

# Summary for the Diagnosis and Management of Asthma

Adapted in 2010 from Canadian Thoracic Society Asthma Management Continuum (Can Respir J 2010;17(1):15-24; [www.respiratoryguidelines.ca](http://www.respiratoryguidelines.ca)) and the Global Initiative for Asthma ([www.ginasthma.org](http://www.ginasthma.org)).

## Diagnosis

Confirm diagnosis by objective measures for those  $\geq 6$  yrs:

- Spirometry (the simplest and preferred diagnostic test):
  - $\geq 12\%$  improvement in  $FEV_1$  (minimum 200 ml in adults) from the baseline 15 minutes after use of an inhaled short-acting beta<sub>2</sub> agonist; **and**
  - Less than lower limit of normal ratio  $FEV_1/FVC$  for age, sex, height, and ethnicity

### Practice Point

In general, a history of recurrent symptoms (e.g., cough, breathlessness, wheeze) strongly suggests the diagnosis of asthma. Spirometry is an important tool used to confirm the diagnosis by demonstrating variable airflow limitation (obstruction), a key characteristic of asthma. Spirometry is also an important test used to assess the severity of airway obstruction.

## Routine Management

All asthma patients/parents should receive ongoing education ( $\geq 2x/yr$ ) to establish/confirm the goals of asthma treatment and support optimal control of their asthma including:

- Review medication device use technique
- Review benefits and side effects of medications, especially inhaled corticosteroids (ICS)
- Review the indicators of optimal asthma control
- Review a personalized written action plan
- Identify allergens and irritants and give practical advice on their avoidance
- Identify a support team, including a certified asthma educator
- Identify patients who would benefit from more substantial self-monitoring using symptom and/or peak expiratory flow (PEF) diaries. Poor perception of asthma symptoms is considered a risk factor for life-threatening asthma

### Practice Point

Download Alberta's standardized tools for asthma education, including other languages: [www.canahome.org](http://www.canahome.org) under 'key resources'

## Asthma Control

All of the following are necessary to indicate optimal asthma control:

- No daytime symptoms
- No night-time awakenings
- Normal physical activity
- No absenteeism due to asthma
- No need for urgent physician or emergency department visits due to asthma
- Use of reliever medication  $\leq 2$  times per week
- $FEV_1$  or PEF consistently at  $\geq 90\%$  of personal best

## Pharmacotherapy

- It is important to educate patients about the differences between reliever and controller medications, and of the benefits of each
- If symptoms are infrequent and expiratory flow is normal, an inhaled short-acting beta<sub>2</sub> agonist (ie. SABA or fast acting bronchodilator) should be used as needed for relief
- If lung function is abnormal or a reliever is needed more than 3 times per week, initiating inhaled corticosteroid (ICS) is the preferred next step for control
- If symptoms are severe or expiratory flow is  $<60\%$  of predicted value, oral steroids may be part of the initial management plan
- If asthma is not optimally controlled on low or medium dose ICS, consider:
  - increasing ICS dose (preferred in  $<12$  yr olds)
  - combining long-acting beta-agonist with ICS (preferred in  $>12$  yr olds)
  - adding a leukotriene receptor antagonist (preferred in  $<12$  yr olds)

# Asthma

## PRACTICE POINT

Chronic use of *high dose* ICS (see table) increases the risk for long term side effects, especially in children. For preschool children with intermittent wheeze, intermittent SABA is recommended; intermittent use of LTRA has also been shown to be effective. For more severe episodes, intermittent use of systemic steroids needs to be considered in addition to regular treatment with ICS or LTRA. Intermittent use of ICS is not effective.

Notes: Dose equivalencies are approximate and are based on efficiency data.

- 1) Beclomethasone HFA (Graceway Pharmaceuticals, Canada).
- 2) Budesonide Turbuhaler, licensed for once daily dosing in Canada (AstraZeneca Inc, Canada).
- 3) Ciclesonide, licensed for once daily dosing in Canada (Nycomed Canada Inc.).
- 4) Fluticasone Diskus (GlaxoSmithKline Canada Inc, Canada).

## Daily Inhaled Corticosteroid (ICS) Agents and Dosing

Product	Low	Medium	High
Beclomethasone HFA MDI – QVAR <sup>®1</sup>	≤ 250	251-500	> 500
Budesonide Turbuhaler – Pulmicort <sup>®2</sup>	≤ 400	401-800	> 800
Ciclesonide MDI – Alvesco <sup>®3</sup>	≤ 200	201-400	> 400
Fluticasone MDI & spacer or Diskus – Flovent <sup>®4</sup>	≤ 250	201-500	> 500

## PRACTICE POINT

Uncontrolled asthma is a greater risk to pregnancy than asthma medications.

### Asthma in Pregnancy

- Counsel pregnant women about avoidance of triggers and make them aware of the possible consequences for mother and fetus of inadequately controlled asthma
- Treatment should take the same approach as in the non-pregnant patient:
  - There is less information about the effects of long-acting beta<sub>2</sub> agonists and leukotriene receptor inhibitors in pregnancy and their use should be reserved only for patients whose asthma cannot be controlled using other therapies.
  - The use of systemic steroids for uncontrolled asthma, especially for prolonged duration, may be associated with a greater risk of pre-eclampsia, antepartum or postpartum hemorrhage, low birth weight, preterm birth, and hyperbilirubinemia.

### Asthma in Pre-School Children

- A diagnosis of asthma can be made at any age (even < 1yr). Recurrent wheezing in non-atopic preschool children is likely to resolve in childhood, but atopy is a predictor of persistent asthma
- A greater number of personal history and symptomatic indicators strengthens the diagnosis of asthma in preschoolers including:
  - Parental history of eczema or asthma
  - Recurrent episodes of wheezing
  - Chronic nocturnal cough
  - Clinical benefit from asthma medications, especially ICS

### Asthma in Older Adults

- A diagnosis of asthma should be more widely considered in older patients with dyspnea, wheezing, or nocturnal cough
- Measures should be taken to prevent osteoporosis in elderly patients with asthma who require prolonged treatment with oral steroids
- Older patients with asthma have an increased risk of exacerbations and comorbidities are common in those over age 50; common causes of poor control are rhinitis and sinusitis