

Mild - Moderate Asthma

What is asthma?

Breathing is something that most Canadians take for granted, but for Canadians who have asthma, breathing can be a challenge. Asthma is a chronic disease of the airways caused by swelling and inflammation of the airway, lining, and tightening of the muscles around the airways, which block the flow of air through the lungs.

Asthma symptoms typically include cough, wheeze, shortness of breath, chest tightness and increased mucous production. With increased airway inflammation, the lining of the airways become irritated and swollen, leading to an exacerbation of symptoms.

What triggers asthma?

In the presence of specific triggers, patients with asthma can experience worsening of their symptoms. Triggers can be environmental and include allergens, such as pollens, mold spores, pet dander, and dust mites, and irritants, such as strong odours, air pollution, or tobacco smoke.¹ Seasonal allergies can also make asthma worse. Apart from allergens and irritants, exercise, cold air, and intense emotions can also provoke or worsen asthma symptoms as can exposure to second-hand smoke.² The causes of asthma are complex and include genetic factors, allergen exposure, and hormonal influences.³

How is asthma diagnosed?

The diagnosis of asthma entails taking a detailed medical history, conducting a physical examination of the nose, throat, and upper airways, using a stethoscope to listen for the presence of wheezing in the lungs, and evaluating the skin for allergic conditions such as skin eczema.

Spirometry⁴ is the principal test that clinicians use to assess pulmonary function and determine if an individual has asthma (and other diseases like chronic obstructive pulmonary disease). Patients are asked to inhale and then exhale into a tube which is attached to a spirometer. The spirometer records the volume a patient exhales and the speed with which a patient exhales. When the measures are below normal, taking into account someone's age, it may be a sign that asthma is present. Allergy tests may also be done to look for allergic triggers.

1 Gautier C, Charpin D. Environmental triggers and avoidance in the management of asthma. *Journal of Asthma and Allergy*. 2017 Mar 7; 10:47-56.

2 Ibid.,

3 Ibid.,

4 Luk LJ, Rotella MR, Stillman LJ, Wise SK. Assessing asthma in the otolaryngologist's office. *Current Opinion in Otolaryngology & Head and Neck Surgery*. 2017 Feb 23.



How prevalent is asthma?

An average of 115,832 cases of asthma are diagnosed annually in Canada,⁵ which means 12 Canadians are diagnosed with asthma every hour. It is the third- most common chronic disease in Canada, affecting 2.4 million Canadians or 8.5 per cent of our population.⁶ Nearly 500,000 children aged 4 through 11 have asthma or 15.6 per cent of children in that age group.⁷

Some Canadians are hit harder by asthma: it is 40 per cent more prevalent among First Nations, Inuit, and Metis communities than in the general Canadian population.⁸

How is asthma treated and managed?

Asthma patients generally take two types of medications: one to address the underlying inflammation in their airways and one to treat symptoms when they occur such as wheezing or shortness of breath.

Inhaled corticosteroids are taken to address the underlying inflammation associated with asthma. When asthma control is still not achieved with inhaled corticosteroids, additional medications such as leukotriene receptor antagonists (LTRAs) can be prescribed. LTRAs are available in tablet form and as sprinkles for very young children. Rescue inhalers or asthma “puffers” are taken when a patient with asthma has shortness of breath. These inhalers relax the muscles around the airways and open up the airways. They can be used in a preventative manner, for example, before exercise to prevent an asthma attack.

There are also combination medications that consist of an inhaled corticosteroid, which decreases inflammation, and a long-acting beta2-agonist, or long-acting bronchodilator, that opens up the airway for up to 12 hours.

One of the first steps that a patient with asthma can take to treat and manage their asthma, is to avoid or minimize exposure to triggers that bring on or worsen asthma.

Does asthma impact the Canadian healthcare system and the economy?

Indeed, asthma takes a toll not only on patients, but on the Canadian healthcare system and on the Canadian economy. Asthma is a major reason for why children in Canada are hospitalized.⁹ In 2015, 70,000 emergency room visits were due to asthma attacks.¹⁰

5 The Ontario Asthma Surveillance Information System (OASIS) and the Institute for Clinical Evaluative Sciences (ICES), Ontario. Asthma statistics. <http://lab.research.kids.ca/oasis/oasis-statistics>.

6 Government of Canada, Statistics Canada. (2010) Canadian Community Health Survey (CCHS)—annual component. Ottawa: Statistics Canada.

7 Government of Canada, Public Health Agency of Canada. (2007, November 21). Life and Breath: Respiratory Disease in Canada.

8 Tait, H. (2008). In Statistics Canada, Statistics Canada and Canadian Electronic Library (Firm) (Eds.), Aboriginal peoples survey, 2006: Inuit health and social conditions. Ottawa, Ont.: Statistics Canada.

9 Public health agency of Canada (2007). Life and breath: Respiratory disease in Canada. Ottawa, ON.

10 Canadian Institute for Health Information: Asthma Emergency Department Visits: Volume and Median Length of Stay, 2014-2015, <http://indicatorlibrary.cihi.ca/display/HSPIL/Asthma+Emergency+Department+Visits%3A+Volume+and+Median+Length+of+Stay>



About one in 10 Canadians with asthma have said that they have gone without their medication, either not filling a prescription or skipping a dose of medication, because of cost.¹¹ Many insurance carriers do not offer comprehensive coverage to asthma patients, making it prohibitive for them to gain control of their asthma and leaving them vulnerable.¹²

The Conference Board of Canada put the cost of hospitalization due to asthma at more than \$250 million in 2010.¹³ Apart from direct costs related to healthcare for asthma patients (such as medications and visits to the doctor), there are indirect costs owing to lost productivity. The cost of asthma to the Canadian economy is expected to climb to \$4.2 billion annually by 2030.¹⁴

What are the differences between mild-to-moderate asthma and Severe Asthma?

Patients who have mild-to-moderate asthma can control their disease with medications and largely avoid visits to hospital emergency rooms. By comparison, patients who have Severe Asthma in spite of high doses of medications may still be unable to control their disease. They are susceptible to asthma attacks that lead them to emergency rooms, hospital admission, and even death. Patients with Severe Asthma may have to curtail activities in their daily lives including work, sports, school, and social events.

Medication for Severe Asthma often include oral steroids, but medications called biologics, which are taken by injection, are being approved by regulatory bodies for management of Severe Asthma.

11 Canadian Institute for Health Information. How Canada Compares: Results from The Commonwealth Fund's 2016 International Health Policy Survey of Adults in 11 Countries. Ottawa, ON: CIHI; 2017.

12 Executive Summary: Severe Asthma – The Canadian Patient Journey: A study of the personal, social, medical, and economic burden of Severe Asthma in Canada, Asthma Society of Canada, 2014, pg. 3.

13 Theriault L., et al. (2012). Cost risk analysis for chronic lung disease in Canada. Ottawa: The Conference Board of Canada.

14 Conference Board of Canada (2012) Cost Risk Analysis for respiratory health in Canada, <http://www.conferenceboard.ca/e-library/abstract.aspx?did=4585>