

# Asthma -- Breathtaking News

## The patient's guide to asthma care

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with the participation of representatives of:

- Canadian Association of Emergency Physicians, Asthma Advisory Group
  - Canadian Network for Asthma Care
  - Canadian Paediatric Society
  - Canadian Society of Allergy and Clinical Immunology
  - Canadian Thoracic Society, Asthma Committee
  - Family Physician Asthma Group of Canada
  - National Asthma Control Task Force to Health Canada's Laboratory Centre for Disease Control
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As this article goes to press (November/99), recommendations for treating patients with asthma are being reviewed by the Canadian medical community to be disseminated early in 2000 to family physicians and specialists across the country through their medical journals. This information will also be available to patients at the Canadian Medical Association Journal's Web site. Watch for it at [www.cma.ca/cmaj](http://www.cma.ca/cmaj).

According to recent Health Canada surveys, there are serious gaps between how asthma should be treated and how it actually is.

This is why the Allergy/Asthma Information Association (AAIA) and concerned government branches, physician groups and corporate partners have come together to offer, direct-to-you, the following information on asthma and its treatment.

Use it in good health!

### STATISTICS

- More than 2.2 million Canadians have been diagnosed with asthma at some time in their lives.
- An estimated 10% of children and 5% of adults currently have asthma, making it one of the most prevalent chronic conditions in Canada.

### IS YOUR ASTHMA WELL-CONTROLLED?

If you need your quick relief (Reliever) medication as little as four times per week (not counting use for prevention of exercise-induced asthma), your asthma is probably *not* well-controlled. This may sound surprising, even shocking, but it's true. Up to 85% of people with asthma can live virtually symptom-free, or well-controlled, needing little or no quick relief at all! Most of the other 15% can be greatly aided by the information in this guide.

## WELL-CONTROLLED SYMPTOMS

You or your child's asthma is WELL-CONTROLLED if you:

- have symptoms of coughing, wheezing, or shortness of breath 3 or fewer days per week;
- can carry out most desired activities, work and play, without having asthma symptoms;
- wake at night or early in the morning because of your asthma 1 or 0 nights per week;
- have no sudden, severe or unpredictable flare-ups; and
- need your quick relief medication 3 or fewer times per week.

If this describes you, then you have asthma that is well-controlled. As with all asthma, however, you need to monitor your symptoms in case they worsen.

### ***Signs of Dangerous Asthma***

*About 10-15% of asthmatics suffer more seriously from the disease and are at higher risk of having "out of control" asthma.*

***IF YOU EVER...***

- \* *get only temporary relief (1 to 4 hours) or none at all after using your quick relief medication or*
- \* *have difficulty speaking normally because of your asthma*

***THIS IS AN EMERGENCY....SEE YOUR DOCTOR OR GO TO THE HOSPITAL RIGHT***

## HOW DO DOCTORS DIAGNOSE ASTHMA?

Diagnosis of asthma should involve the following steps:

- assessing symptoms of cough, wheeze, chest tightness and shortness of breath;
- assessing severity of symptoms; do they
  - occur daytime and/or nighttime?
  - occur with physical activity?
  - occur frequently?
  - lead to missed play/school/work?
- assessing family history of asthma, allergies;
- assessing possible allergies to inhalants and/or food; other signs of allergy of the skin, nose and intestine;
- referral for allergy testing (includes infants);
- referral for breathing tests.

## LIVING WITH ASTHMA: THE EXPERIENCES OF OTHER PATIENTS

### [Allergy/Asthma Information Association \(AAIA\)](#)

A national organization devoted to helping fellow asthma, allergy and anaphylaxis sufferers, the Allergy/Asthma Information Association (AAIA) publishes current information medically screened by the Canadian Society of Allergy and Clinical Immunology, holds support groups, provides telephone support and referrals and advocates at national and regional levels.

Services are available through membership or donations. Call us at 1-800-611-7011.

## HOW DO DOCTORS TREAT ASTHMA?

Treatment of asthma should involve all of the following steps:

- controlling symptoms as rapidly as possible by:
  - assessing home/school/work asthma triggers and
  - recommending avoidance; and
  - prescribing medication (steroids, inhaled or — if needed — oral, and a quick relief medication);
- referral for asthma education;
- checking inhaler technique;
- scheduling a follow-up appointment; and
- providing personalized instructions to keep track of quick relief puffs used per week and an Action Plan of what to do in case of a flare-up.

At follow-up appointment(s):

- redoing breathing tests;
- rechecking inhaler technique;
- reviewing medication; and
- providing individualized instructions to keep track of quick relief puffs used per week and reviewing the Action Plan of what to do in case of a flare-up.

This process of appointments and follow-ups continues until patients and caregivers:

- know the signs of well-controlled and out-of-control asthma;
- understand the need to avoid triggers whenever possible;
- understand the need for anti-inflammatory medication;
- learn how to adjust their medication quickly at the first signs of a flare-up; and
- understand that an asthma educator and patient associations can help them learn all of the above.

### ***How Asthma puts the “Squeeze” on Breathing***

*The inflamed lining of the breathing tubes causes the “squeeze” of muscles surrounding them, leading to feelings of chest tightness, shortness of breath, mucus production and coughing.*

## WHAT'S HAPPENING IN MY BODY?

### **INFLAMMATION**

Asthma is an immune system overreaction of the lining of the airways — the breathing tubes — in the lungs. If you were to accidentally spill hot liquid onto your hands, or if you could sunburn your airways, they would look scalded and swollen. In asthmatics, this is what the linings of the breathing tubes look like — red, swollen — *inflamed*.

The following are the most common airborne triggers which can lead to inflammation and worsening asthma:

- ALLERGENS, such as house dust mites, animal dander, moulds and cockroaches;
- COLD VIRUSES and other infections;
- IRRITANTS, such as cigarette smoke and outdoor air pollution.

*There are many others.*

### ***Irritants***

- *Temperature changes (bursts of cold or hot air, or seasons which bring colder or warmer air);*
- *Perfumes and colognes; and*
- *Strong toxic chemical smells, such as gasoline, marker pens or household cleaners.*

## **CASCADING SYMPTOMS**

Once the airways are inflamed, a number of asthma symptoms may follow. A scald or burn begins to secrete fluid. Inflamed breathing tubes can secrete mucus which can clog them.

But something else can happen, too. Surrounding the breathing tubes, there are bands of muscle whose natural purpose is to contract and relax depending on physical activity. When we breathe into inflamed tissue (which obviously cannot be avoided), the bands of muscle contract more than they would if the airways weren't inflamed. The muscles tense and tighten, squeezing the breathing tubes, so that less air can move in and out. Narrowing of the breathing tubes feels like shortness of breath or breathing discomfort. Finally, a whistling (wheezing) noise as an asthmatic breathes and coughing may follow.

## **TRIGGER AVOIDANCE: A CLOSER LOOK AT PREVENTION**

### **ALLERGENS**

One contact with an allergen can lead to a series of immune system reactions that can go on for days or weeks, re-triggering airway inflammation long after the initial allergic exposure. This is how *ongoing* allergen exposure leads to *ongoing* inflammation and asthma.

Presently there is no reliable way to calm down this immune system over-response except to prevent or reduce exposure to allergens. Scientifically proven ways to remove or reduce particular allergy triggers that can improve your asthma include:

- buying dust mite-proof encasings for your pillows and mattresses (including the box spring);
- removing carpeting from the bedroom of the allergic person;
- removing carpeting everywhere in the home;
- keeping household humidity below 50%;
- removing pets from the home (washing will not reduce allergen levels enough);
- avoiding outdoor activity in early to late morning during pollen seasons when you are allergic.

### **IRRITANTS**

Non-allergic triggers are less persistent in their effect on the immune system. They are considered irritants which, when removed, can lead to relatively rapid alleviation of asthma symptoms. Regular exposure, however, can lead to recurrent, chronic symptoms. Removing or avoiding irritants is generally easier than allergen avoidance. Unnecessary exposure to these should be avoided or eliminated altogether where possible.

### **CIGARETTE SMOKE**

Young children have smaller, more delicate airways than adults. When exposed to passive smoke, many children develop sensitive airways, which make them more susceptible to a number of problems, including asthma. Research has shown that children who live with smokers have higher rates of asthma.

## **EXERCISE-INDUCED ASTHMA**

Exercise triggers asthma symptoms in almost all asthmatics, mild to severe. Symptoms may be prevented by doing warm-up exercises and using your Reliever inhaler about 15 minutes before activity likely to bring on symptoms.

## **INDOOR/OUTDOOR AIR QUALITY**

Because our energy-efficient homes let less outdoor air in and less indoor air out, indoor allergens, such as house dust mite, animal dander or moulds, can accumulate in indoor air. In effect, we are continuously breathing in higher concentrations of allergens. There is a causal link between indoor air pollution and the onset of asthma.

Solutions to this problem include:

- reducing sources of indoor allergens (e.g. carpeting);
- keeping humidity below 50%;
- decontaminating mouldy places, such as basements, humidifiers, and bathroom tiles;
- increasing ventilation throughout the home; and
- seeking the advice of a professional indoor air quality expert (see resources section).

Outdoor pollution worsens (but does not cause) asthma symptoms.

- Exposure should be avoided when ground level ozone concentrations are highest — in late afternoon, especially on very sunny days which contribute to increased smog levels.
- Observe smog alerts and stay indoors on these days.

### ***Second-hand Smoke: A contributor to Asthma and Indoor Air Pollution***

- *Make your home and car smoke free;*
- *Don't smoke or find a program and/or medication to help you stop;*
- *Avoid smoky environments;*
- *Don't let anyone smoke around you or your children; and*
- *Work or go to school in a smoke-free environment*

## **MEDICATIONS: A CLOSER LOOK AT CONTROL**

The ideal asthma controller is avoidance of triggers. Learning to avoid them will, in the long run, minimize symptoms and the need for medication. On the other hand, medication should never be used as a way to *cover up* symptoms, for instance, to keep the cat.

Unfortunately, total avoidance of triggers is not always possible. Since you have to breathe, you're likely to end up with some inflammation. With some unusual exceptions, this means medication will have to be part of having well-controlled asthma, even in mild cases.

## **CONTROLLERS**

The most important asthma medication is an anti-inflammatory "Controller." When you take it daily as prescribed, you can *control* your asthma symptoms. Indeed, you may feel almost asthma-free.

Here are some anti-inflammatory Controller-type drugs your doctor may prescribe:

- non-steroidal inhaler;
- low-dose inhaled steroid;
- high-dose inhaled steroid;

- steroid pill;
- leukotriene receptor antagonist (LTRA) pill.

Your pharmacist can be a good resource to help you understand the role of each type of asthma medication and how to use them.

### ***The Expanding Role of your Pharmacist***

*Shoppers Drug Mart HEALTHWATCH® Pharmacists have been specially trained to help you better understand:*

- *asthma and your asthma triggers;*
- *the role of your medications and how to use them properly;*
- *the need to use additional devices, such as spacers.*

*In addition HEALTHWATCH® Pharmacists provide:*

- *a personalized Asthma Plan;*
- *instruction sheets on asthma devices; and*
- *information and instruction sheets on Peak Flow Meters.*

### **RELIEVERS**

Your quick relief medication is meant to work in 1 to 3 minutes and last 4 to 6 hours. Your goal is *to not need it*, at least not more than 3 times a week. As you increase anti-inflammatory Controller medication, your need for a Reliever will decrease.

### **INHALED STEROIDS**

Inhaled steroids offer the best option for the initial anti-inflammatory treatment of asthma. The initial dose in adults is usually 400 mcg daily of Beclovent/Becloforte (beclomethasone) or its equivalent in Pulmicort (budesonide) or Flovent (fluticasone). Ask your doctor. One to two inhalations are usually taken morning and evening. In more severe asthma, higher doses may be required.

The initial dose in *children* is usually 200 to 1,000 mcg daily of Beclovent/Becloforte (beclomethasone) or its equivalent in Pulmicort (budesonide) or Flovent (fluticasone). Ask your doctor. One to two inhalations are usually taken morning and evening. Higher doses are rarely required.

### **SAFETY OF INHALED STEROIDS**

Children who consistently use high doses of Beclovent/ Becloforte (beclomethasone) or its equivalent in Pulmicort (budesonide) or Flovent (fluticasone) to maintain well-controlled asthma should:

- always rinse and spit after using their inhaled steroid;
- have their height measured regularly with a special instrument called a calibrated stadiometer; and
- ask to be referred to a specialist for assessment.

*Adults* who consistently use high doses of Becloforte (beclomethasone) or its equivalent in Pulmicort (budesonide) or Flovent (fluticasone) to maintain well-controlled asthma should:

- always rinse and spit after using their inhaled steroid;
- ask to be referred to a specialist for assessment;
- have the pressure inside the eyeball checked on a regular basis, particularly if they have a family history of glaucoma; and
- ask to be referred for a test to measure bone density, especially if there are other risk factors for osteoporosis.

### ***Add-On Medications***

*If asthma is not adequately controlled with moderate doses of inhaled steroids, other “add-on” drugs may be tried. These include LTRAs including Accolate and Singulair (pill form), long-acting bronchodilating Controllers, such as Serevent (salmeterol), Advair (salmeterol / fluticasone combination) or Oxeze or Foradil (formoterol). Less often, theophylline (pills), ipratropium or nedocromil (inhalers) may be added.*

## **LEUKOTRIENE RECEPTOR ANTAGONISTS (LTRAs)**

The newest class of anti-inflammatory Controller drugs is called leukotriene receptor antagonists (LTRAs). They are not steroids and are not inhaled but are in pill form. These drugs may be combined with inhaled steroids as a means of keeping the dose of steroids as low as possible. For patients who choose not to use low doses of inhaled steroids for whatever reason, these drugs can be used alone as the best possible choice among other anti-inflammatory Controller drug options.

There are currently two LTRAs available in Canada. One is called Accolate (zafirlukast), which is available for patients 12 years and older and is prescribed as one tablet twice a day for day and nighttime control. The other is Singulair (montelukast), which is available for adults and children as young as 6 years of age and is prescribed as one tablet taken daily at bedtime.

## **INHALING DRUGS**

Inhalation is the recommended way of using Relievers and steroid Controllers. These medications are available in an aerosol puffer (metered dose inhaler, MDI) or in a special device called a dry powder inhaler (DPI).

For children under 5 years of age, aerosol puffers are recommended and must be used with a special tube and mask attachment called a spacer. The aerosol puffer, or MDI, remains a popular inhaler for children 6 and up and adults, with or without a spacer.

The aerosol puffer, however, is changing. Inhalers contain a gas called chlorofluorocarbon (or CFC) to help spray the medicine into your lungs. CFCs, while safe for you, harm the ozone layer, which protects us from the sun’s burning rays.

There is one CFC-free inhaler on the Canadian market, a Reliever medication (salbutamol) called Airmir. Since all aerosol puffers will become CFC-free in Canada by 2005, with a projected 60% phase-out of current MDI inhalers by 2001, CFC-free puffers are being prescribed increasingly over what you might be using now. Ask your doctor for a CFC-free version of your current salbutamol Reliever.

Many people prefer the dry powder inhaler, which is already CFC-free. The action of breathing in with the inhaler in your mouth is how the medicine gets into the lungs. This kind of device may not be appropriate for children under 5 years of age because they may be unable to breathe in hard enough to actuate the drug.

## **ADJUSTING MEDICATIONS**

Once well-controlled asthma is achieved (need for Reliever 3 or fewer times per week), your inhaled steroid should be reduced to the lowest possible dose needed to maintain control.

### ***Action Plans***

*Asthma is a variable disease. It can improve and worsen. Asthmatics need to learn to keep track of symptoms with a Peak Flow Meter so they can increase medication at **the earliest sign of a flare-up**, before asthma gets out of control.*

*A Peak Flow Meter is a small blowing device. When your asthma flares, the meter readings drop. Your doctor’s written Action Plan will indicate at what peak flow reading you should begin taking more Controller medication.*

## A Final Word

This article is intended as a basis for questions for your doctor, pharmacist, asthma educator, discussions with family, friends, teachers and coworkers who need to better understand asthma and for the individual or caregiver to take steps toward better control of the asthma they're living with.

*You control the road to better health!*

### Further resources

#### FOR PATIENT ORGANIZATION INFORMATION:

- Allergy/Asthma Information Association 1-800-611-7011 <http://www.aaia.ca> (hosted by Calgary Allergy Network)
- Asthma Society of Canada 1-800-787-3880 <http://www.asthmasociety.com>
- Canadian Lung Association 1-888-566-5864 <http://www.lung.ca>
- Osteoporosis Society of Canada 1-800-463-6842 <http://www.osteoporosis.ca>
- Pollution Probe (416) 926-1907 <http://www.pollutionprobe.org>

#### FOR INFORMATION ON ASTHMA EDUCATION PROGRAMS:

- Canadian Network for Asthma Care <http://www.cnac.net>

#### SPONSORS AND PARTICIPANTS' SITES:

- AstraZeneca <http://www.astrazeneca.com>
- GlaxoWellcome <http://www.glaxowellcome.ca>
- Merck Frosst <http://www.merckfrosst.com>
- Shoppers Drug Mart <http://www.ShoppersDrugMart.ca>
- 3M Pharmaceuticals <http://www.3M.com/canada>
- Canadian Association of Emergency Physicians <http://www.caep.ca>
- Canadian Paediatric Society <http://www.cps.ca>
- Canadian Society of Allergy and Clinical Immunology <http://www.hc-sc.gc.ca/hpb/lcdc>
- Canadian Thoracic Society <http://www.lung.ca>
- Family Physician Asthma Group of Canada <http://www.newcomm.net/fpage>
- Health Canada <http://www.hc-sc.gc.ca/hpb/lcdc>

#### FOR INFORMATION ON AEROSOL INHALERS AND THE OZONE LAYER:

Environment Canada Web site: <http://www.ec.gc.ca/ozone/mdi>

#### TO ORDER ALLERGY/ASTHMA PRODUCTS:

- Canadian MedicAlert Foundation <http://www.medicalert.ca>
- QUORUM Allergy and Asthma Products 1-800-501-5115 <http://www.quorumallergy.com>

#### FOR ADVICE ON THE INDOOR HOME ENVIRONMENT:

- Canada Mortgage and Housing Corporation (CMHC) 1-800-668-2642
- Solutions Eco Air 2000 1-800-806-8001

**OTHER USEFUL SITES:**

- Association of Allergists and Immunologists of Quebec <http://www.allerg.qc.ca/englishversion.html>
- Health scams- Quackwatch <http://www.quackwatch.com>



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French version (<http://www.calgaryallergy.ca/French/homemakersasthmafrench.html>)

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