you are taking for your asthma and for any other conditions. If you are not sure you are taking your medications correctly, now is the time to ask.
- Bring along a relative or friend to your appointment. If you miss some information or forget something, someone is there to back you up.
- Listen carefully. If you do not understand what the doctor says, ask for an explanation. Keep asking until you understand.
- Ask for an asthma action plan if you do not already have one.
- Ask if there are resources in your community that could benefit and support you.
- If you get home from your doctor's visit and realize you missed a question or did not understand something the doctor told you, phone back immediately and ask for more information.

Should you see a specialist?

Talk to your doctor about a referral to a specialist if:

- you are taking asthma medications and avoiding triggers but your asthma is not getting better;
- you think your workplace may be making your asthma worse;
- you have been admitted to the hospital or gone to the emergency room because of your asthma;
- there is uncertainty about the diagnosis of asthma.

Section 10: Glossary

ACE Inhibitors – a type of medication used to treat high blood pressure, heart disease and other conditions; can cause an increase in airway twitchiness. Examples of these medications are Captopril and Lisinopril.

Action Plan – a written set of instructions provided by the doctor that describes what action to take when feeling well, and what to do if the asthma is out of control.

Acupuncture – a therapy which uses needles to relieve pain.

Adrenalin – a hormone that the body produces in a time of panic or stress. It is also used in anaphylactic emergencies (ex. EpiPen).

Air cleaner – as a last resort, the use of a high efficiency particulate air (HEPA) filter with activated charcoal may provide some benefit. It is very important to first try and remove the source of the indoor air problem. Electronic air cleaners or purifiers that produce ozone ARE NOT recommended as the ozone produced in the air can make the asthma worse.

Airways – the breathing passages that lead to the lungs.

Airway inflammation – swelling and increased production of mucus in the airways.

Allergen – a substance that the body does not produce and which causes an allergic reaction.

Allergist – a doctor who specializes in allergies.

Allergy – a reaction that occurs in the body when exposed to things that you are sensitive to. The thing that causes this reaction is called an allergen. Symptoms may include hives, watery eyes, runny nose, sneezing, itching, skin rashes and in some cases, asthma.

Allergy shots – see immunotherapy.

Alternative therapies – treatment of disease by means other than usual medical, pharmacological, and surgical techniques.

Alveoli – the smallest airways in the lungs end in the small, thin air sacs, or alveoli, that are arranged in clusters like bunches of grapes.

Anaphylaxis – an extreme reaction of the body's immune system to a particular allergen, such as food, insect stings and medications.

Antibiotic – a medication used to treat a bacterial infection.

Antibody – a protein your immune system (your body's natural defence system) makes in order to protect against disease, antigens, or allergens. While some antibodies are helpful, others may cause potentially harmful responses, including allergic reactions.

Antibody neutralizers – a class of drugs used in specific cases where moderate to severe asthma is triggered by allergies and inhaled steroids are not improving symptoms. The drugs work by blocking the amount of the substance your body produces in response to an allergic reaction. It is expensive and not currently covered by the drug plan. It is administered by a needle once or twice a month. (ex. Xolair)

Antihistamine – a medication that reduces or prevents histamine from being released in the body; histamines cause many allergy symptoms.

Anti-inflammatories – medications used to treat swelling and inflammation in the airways; can be in pill, liquid or inhaled form.

Aromatherapy – a therapy where essential oils from flowers, herbs and trees are used to promote health and well-being.

Arthritis – inflammation or swelling of a joint causing pain and stiffness. Arthritis can be treated using drugs called NSAIDS (non-steroidal anti-inflammatory drugs). Speak to your doctor or pharmacist for more information regarding asthma and use of NSAIDS.

ASA – Aspirin or acetylsalicylic acid; used as a treatment for pain, fever and inflammation.

Asthma – a chronic lung condition characterized by one or a combination of cough, wheeze, shortness of breath, or chest tightness. People with asthma have extra sensitive or hyperresponsive airways in their lungs. The airways react by narrowing or obstructing when they become irritated. This makes it hard for the air to move in and out of the lungs.

Asthma action plan – a written set of instructions provided by the doctor that describes what action to take when feeling well, and what to do if the asthma is out of control.

Asthma specialist – a doctor who specializes in asthma treatment.

Bronchi – large airways that allow the air you breathe to enter and exit your lungs. Like branches on a tree, each bronchus divides again and again, becoming smaller and smaller.

Bronchial thermoplasty – a new procedure being developed as a potential treatment for asthma in adults. It involves use of thermal energy, or heat, to reduce the amount of muscle surrounding the airway, thereby reducing tightening of the muscle which constricts the airway and makes breathing difficult. This method has the potential to provide relief to people who do not respond to conventional asthma treatment. The long-term effects are not known. Current Canadian asthma guidelines do not include use of this new method.

Bronchoconstriction or bronchospasm – airway narrowing. When the muscles around the airway constrict or tighten, the airways narrow. Airway narrowing makes it hard for air to move in and out of the lungs, causing breathing problems.

Bronchodilator or reliever medication – a type of medication that works by relaxing the muscle around the airways.

Certified Asthma Educator (CAE) or Respiratory Educator (CRE) – a health care professional who has completed an accredited program which includes training on what to teach and how to teach patients about respiratory diseases. After the program, the health care professional must successfully pass the national certification examination in order to receive the professional designation of CAE or CRE.

Challenge test – a particular type of breathing test sometimes used to diagnose asthma.

Chest x-ray – a test that produces a picture of the heart and lungs.

Chiropractics – based on the concept that the nervous system coordinates all of the body's functions and that disease results from a lack of normal nerve function.

Chronic – persists or lasts for a long period of time.

Controller or preventer – medication taken daily to control asthma.

COPD (chronic obstructive pulmonary disease) – a disease that makes it difficult to move air in to and out of the lungs due to damage caused by breathing in harmful materials, like tobacco smoke, over time. The swelling of the airways and excessive mucus production are only partially reduced by medications. Damage to the lungs is permanent.

Corticosteroid – a preventer medication that reduces and prevents swelling of the airways, making them less sensitive or “twitchy.” These are different from the anabolic steroids abused by some athletes.

Dander – small scales from the skin, hair or feathers of an animal that can cause an allergic reaction in a sensitive person.

Diaphragm – the main muscle in the chest used for breathing.

Diary form – used to keep track of symptoms and medications in order to help determine if asthma is under control. The diary card can also let you know if changes to your asthma medications are relieving breathing problems.

Diskus – a delivery device used for asthma medication. It is a type of dry powder inhaler.

Doppler – electronic heart rate monitoring using a Doppler to hear the baby's heart rate through the mother's abdomen.

Dry powder inhaler – a delivery device for dry powder medication.

Dust mites – microscopic insect-like bugs that can cause breathing problems in a sensitive person. Dust mites live in high humidity and are often found in bedding and carpets.

Eczema – inflammation characterized by areas of redness, itching, scaling and thickening of the skin.

Epipen – a pre-loaded adrenaline syringe (needle) used to treat anaphylaxis. A person who carries an Epipen must be taught how to use it correctly.

Exercise-induced bronchospasm – tightening of the muscles around the airways that occurs when the asthma is not under control and the person with asthma exercises.

Fetal – refers to the unborn child.

Flu shot – a vaccine that is given to protect against the influenza virus.

GERD (gastroesophageal reflux disease) – inflammation due to stomach acid backing up into the esophagus (the main tube leading from the mouth to the stomach). The stomach acid may cause breathing problems when it comes in contact with the lining of the throat and airways. The exact connection between GERD and asthma is not completely understood, but studies have shown that GERD may cause asthma.

Glaucoma – increased pressure of the fluid inside the eye that can result in loss of sight. People with a personal or family history of glaucoma should have eye pressures measured within a few days of starting inhaled steroids (especially high doses). Eye pressures should then be monitored at regular intervals.

Hay fever – nasal congestion caused by seasonal allergens characterized by sneezing, runny nose and itching eyes.

Heartburn or GERD – a burning chest pain caused by acid from the stomach.

Heart disease – a condition that affects the heart muscle or the blood vessels of the heart. A person with heart disease may be taking a type of drug that decreases blood pressure. This group of drugs (referred to as non-specific beta-blockers) should not be used in people who also have asthma because these drugs increase the risk of having a severe asthma attack.

Herbal remedies – use of herbs for their therapeutic value.

Histamine – a substance released from the body during an allergic reaction that can cause many allergic symptoms.

Homeopathy – based on the premise that substances that are poisonous in large doses, may be of benefit in smaller doses.

Hyperresponsive airways – people with asthma have airways that are more sensitive or twitchy and which over-react to things they are sensitive to. Cold air, exercise, grasses, and animals are just a few of the more common triggers.

Immunotherapy or allergy shots – a treatment involving a series of shots or injections of increasing doses of an allergen in order to create a tolerance to that allergen.

Inhaler – a type of device used to deliver medication to the lungs.

Inflammation – a reaction of the body to injury or invasion by a foreign material. The process usually involves redness, heat, swelling and pain in the affected area.

Intravenous (IV) – through the vein.

Larynx – the upper part of the windpipe containing the vocal cords.

Latex – a source of rubber from certain plants.

Leukotriene receptor antagonists – a type of medication that works to control one part of the inflammatory pathway. These drugs have been shown to reduce asthma symptoms triggered by cold air, exercise, allergens, viruses and Aspirin. They come in pill form and are usually used in addition to inhaled anti-inflammatory drugs. They must be taken regularly.

Medication delivery device – a way through which medication is inhaled in to the lungs.

Metered-dose inhaler (MDI) or puffer – a device through which you can inhale medication. Puffers have two ingredients in them: your medicine, which helps you breathe; and a propellant, which is there to help push the medicine out.

Mould – the spores produced by fungus. There are indoor moulds and outdoor moulds. Mould can live year-round on animal and plant material. Moulds usually exist where it is humid and hot. An example that most people will recognize is bread that has become mouldy.

Nasal polyps – soft, non-cancerous growths that develop on the lining of your nose.

Naturopathy – use of drugless healing and natural substances; it is based on the premise that disease is due to a build-up of morbid matter.

Nebuliser – a machine used to deliver asthma medications. The liquid drug is placed in a container attached to a tube. The machine, when turned on, changes the drug from a liquid to a mist, which is then inhaled. .

Non-specific beta-blockers – drugs that decrease blood pressure.

Non-stress test – a test that monitors the baby's heart rate over a period of time.

NSAIDS – non-steroidal anti-inflammatory drugs.

Obstruction – a blockage.

Occupational asthma – some working environments can cause asthma such as hairdressing, farming, baking, working with grain, western red cedar, formaldehyde, working with laboratory animals, and continued contact with latex. There are over three hundred substances in the workplace that can cause asthma.

Osteopathy – based on the theory that pain and disability is due to abnormalities of body structure.

Osteoporosis – a decrease in bone mass and bone density that can lead to an increased risk of broken bones. One cause of osteoporosis is the continued use of high doses of steroids. The risk of developing osteoporosis from using inhaled steroids to manage asthma is very low.

Peak flow meter – a hand-held tool that measures how fast you can blow air out of your lungs. This measurement is called your "peak flow rate." The more open the airways are, the easier it is to move air in to and out of the lungs.

Physical examination – an exam of the body to check for signs of disease.

Pollen – the spores produced by trees, grass, and other plants. When inhaled, pollen can cause allergies in the sensitive person. Levels of pollen are usually highest on hot, windy days, and are lowest on cool, rainy days.

Prednisone – is a corticosteroid pill that helps to reduce the swelling in the airways and improve breathing. The pills start working within a few hours, but it may take several days to see full results.

Prescription – a doctor's order for a specific treatment. This could be a medication or a device.

Reflexology – a type of massage based around a system of points in the hands and feet that relate to areas of the body.

Rescue medication – a type of medication that quickly relaxes the muscle around the airway. With this type of medication, you should feel relief from shortness of breath within 5-10 minutes. It does not work on the swelling or inflammation.

Relaxation – to reduce stress or tension.

Relaxation therapy – any of a number of techniques that can be used to reduce stress and tension. Some examples may be breathing exercises, meditation, or yoga.

Reliever – a type of asthma medication used only when needed. i.e. when you have symptoms or before exposure to a trigger.

Rhinitis – swelling of the nasal passage, usually due to an allergy, that may occur seasonally (hay fever) or continually.

SIDS (Sudden Infant Death Syndrome) – sudden unexpected death of an apparently healthy infant.

Sinusitis – inflammation or swelling of the sinuses.

Skin prick test (scratch test) – a test used to help determine allergies. The allergist will put tiny drops of possible allergens (things you may be allergic to) on the skin of your arm or back. The allergist will then

Spacer device or holding chamber – is a device used with a metered-dose inhaler that can improve the amount of medication that gets in to the lungs compared to not using this device. A holding chamber has a one-way valve that allows a person to breathe back into it without losing any of the medication; a spacer device does not have this type of valve. It is especially helpful for people having problems with matching breathing in with pressing down on the inhaler. The spacer or holding chamber will hold the medication once it is released into it, for a few seconds before the person inhales. The spacer or chamber also reduces how much of the larger particles of medication remain in the mouth or on the back of the throat; this will decrease the risk of getting a throat infection. The

patient must be taught to rinse the mouth after using a steroid inhaler, even if a spacer or holding chamber is used. Use of a spacer device or holding chamber is recommended for everyone who uses a metered-dose inhaler or puffer. It cannot be used with a dry powder inhaler.

Spirometer – a device used to measure changes in lung volumes.

Spirometry – a simple breathing test that measures air entering and leaving the lungs using a spirometer.

Sulphites – additives in food that can trigger asthma or allergic reactions, even anaphylaxis.

Tai chi – a traditional Chinese mind-body relaxation exercise consisting of exercise sequences performed in a slow relaxed manner.

Thrush or candidiasis – a fungal mouth infection that can result from not rinsing the mouth and gargling after using a steroid inhaler.

Trachea or windpipe – the tube that connects the larynx to the bronchi and carries air in to the lungs.

Trigger – a substance that makes your asthma worse when inhaled; it makes it hard for you to breathe. By knowing what triggers your asthma, and by avoiding those things, you can help to control your asthma and do the things you want to do. Common asthma triggers include smoke, fumes, certain weather conditions, air pollution, strong emotions, exercise, allergies, workplace factors, and viral infections.

Turbuhaler – a device that delivers medication in to your lungs. It is a dry powder inhaler.

Twinject – a pre-loaded adrenaline or epinephrine syringe (needle) used to treat anaphylaxis. It also has a back-up dose. A person who carries a Twinject must be taught how to use it correctly.

Ultrasound – a test used to assess the health of the baby that provides information about the baby's growth. A gel is put on the abdomen, and a hand-held sensor provides an image of the baby which is projected onto a computer screen.

Wheeze – a whistling sound that may be heard in the chest of a person with asthma.

Yoga – a system of physical and mental exercises practiced with the goal of promoting control of the body and mind.

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What to Do in an Emergency

What to do in an emergency

When you have asthma, you need to know what to do in an emergency. Your asthma action plan is your guide when you have breathing problems. If you do not have a plan, ask your doctor for one.

What can I expect when I arrive at the hospital?

You will be given medications that will help open your airways so you can breathe easier. Hospital staff may ask you questions about your asthma, including how much rescue medication (blue puffer) you have taken on the way to the hospital.

In the emergency room:

- your pulse and blood pressure will be taken
- oxygen may be given using a mask
- an attachment may be placed on one of your fingers to measure the oxygen content of your blood
- an IV may be started to give you medication that will help open your airways.

What happens after I go home from the emergency room?

Within 48-72 hours of visiting the emergency room, you should call your doctor for an appointment. You will need to review the reason why you ended up in the emergency room so that you can prevent it from happening again.

Your doctor may want you to see a certified respiratory educator to help you regain control of your asthma. Be sure to tell your doctor if any medications were changed at the hospital. Ask how long you should take the additional medication before returning to your usual asthma medications.

SIGNS OF WORSENING ASTHMA:

- Breathing is very difficult
- Continued wheezing or coughing at rest
- Difficulty walking or talking
- Lips and/or fingernails are blue
- Blue puffer does not help in 10 minutes or does not last 3 hours

If you do not feel relief from your blue puffer, you need to call for help NOW. Ask another adult or neighbour to drive you to the nearest emergency room, or call an ambulance.

Use your blue puffer on the way to the hospital as much as needed.

IF YOU START TO HAVE BREATHING PROBLEMS:

- Stop all activity.
- If possible, remove yourself from exposure to the trigger.
- Sit in a relaxed position.
- Take your rescue medication (blue puffer).
- Repeat your rescue medication if you do not start to feel relief within 10 minutes.
- If you have come in contact with one of your allergy triggers, take a shower or bath when feeling better.
- If you do not feel relief from your blue puffer, you need to take action **RIGHT NOW**.

