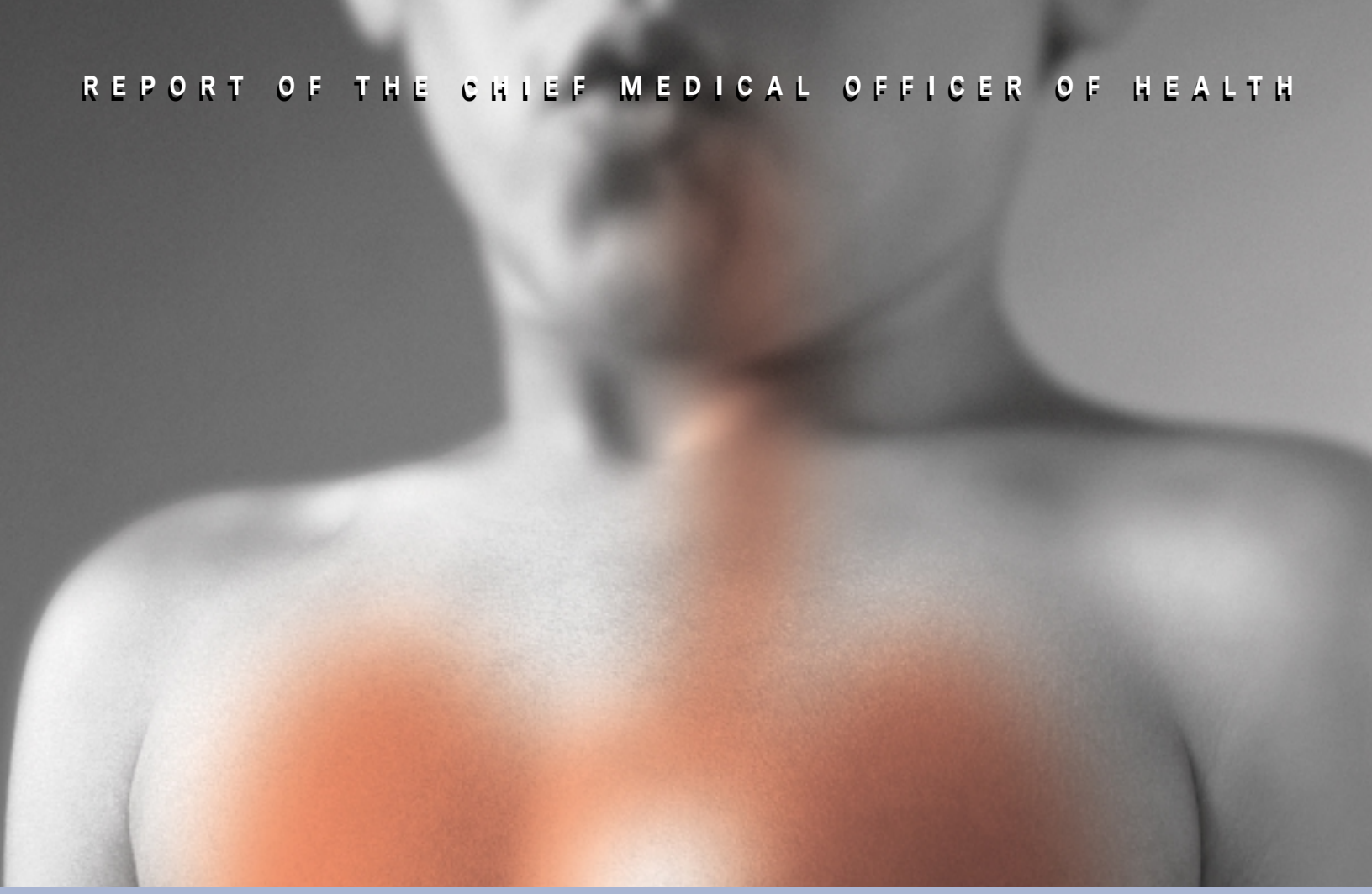
REPORT OF THE CHIEF MEDICAL OFFICER OF HEALTH



Taking Action on asthma

Ontario
Ministry of Health
and Long-Term Care

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A Message from Ontario's Chief Medical Officer of Health

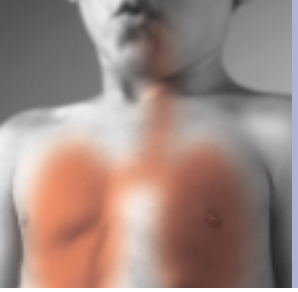
Asthma is a chronic respiratory disease that impacts both one's health and daily functioning. Over the past two decades, the prevalence of asthma has markedly risen in Ontario and around the world. This increase is particularly evident amongst school-aged children, with approximately 12 per cent of Ontario children and seven per cent of Ontario adults being diagnosed with asthma.

Currently, asthma is the leading cause of hospitalization for children in Ontario and is a significant cause of school and work absenteeism. In 1996, there were 192 deaths directly attributable to asthma in Ontario.

Our goal is to minimize the onset of asthma in susceptible individuals and to control asthmatic episodes amongst those affected. It is increasingly evident that the growing number of asthmatics are contributing to rising health care costs in Ontario. Direct costs to the health care system include hospitalization and physician care, whereas indirect costs can include lost productivity due to disability, school or work absenteeism, and even premature death. However, through a process of proper control and education, we can reduce hospitalization and emergency department visits, reduce school and work absenteeism, decrease the need for medication, and most importantly, positively impact rates of asthma morbidity and mortality.

It is the role of those affected with asthma, their families, and their health care providers, to establish an optimum asthma management plan for that individual. However, a greater understanding of the disease and its management is also needed, as is a shared dedication towards reducing its impact on affected individuals and on the health care system itself. Health care providers, asthmatics and their families, schools, workplaces, local boards of health, the community and governments at all levels, must work together in order to understand and better manage the impact of this disease.

Colin O. D'Cunha, MBBS, MHSc, FRCPC
Chief Medical Officer of Health



What is asthma?

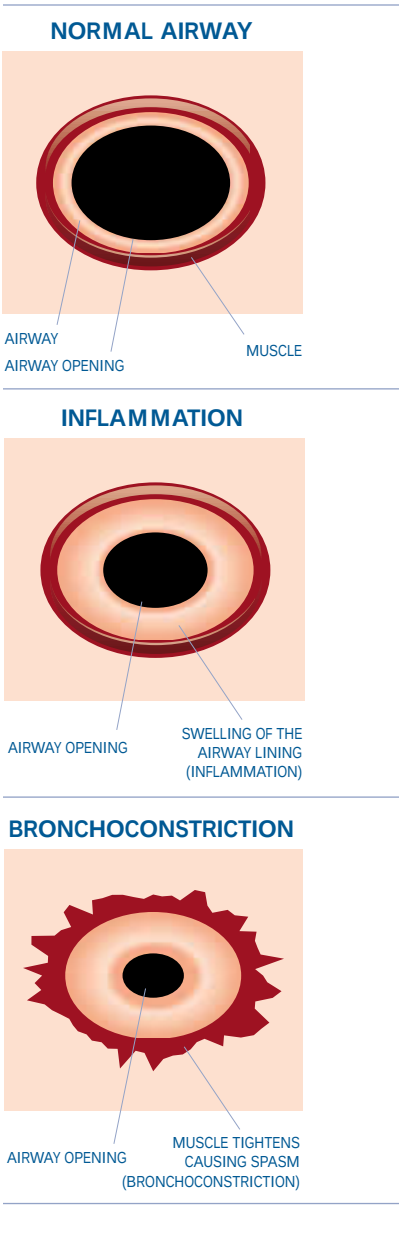
Asthma is a chronic lung condition characterized by difficulty in breathing. Common symptoms include severe or persistent shortness of breath, chest tightness, wheezing and coughing with a narrowing of the airways (bronchial tubes), and airway irritation from a variety of stimuli. Narrowing of the airway develops in one of two ways:

1. The airway becomes swollen and plugged with mucus (inflamed), therefore reducing and constricting the opening. This inflammation can last from just a few hours, to a few days.

2. The muscles in the walls of the airway tighten and go into spasm (bronchoconstriction).

The severity of an asthma episode can range from mild to life threatening. Some people with asthma are generally symptom-free, with occasional mild episodes of shortness of breath, whereas others cough and wheeze frequently and experience severe attacks after viral infections, exercise or exposure to irritants. An asthma attack may begin suddenly, or its onset may be slow with a gradual worsening of symptoms. These attacks can last for a few minutes or in severe cases, for several hours. When an asthma attack or episode does occur, the airways become narrower than normal. Airways can also become smaller when the muscles around the airway tighten; more mucus (phlegm) is produced in the airways and blocks the airflow, and the inside of the airways swell (causing inflammation). This makes it harder for air to go in and out of the lungs.

Asthma can also be difficult to diagnose properly because its symptoms may be similar to those of other respiratory conditions, such as bronchitis.



Why is asthma an important public health issue?

The incidence of asthma has been increasing in the last few decades in the developed world, especially amongst children. Asthma is now a serious chronic condition in Ontario and in Canada. Asthma impacts the quality of life of those affected with the disease, as well as their families. According to the 1996-97 National Population Health Survey, more than 2.2 million Canadians had been diagnosed with asthma by a physician at some time in their lives (12.2 per cent of children ages 0-19 years and 6.3 per cent of adults). The same survey found that approximately 10 per cent of Canadian children and five per cent of adults had asthma at the time of the survey (defined as having asthma diagnosed by a physician, and either being on medication or having experienced symptoms in the past 12 months).

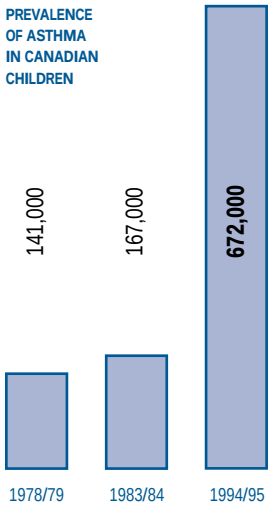
The negative impact on asthmatics from direct or second-hand smoke is significant.

The prevalence of asthma in Canadian children aged 0-14 years increased from 141,000 children in 1978/79, to 167,000 children in 1983/84, and then to 672,000 children in 1994/95. This is a dramatic increase from 2.5 per cent to 11.2 per cent of children under 14 years, over a period of 18 years.

Asthma is also becoming more prevalent among low-income adults over the age of 35 years. It is not clear at this time whether that higher prevalence can be attributed to lifestyle (e.g. higher smoking rates, diet), residential status, occupation or other factors.

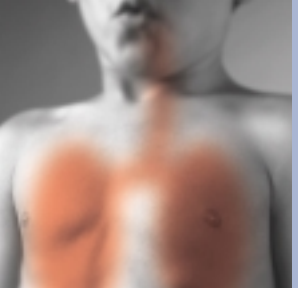
In the 1996/97 Ontario Health Survey (OHS), 694,928 people over the age of 12 years (7.5 per cent of the population) self-reported asthma. Of these, 59 per cent reported asthma symptoms or attacks in the past 12 months, 70 per cent had taken asthma medication in the last month, and 78 per cent had taken medication in the previous year. Over 48,000 individuals reported restricted activity due to asthma either at home, school, or work.

The negative impact on asthmatics from direct or second-hand smoke is significant. In the OHS, 72 per cent of respondents agreed with the statement, "second-hand smoke can cause bronchitis, emphysema, or asthma in a non-smoker", while 88 per cent agreed with the statement "second-hand smoke can cause bronchitis, emphysema, or asthma in a smoker". In addition, 78 per cent agreed with the statement, "children exposed to second-hand smoke are more likely to have ill health".



Yet, despite these statistics, 35 per cent of people with asthma were regularly exposed to smoke inside their home. Thus, it is evident that a change in attitudes and behaviors around smoking is especially important for asthma sufferers.

Asthma is a significant cause of absenteeism from school and the workplace. In Ontario, it is the leading cause of hospital admission for children. The asthma hospital separation rates in Ontario for children aged 0 to 14 years increased from 252.9 (per 100,000) in 1974/75, to 670.9 in 1987/88, and then decreased to 463.5 in 1994/95. Hospital separation rates provide an indication of the burden of severe asthma attacks, but reflect only the proportion of individuals discharged from hospital under the diagnosis of asthma. They do not reflect the burden of visits to family physicians, clinics, and emergency rooms due to asthma, or undiagnosed cases of asthma. This burden is certainly greater than current available statistics would indicate.



Asthma is the underlying cause of more than 155 deaths per year in Ontario. Since 1971, the rates* for females have fluctuated with a low of 0.7 deaths per 100,000 in 1978, to a high of 1.7 deaths per 100,000 in 1989. The rates* for males have similarly fluctuated from a low of 0.8 deaths per 100,000 in 1977, to a high of 2.0 deaths per 100,000 in 1986.

Visits to emergency rooms may also indicate a sign of poorly controlled asthma. The 1996/97 National Population Health Survey: Asthma Supplementary Survey, found that 18 per cent of individuals with asthma had visited the emergency department at least once in the past year.

The Economic Burden of Asthma:

1. Costs to the Health Care System

An estimate of the total cost of asthma in Canada in 1990 is between $504 million and $648 million. Sixty-one per cent ($306 million) of all asthma costs were direct costs such as in-patient care, emergency visits, physician services, nursing services, and drugs. Drug costs were by far the single largest component of direct costs ($124 million), followed by hospital in-patient care ($84.4 million) and physician services ($46.6 million). Indirect costs accounted for $197.7 million and included those costs related to travelling, absence from school, disability, and premature deaths. Illness-related disability was the largest contributor to indirect costs ($75.8 million), followed by absence from school ($55.1 million) and premature deaths ($54.8 million).

Health Canada data on the economic burden of illness in 1993 for Chronic/Bronchitis/Emphysema/Asthma combined, reports direct costs (drugs, physicians, hospitals, and research) of $1.3 billion and indirect costs (long-term and short-term disability) of approximately $3 billion, for a total cost of $4.3 billion. This more recent cost data does not show the costs of asthma alone, but reveals that the economic burden of these respiratory diseases is a substantial one.

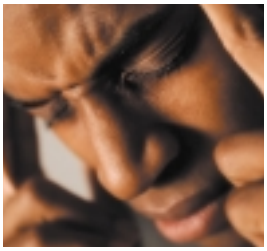
In Quebec, a study of the cost of hospitalization for asthma in that province for the year 1994/95, revealed a total cost of $17.9 million, with an average cost of $1,400 per hospital stay. A higher cost estimate was determined by using an index reflecting the relative use of resources (NIRRU). A NIRRU is able to account for the higher cost of days at the beginning of a hospitalization. The average cost per stay, using the NIRRU index, was $1,676 resulting in a total cost of $21 million.

Comparative costs are not currently available for Ontario, but a 1995/96 study conducted to assess the annual cost of asthma in adult patients in south central Ontario concluded that the unadjusted annual costs were $2,550 per patient. Hospitalizations and medications each accounted for 22 per cent of the total cost, and indirect costs made up 50 per cent of the total costs. Rates of disease severity, old age, smoking, drug plan availability and retirement were significant predictors of cost.

* age standardized to 1991 population

2. Costs to Individuals and Families

The real burden of asthma is difficult to track since a significant number of occurrences may go unreported and undiagnosed. However, for the affected individual, asthma can limit normal functioning and activities. It also affects the quality of life of the families of individuals with asthma. It can cause financial strain due to absence from work, and the need to care for children with asthma who are absent from school. Time is spent travelling and waiting for medical care. Some families have insufficient resources to purchase medication and devices (such as mattress and pillow enclosures, spacers, holding devices, and peak flow meters) needed to more effectively manage asthma. Suffering from asthma can also result in psychosocial effects and the stigmatization of those afflicted.



Asthma also affects the quality of life of the families of individuals with asthma

What are the risk factors associated with asthma?

The exact cause of asthma is not known, but it appears to be the result of a complex interaction of the following two groups of factors:

1) Predisposing Factors:

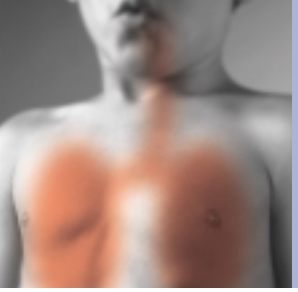
Atopy - Atopy is a greater tendency to have allergic reactions to environmental allergens. This appears to be the strongest identifiable predisposing factor for asthma.

Gender - Young boys appear to develop asthma more often than do young girls, probably as a result of their smaller airways. This imbalance reverses with age however, and by the time girls reach adulthood, it is adult women who more often develop asthma than men.

Genetics - Asthma is more common in families where at least one parent has asthma. This link is even stronger when it is the mother who has asthma.

Bronchitis and Allergies - The 1994/95 National Longitudinal Survey of Children and Youth, found that children aged 0 to 11 years, with a history of bronchitis or allergies, were much more likely to be diagnosed with asthma and to have had a recent attack, than were children without these conditions. However, because asthma is not easily diagnosed, it is possible that what is thought to be bronchitis in some children, is actually the first manifestation of asthma. Thirty-one per cent of children with a history of allergies also had asthma, compared with 10 per cent of children who did not have allergies. Also, 28 per cent of children whose biological mothers had asthma had also been diagnosed with having the disease themselves. This figure was just 10 per cent for children of mothers who did not have asthma.

Solid Food at an Early Age - Although the research is somewhat conflicting, there are indications that children who are breast-fed seem to have a lower risk of developing asthma.



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2) Triggers:

Triggers are factors that exacerbate asthma. They are exposures to causal factors that have already sensitized a person's airways. Triggers may be irritants, allergens or viral infections. Some asthmatics may react only to one trigger, others may react to several. Also, an individual's triggers may change over time.

Allergic triggers are usually detected in the air or in foods. Allergens that trigger asthma episodes vary from individual to individual. An allergy to a particular substance may take months or years to develop. As a result, something that did not affect an individual in the past could currently provoke an asthma episode. Some asthmatic children may outgrow their allergies with age. Allergens include pets, dust mites, cockroach allergen, moulds, pollen, foods and additives.

Allergens can include pets, dust mites, cockroach allergen, moulds, pollen, foods and additives.

Non-allergic triggers include respiratory infections, smoke, exercise and hyperventilation, weather changes, outdoor and indoor pollutants and, for adults, exposure to work-related agents. Viral infections are significant triggers of asthma. One study found that over 80 per cent of asthma episodes in school age children were associated with viral upper respiratory infections. In addition to triggering asthma, viral infections may sustain the episode. Chemical irritants that can provoke asthma episodes come in the form of tiny particles or gases. These can come from many sources, including common household items such as cleaning products, hairspray, deodorant, pesticides, paint, inefficient gas stoves, and residues from burning wood products. These contaminants can accumulate in our well-sealed homes and buildings and may affect people who have asthma. Since Ontarians increasingly spend more of their time indoors in sealed buildings that trap pollutants inside, it is important to remove or reduce these pollutants in the presence of people with asthma.

Two triggers, in particular, are worthy of further discussion:

Smoking - Smoking produces a mixture of over 4,500 compounds and contaminants including gases, vapours and particulate matter. Passive smoking, or exposure to second-hand smoke, is especially irritating to the respiratory system. Exposure of the fetus, infant and young child to tobacco smoke increases the risk of asthma. Active smoking, when combined with occupational sensitizers, increases the risk of developing asthma.

Outdoor Air pollution - There are few studies that illustrate a causal effect between outdoor air pollution and prevalence of asthma, but this can also trigger an asthma attack. Outdoor pollutants include industrial, vehicular, and photochemical smog.

Examples of avoidable triggers:

Tobacco smoke is an important avoidable trigger. Despite the fact that more than half (55 per cent) of school children with asthma reported that tobacco smoke brought on their asthma symptoms or made them worse, 48 per cent of them reported being regularly exposed to second-hand tobacco smoke, most often in their own homes (35 per cent).

Although 47 per cent of students with asthma reported that their asthma symptoms were triggered or worsened by exposure to household pets, 56 per cent had a pet inside the home.

New research on Ontarians strongly indicates that increases in certain air pollutants such as ground-level ozone, acid aerosols and particulate matter are associated with increases in hospitalization for respiratory disease. Children's exposure and risk to ambient air pollution can be greater than adults because they breathe faster and in summer spend more time being active outdoors. Children with chronic respiratory symptoms are particularly susceptible to the adverse effects of particulate air pollution. Hospital admissions and emergency room visits for respiratory disease have consistently a direct correlation to incidences of particulate pollution and the prevalence of respiratory symptoms and/or medication use in asthmatics. On those days when the air pollution index is at a high level, sensitive individuals are advised to remain indoors.

Occupational asthma exposure has been estimated as the cause of five per cent to 15 per cent of adult-onset asthma and this setting should be suspected in adult-onset cases of asthma. Occupational asthma is asthma associated with exposure to an agent found in the workplace. It is usually new-onset asthma but can occasionally occur in people with existing asthma. Asthma can also be aggravated in the workplace by nonspecific respiratory irritants, such as smoke, dusts, fumes and sprays.

How can we prevent and control asthma?

The main opportunities for control of asthma are minimizing the risk of onset of the disease (primary prevention), optimizing management and control of existing disease, and avoiding adverse outcomes such as hospitalization or death in those who already have the disease (tertiary prevention).

Secondary prevention has a role in occupational asthma, since early detection and removal from exposure to the triggers may prevent permanent asthma. This can be accomplished by regular health screening of workers in industries where occupational asthma is known to occur.

Most asthma begins in early childhood years and there is some evidence that exposures in infancy are of crucial importance to the subsequent development of allergy and asthma. Primary prevention recommendations are mainly applicable to infants. However, they would be most relevant to infants with the highest risk of acquiring asthma, that is, those born into families with a history of asthma or atopic disease (genetic predisposition to acquire asthma). This is a complex, evolving area of understanding. Recent research suggests that certain exposures to very young infants may, in fact, reduce the risk of developing asthma.

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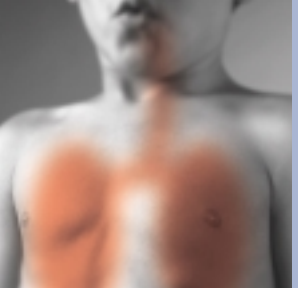

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Some Suggestions for prevention and control of asthma:

A) Reduce/eliminate exposure of fetus and infants to tobacco smoke.

B) Promote breastfeeding. Breastfeeding and introduction of solid food at the appropriate age may reduce the incidence of asthma. Breast-fed infants have fewer respiratory symptoms than do those who receive no breast-feeding. Breastfeeding should be encouraged among new mothers for a duration of at least four to six months.

C) Promote healthy lifestyles. A diet high in Omega-3 fatty acids (derived from oily fish) and antioxidants (in particular Vitamins A, C, E, and selenium) and low in salt may offer protection against airway inflammation.

D) Regular physical activity also results in improved health – especially for asthma sufferers.

E) Reduce exposure to indoor triggers such as domestic mites. Aim to:
- Create dust-free homes, schools, and daycare centres. Minimize carpets, curtains, stuffed toys and other dust collectors.
- Concentrate on eliminating dust mites in the bedroom. (We spend 30 per cent, or more, of our day in the bedroom, and especially in the bed). Use mattress / pillow covers, wash bedding regularly.
- Optimize ventilation and humidity (keep humidity at about 35 per cent and temperature at 20 degrees Celsius).
- Clean (e.g. vacuuming, damp mopping, dusting) regularly.

F) Decrease levels of motor vehicle emissions and airborne commercial and industrial pollutants.

G) Reduce personal exposures to motor vehicle emissions and airborne commercial and industrial pollutants.

H) Keep outdoor activity to a minimum during days of high pollution (i.e. smog advisory days during the summer).

I) Prevent exposure of employees to harmful workplace agents.

J) Prevent sensitization through the use of adequate occupational hygiene measures.

K) Promote the use of environmentally friendly products, particularly in schools and in daycare centres.

BREASTFEEDING

HEALTHY LIFESTYLE

CLEAN / DUST-FREE HOMES

Tertiary Prevention

The major health effort in reducing the severity of asthma, preventing exacerbations or attacks, and reducing the risk of death or permanent disability, is clinical management.

Effective co-management of asthma involves the individual and family with the health care team. This co-management is dependent on:

a) Education about asthma and its management

b) Avoidance or control of aggravating factors or triggers. For example:

- Eliminate the source (e.g. remove the pet; do not have dander-producing pets);
- Eliminate the reservoir (e.g. remove carpets; use roller blinds as opposed to Venetian style, or curtains);
- Eliminate / reduce the exposure (e.g. avoid outside activity when the pollution index high).

c) Optimized use of medication. This means that medication (controllers and relievers) should administered in the proper way and at the right time, in order to achieve the best asthma control. Drug therapy for individuals is evolving. The "asthma treatment continuum" advocated by the participants of the Canadian Asthma Consensus Conference (1999) reflects a more dynamic therapeutic approach than does stepped care. The "asthma treatment continuum" supports the adaptation of drug therapy to the individual patient, according to the severity of the underlying illness and the degree of control achieved. Asthma severity may vary over time; it may also decrease after certain (anti-inflammatory) therapy, and with age, especially in children.

d) Monitoring and follow-up. Monitoring and follow-up including the assessment of symptoms, response to medication and measurement of lung function is an essential part of asthma control. Recognizing the signs and symptoms of worsening asthma is as important for the affected individual, as it is for the health care provider to specifically educate and inquire of the asthmatic about them. These signs include one or more of the following:

Indications that asthma is not under control are:

Inhaled bronchodilator medication is becoming less effective and is required more frequently.

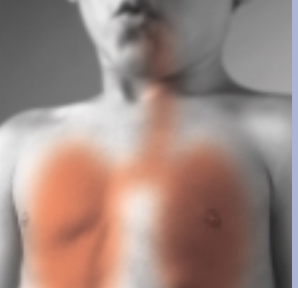
Waking up at night with cough, wheeze or shortness of breath.

Early morning wheeze, cough or tight chest despite ongoing treatment.

Usual daily activities are now being limited or interfered with.

Peak flow meter shows lower readings than usual or there are wider differences between morning and evening values.

Asthma society (2000) Is my asthma well-controlled? http://www.asthmasociety.com



e) Use of a personalized, guided self-management plan. A "personal asthma self-management plan" is a written plan that describes for the asthmatic how to adjust the amount of medicine, depending on the severity of symptoms, and when to seek medical care.

Indications that asthma is under control are:

- **Symptoms occur on three days or less per week**
- **You do not miss work or school due to asthma and you have a normal ability to exercise**
- **Need for three doses or less per week of reliever medication (aside from pre-exercise treatments of up to one dose per day on average)**
- **No periods of significantly worsening asthma**
- **Nighttime symptoms are experienced on no more than one night every two weeks**
- **Peak flow readings are within normal range (usually more that 85 per cent of personal best)**
- **Peak flow readings do not vary more the 15 per cent daily**

Asthma society (2000) Is my asthma well-controlled? http://www.asthmasociety.com

Challenges to preventing asthma and asthma episodes

The control of asthma is strongly influenced by the extent to which an individual and his/her family take responsibility for its management. Recent surveys and studies show that both individuals with asthma and physicians do not always practice asthma education guidelines.

The Health Canada Physician Asthma Management Practices in Canada: Report of a National Survey 1997, found that almost all physicians reported providing some asthma education to all or most asthmatics. This was usually information on triggers and how to avoid them, use of medication, use of inhalers, warning signs of worsening symptoms, and when to seek emergency care. Most did not provide education by methods other than discussion. Few physicians, however, provide action plans for their patients or refer them to community resources related to asthma.

Based on self-reported data, there seems to be a lack of understanding of asthma among some of those who have this disease. Some people with asthma possess little information about their condition, and many do not know how their medications work. Few patients appear to be aware of asthma triggers and risk factors. Many people with asthma still expose themselves to triggers: irritants such as tobacco smoke and allergens like pets.

The phasing out of chloroflourocarbons (CFCs) has meant changing the propelling agent in inhalers and in some cases, the formulations of the drugs, as well as other aspects of the delivery devices. The newer drug formulations and delivery devices need to be incorporated into treatment regimes. CFC-propelled medication is to be completely phased out by January 2005. Reassuringly, efforts are well underway regarding the use of new, non-ozone damaging propellants and many of these drugs are already in the market.

The wide variety of sources of information available to individuals with asthma provides many opportunities for access to information. The information communicated, however, must be consistent, requiring all health care professionals involved in teaching and caring for asthmatics to be current in their knowledge and practice.

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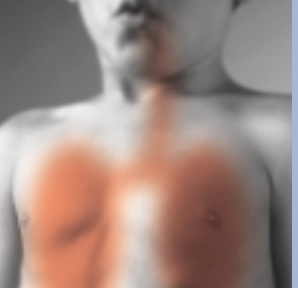


An Agenda for Action:

Recommendations

For Individuals and Families

- Consult with your physician if you suspect that you or your children may have asthma, so that asthma be properly diagnosed or ruled out.
- Asthmatics need to be actively involved in their own care.
- Asthmatics and their family/friends need to be knowledgeable about recognizing the signs and symptoms of an asthma attack, such as shortness of breath, coughing and wheezing. Asthma sufferers and their families need to have an action plan which provides clear direction about controlling an asthma attack with proper use of medications, and to recognize when to seek emergency services.
- Asthmatics need to know their triggers and to eliminate or avoid them.
- Reduce exposure to indoor allergens and irritants by creating a healthy home environment for the entire family, especially for those with asthma. Actions include: ensuring optimal ventilation and humidity, regular cleaning, and eliminating exposure to indoor triggers such as dust, tobacco smoke.
- Avoid smoking or smoke-filled environments, if you or someone in your home has asthma. Avoid other irritants such as pets, perfumes and certain foods and do not be afraid to tell others about these triggers (for instance, friends who smoke or have pets). Individuals with respiratory illnesses should be aware of air pollution health advisories and plan their activities accordingly.
- New mothers should breastfeed exclusively for at least the first four to six months if possible, and introduce solid foods into the infant's diet only at the proper time. Pregnant women should avoid smoking and minimize exposures to second-hand smoke. Some pregnant women are concerned that asthma medications may do harm to their unborn child, however, the risks of uncontrolled asthma to the mother or fetus are far greater than the risks from the medication used to control asthma.

For Communities

- Local boards of health and community agencies have an important role to play in addressing the problem asthma, asthma attacks, hospitalization, and premature death. Efforts such as promoting smoking cessation programs, promoting breast-feeding in new mothers, creating smoke-free schools and workplaces has already begun. There is a need to further educate health care providers, asthmatics, and the general population about asthma. Important public health programs include those that address disease prevention, such as getting an annual influenza vaccination, and promoting a healthy body which improves an asthmatic's physical ability to optimally respond to their disease.

- Schools need to provide a supportive, healthy environment for asthmatics in which exposure to asthma triggers is minimized. Information should be available to educate staff and students about asthma and how to help those affected. School boards and staff should be aware of those students who have asthma. Medication for the student with asthma needs to be readily accessible. Local boards of health can assist school boards in responding to the issues around asthma such as healthy environments, policy development (e.g. guidelines around optimizing the physical environment and managing activities for asthmatics in the school) information and education.

- Employers should promote healthy workplaces by preventing or minimizing exposure of workers to harmful workplace agents and helping to prevent sensitization by providing adequate occupational hygiene measures (e.g., protective equipment). Employers should minimize asthma triggers in the workplace, be sensitive of those who have asthma and be supportive (e.g. avoid triggers such as perfumes, smoke, air fresheners). Employers need to educate workers about asthma in the workplace and about how to assist asthmatic employees if required.

- Advocacy to support those with asthma is required from governments, non-governmental organizations, health care providers, and employers.

For Health Care Providers

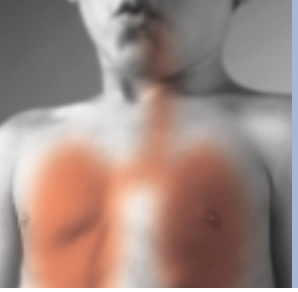
- Education of the asthmatic and his or her family is an essential component of asthma control, not merely an add-on to existing therapies.

- Family physicians, asthma specialists, (certified) asthma educators, pharmacists, hospital staff, and asthma centres need to:
    a) be aware of and understand the most recent Canadian Asthma Consensus Guidelines;
    b) educate asthma patients and their families about the prevention and treatment of asthma; and
    c) be knowledgeable of asthma resources available for asthmatics

- Asthma education provides the information and skills to enable individuals to avoid triggers, recognize, assess, and respond appropriately to the symptoms of asthma, and to seek medical attention when needed. The goals of asthma education should be to:
    a) prevent asthma when possible;
    b) improve control/management of episodes in asthmatics;
    c) reduce asthma morbidity and mortality;
    d) improve the asthmatic's quality of life and ability to function; and
    e) most effectively use health care dollars.

Federal, Provincial and Municipal Governments

- Asthma surveillance data needs to be improved. There is a need for a monitoring system with more detailed and timely information about asthma in Ontario and Canada. Existing, readily accessible sources of data for the surveillance of asthma are limited to mortality data, hospital separations, and two surveys in which the data is self-reported information, and not comprehensive. None of these sources provides the most current and timely information.



- Access to specialized asthma care and education needs to be improved. The federal and provincial governments can strengthen partnerships with non-governmental organizations, physicians, asthma educators, and pharmacists to ensure asthma care and education are accessible.

- Up-to-date information and educational materials that are culturally-oriented in a variety of languages and formats, need to be developed to ensure that such resources are available to all Ontarians with asthma, or who are affected by it.

- Ongoing research on the prevention and control of asthma, including basic, clinical, community, and epidemiological research needs to be facilitated. Evaluations using qualitative and quantitative methods need to be incorporated into all programs, services, and policies.

- Legislation governing indoor and outdoor air quality needs to be improved. Examples of strategies currently used to improve the environment in which people live and work include:

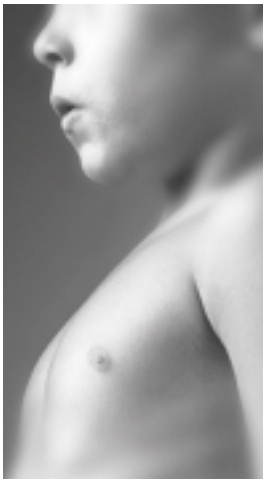
  Legislation prohibiting smoking in schools, workplaces and public places;

  Monitoring tobacco sales to minors to reduce access to cigarettes, creating limits to cigarette packaging, reductions in tobacco advertising, and raising prices through taxation on cigarettes; and

  Legislation to reduce automobile emissions (Ontario Drive Clean Program) and industry pollutants further attempt to decrease present levels of contaminants in the outdoor air.

- Further strategies addressing indoor and outdoor air quality are needed to support and to optimize the impact of those strategies already in place: e.g. further strengthening the Tobacco Control Act and reducing the impact on air quality from vehicle emissions through promotion of increased use of public transit, cycling, walking, and reducing idling engines.

Conclusion



The prevention and management of asthma is an important public health issue in Ontario. The prevalence of asthma, especially in children, is increasing in Ontario and throughout Canada. Asthma is one of the leading causes of school absenteeism and, in Ontario, the leading cause of hospitalization in children. Asthma costs Ontarians in terms of health care, loss of productivity and loss of life. It affects quality of life for the individual with asthma and for his or her family. Given that the prevalence of asthma is increasing, these costs will most likely increase.

The exact cause(s) of asthma is unknown. However, certain variables and exposures make an individual more susceptible to develop asthma. Many allergens and irritants that are thought to cause asthma also act as triggers in individuals who have asthma. Causes of asthma and triggers of asthma episodes need to be reduced, minimized or eliminated where possible.

An effort is required by all to ensure that we improve and modify our work, home, school and recreational environments to prevent the onset and minimize the exacerbation of asthma. We all have a role to play in improving our indoor and outdoor environments for ourselves and for others.

Multi-focal strategies that address the individual, the community and all levels of government are needed to reduce the costs of asthma: the health of individuals is the health of the community. Thus, in addition to the *personal skills* needed by the individual to most effectively manage their asthma in a conducive *health care system*, this must occur in an environment that is *supportive*, encouraged and established through *community action* and *healthy public policy*.

Acknowledgements

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This publication is available on the Ministry of Health and Long-Term Care website at: www.gov.on.ca/health

Appendix : National Website Links

These websites also provide links to sites related to asthma:

Asthma Society of Canada at : www.asthmasociety.com
Canadian Network for Asthma Care at : www.cnac.net
The Canadian Lung Association at www.lung.ca
Allergy and Asthma Information Association : http://cgi.cadvision.com/~allergy/aaia.html
CDC; National Center for Environmental Health; Asthma : www.cdc.gov/nceh/asthma/default.htm

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