

What is asthma?

Asthma is a common, chronic condition affecting the airways of the lungs. In Canada 12% of children and 8% of adults have asthma, which is approximately 2.5 million Canadians.¹

Asthma is characterized by *inflammation* (redness and swelling of the inside lining of the airways), *bronchospasm* (a tightening of the muscles surrounding the airways), and *excess mucus production* in the small airways of the lungs.

Sensitive airways easily become narrowed as a result of certain factors called *triggers*. Airway narrowing makes it difficult for air to move in and out of the lungs. This is when the *symptoms* of asthma appear, including shortness of breath, chest tightness, coughing and wheezing.

In Canada, asthma is one of the most common causes of emergency department visits, hospitalizations, and unscheduled doctor visits. It is also a leading cause of school and work absenteeism. Approximately 400 Canadians die each year from poorly controlled asthma and it is estimated that more than 80% of these deaths could have been prevented with proper asthma management.²

Asthma results from the interaction of genetic tendency, sensitization to allergens and exposure to allergens and other triggers. There is no cure but it can usually be controlled by minimizing exposure to allergens and irritants and by proper use of medication.

Anatomy of a normal respiratory system

When we breathe in, air passes through the nose and mouth and goes into the windpipe or trachea. The trachea divides into two branches – one branch goes into each lung. These branches called *bronchi*, continue to divide into smaller and smaller air passages, the *bronchioles*. At the end of the smallest branch are tiny air sacs, called alveoli. The alveoli take oxygen from the air we breathe and transfer it to the blood stream. They also remove carbon dioxide from the blood, so that we can breathe it out.

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¹Statistics Canada, National Population Health Survey 1998-1999. Ottawa, 2000

²Health Canada. Health and Environment – Partners for Life. Executive Summary. Ottawa: Minister of Public Works and Government Services Canada, 1997

Anatomy of asthma

Asthma changes the airways of the lungs by making them very sensitive and easily irritated. During an asthma flare-up there are three factors that can cause the airways to become narrowed:

- Inflammation: the inner lining of the bronchial tubes becomes inflamed and swollen.
- Bronchospasm: the muscles on the outside of the bronchi go into spasm and tighten.
- Excessive mucus: excessive mucus is produced inside the airways.

Common symptoms of asthma

- Coughing
- Wheezing
- Shortness of breath
- Chest tightness

There are varying degrees of severity of asthma, and symptoms can appear unexpectedly. Not all asthmatics experience all symptoms. Some may only have symptoms when they exercise or have a cold. Others may have seasonal allergies that cause asthma symptoms at certain times of the year (e.g., spring or fall).

Common triggers of asthma

- Viral Infections – common cold
- Allergens – dust mites, indoor and outdoor moulds, animals, pollens
- Irritants – smoke, fumes, chemical cleaners, perfumes, paints, weather changes
- Exercise – most often running, but any intense exercise can cause symptoms

Laughing and crying, like exercise, cause rapid breathing and may act as triggers.

What to do if someone is having an asthma attack (recognized by increased coughing, wheezing, shortness of breath)

- Have the person SIT DOWN to rest, not lie down.
- Speak calmly, don't panic – reduce anxiety.
- Encourage the use of reliever medication.
- If the person does not respond to the medication, or if the attack seems severe, call an ambulance or transport to the nearest emergency facility. More medication may be required to reverse the attack.

When to see a physician or go to the emergency department

Asthma is becoming worse when:

- There is a night-time cough or wheeze;
- Previously tolerated activities become too difficult;
- Reliever medications are used more frequently for symptom relief.

Go to the Hospital Immediately when:

- There is a bluish/gray colouring of the lips or fingernails;
- The skin is “sucked in” with each breath, at the neck or around the collar bone;
- The person becomes lethargic or loses consciousness.

SEVERE ASTHMA IS A MEDICAL EMERGENCY

Did you Know?

Pregnant? Well controlled asthma is important for your baby's health. See your physician.

Cigarette smoke is a potent asthma trigger. Do not smoke yourself and avoid second-hand exposure to cigarette smoke.

Consult a physician for diagnosis and treatment. The information contained in this brochure is not a substitute for professional medical advice. Mention of product brand names does not constitute endorsement.

Asthma can be controlled

See your physician if symptoms are disrupting your sleep and activities or if you are using your reliever medication more than prescribed.

- Awareness: Obtain a professional diagnosis, including an allergy assessment. Seek on-going care from a knowledgeable physician.
- Avoidance: Avoid triggers as much as possible, including dust mites and cigarette smoke.
- Action: Use preventative medications as prescribed. Ask your physician for a written Action Plan.

How is asthma controlled?

Environmental Control:

- An allergy assessment will determine if the home environment needs to be modified.
- Maintain relative humidity between 30 and 50 per cent.
- Eliminate environmental tobacco smoke.

Medications:

There are two main categories: *Controllers* and *Relievers*

Controllers, also known as preventers, are anti-inflammatory medications that work to prevent and reduce inflammation (redness and swelling) inside the air passages of the lungs. These medications make the airways less “twitchy”, so they don't go into spasm as easily. They also help to reduce the build-up of excess mucus in the airways. Controller medications are used on a long-term basis (meaning weeks, months, or years), not just during an asthma flare-up. Some examples are:

- Corticosteroids -- Pulmicort®, Flovent®, Qvar®
- Leukotriene Inhibitors (LTRA) -- Singulair®, Accolate®

Even when asthma symptoms disappear, there may still be some inflammation in the airways. Therefore, continued use of controller medications is just as important after a flare-up has subsided. The Canadian Asthma Consensus Guidelines state that the treatment of asthma should focus on managing inflammation and that inhaled corticosteroids are the preferred first-line anti-inflammatory therapy for all ages. Research has shown no long term negative effects from using inhaled corticosteroids as prescribed. Short term effects, such as “thrush” or hoarseness can usually be remedied with proper inhaler technique and by rinsing the mouth after using the inhaler.

Leukotriene inhibitors (LTRA's) are medications in tablet form that may also be used to reduce inflammation.

They may be used as an additional treatment in some patients or as an initial treatment in those who cannot or will not use corticosteroids.

Relievers, also known as “rescue” medications, are bronchodilators. They work by relaxing the muscles around the outside of the airways that have gone into spasm during an asthma attack, thus opening the airways. Relievers work quickly. Their effects are usually felt within one to five minutes and can last up to twelve hours. Some examples of reliever medications are salbutamol (Ventolin®) and terbutaline (Bricanyl®).

Reliever medications may be used to prevent asthma symptoms before exercise. They are generally used on a short-term basis, no more than one dose four times a week in addition to use prior to exercise. If required more than four times a week, it may indicate inadequate control of asthma, and the patient should be re-assessed by a physician.

Combination medications, such as Symbicort® and Advair®, are also available. They contain a long-acting bronchodilator and an anti-inflammatory medication in one device, and may be used for patients with more severe asthma.

Delivery devices for inhaled asthma medications include metered dose inhalers (MDI) and dry powder inhalers. It is important to use these devices correctly so that the proper dose of medication reaches the airways. Ask your physician, asthma educator or pharmacist to check your technique.

A spacer device, such as an AeroChamber®, may be recommended. It is a tube that can be attached to an MDI to improve the delivery of the medication.

Feeling better? Keep taking your Controller medication!

Asthma not well controlled? Go back to your physician so that your treatment can be adjusted.

