

SUMMARY OF GUIDELINE

Effective Date: June 30, 2010

Asthma - Diagnosis and Management (Patients age ≥ 6 years, office setting)

For full Guideline please go to website: www.BCGuidelines.ca

Clinical Features to Assess the Probability of Asthma

CHILDREN ≥ 6 YEARS	
Increase the Probability of Asthma	Lower the Probability of Asthma
<ul style="list-style-type: none"> >1 of the following symptoms: wheeze, cough, difficulty breathing, chest tightness – particularly if these are: frequent and recurrent; worse at night and in the early morning; occur in response to, or are worse after, exercise, allergen exposure, cold or damp air, or with emotions or laughter; occur apart from colds Personal history of atopic disorder Family history of atopic disorder and/or asthma Wheeze heard on auscultation History of improvement in symptoms or lung function in response to adequate therapy 	<ul style="list-style-type: none"> Symptoms with colds only, with no interval symptoms Isolated cough in the absence of wheeze or difficulty breathing History of moist or wet cough Prominent dizziness, light-headedness, peripheral tingling Repeatedly normal physical examination of chest when symptomatic Normal peak expiratory flow (PEF) or spirometry when symptomatic No response to a trial of asthma therapy Clinical features pointing to alternative diagnosis
ADULTS	
Increase the Probability of Asthma	Lower the Probability of Asthma
<ul style="list-style-type: none"> More than one of the following symptoms: wheeze, cough, breathlessness, chest tightness – particularly if: <ul style="list-style-type: none"> symptoms are worse at night and in the early morning symptoms in response to exercise, allergen exposure and cold air symptoms after taking aspirin or beta blockers History of atopic disorder Family history of atopic disorder and/or asthma Wheeze heard on auscultation Otherwise unexplained low FEV₁ or PEF Otherwise unexplained peripheral blood eosinophilia 	<ul style="list-style-type: none"> Prominent dizziness, light-headedness, peripheral tingling Chronic productive cough in the absence of wheeze or breathlessness Repeatedly normal physical examination of chest when symptomatic Voice disturbance Symptoms with colds only Significant smoking history (i.e. > 20 pack-years) Cardiac disease Normal PEF or spirometry when symptomatic

* Table adapted from the BTS/SIGN British Guideline on the Management of Asthma – Quick Reference Guide

Diagnosis/Investigation

- Rule out other disorders, e.g. tumours in adults, foreign body in children; don't assume presence of wheeze means asthma).
- Measure presence and severity of airflow obstruction using spirometry and a peak flow meter:
 - Spirometry: Improvement in FEV₁ ≥ 12 % from the baseline, 15 minutes after an inhaled short-acting beta₂ agonist in children and adults (> 200 ml in adults).
 - Peak flow meter: > 20% change in PEF after bronchodilator; 20% change in values over time.
- If spirometry and peak flow meter results are non-diagnostic, but there is still some probability of asthma, consider methacholine challenge, exercise challenge, and/or inhaled corticosteroid trial for 4-6 weeks.

General Management

- Most people with asthma should have minimal to no impact on their quality of life
- Evaluate and assess impact and exposure to allergens and irritants in individual patients
- Recommend complete cessation of smoking and avoidance of environmental tobacco smoke

Levels of Asthma Control

Characteristic	Controlled (All of the following)	Partly Controlled (Any measure present in any week)	Uncontrolled
Daytime symptoms	None (twice or less/week)	More than twice/week	Three or more features of partly controlled asthma present in any week.
Limitations of activities	None	Any	
Nocturnal symptoms/awakening	None	Any	
Need for reliever/rescue treatment	None (twice or less/week)	More than twice/week	
Lung function (PEF or FEV ₁)*	Normal	< 80% predicted or personal best (if known)	
Exacerbations	None	One or more/year [†]	One in any week [‡]

* Lung function testing is not reliable for children 5 years and younger.

[†] Any exacerbation should prompt review of maintenance treatment to ensure that it is adequate.

[‡] By definition, an exacerbation in any week makes that an uncontrolled asthma week.

Table used with permission from Global Strategy for Asthma Management and Prevention, Global Initiative for Asthma (GINA) 2008. Available at: <http://www.ginasthma.org>

Pharmacological Management

- With normal expiratory flows and controlled Sx, employ an inhaled short-acting beta₂ agonist prn
- If a rescue beta₂ agonist is needed > 2/week (excluding pre-exercise), or if lung function is abnormal, the next step is an inhaled glucocorticosteroid.
- Devices: For children, first line is a metered dose inhaler (pMDI) and spacing device. In adults a dry powdered device (DPI) is efficacious and often more convenient (second line in children).

Stepwise Approach to Management of Chronic Asthma

- Patients should start treatment at the step most appropriate to the initial severity of their asthma.
- At each step, review medication adherence, inhaler technique, and patient education. Reconsider diagnosis if no or poor response to therapy.
- If Sx control maintained over 3 months, step down to the least medication necessary to maintain control.

Step 1	Inhaled short-acting beta ₂ agonist (SABA)* prn
Step 2	Add inhaled corticosteroid (ICS). In children age 6-11 yrs, start at a low dose.
Step 3	Add inhaled long-acting beta ₂ agonist (LABA) in combination with an ICS Assess control of asthma: <ul style="list-style-type: none"> • Good response to LABA / ICS combination → continue • Benefit from LABA/ICS combination but control still inadequate → continue LABA and increase steroid dose to high dose ICS • No response to LABA/ICS combination → stop LABA combination and continue high dose inhaled steroid† Note: LABA's are contraindicated as monotherapy, but always used in combination with an appropriate dose of ICS.
Step 4	Consider the following: <ul style="list-style-type: none"> • A short course of oral corticosteroids may be used in adults to stabilize the patient, e.g. prednisone 0.6 mg/kg/day for 5 days) • Referring patient for specialist care • Adding a third drug (e.g. leukotriene receptor antagonist, SR theophylline, or low dose steroids)

* Frequent use of short-acting beta agonists (SABA) may increase exacerbation risk.

† Chronic, high dose of inhaled steroid use may be associated with a number of long term side effects and should prompt consideration of stepping down.

Table adapted in part from the BTS/SIGN British Guideline on the Management of Asthma – Quick Reference Guide.

Estimated Dose Equivalents for Inhaled Corticosteroids

Name	Adult (mcg per day) ²			Children 6-11 years (mcg per day) ²		
	Low	Medium	High (Max LD)	Low	Medium	High (Max LD)
beclomethasone dipropionate HFA pMDI (Qvar™)	≤ 250	251-500	> 500 (800)	≤ 100	101-200 ³	> 200 ³ (200)
budesonide DPI (Pulmicort® Turbuhaler®)	≤ 400	401-800	> 800 (2400)	≤ 200	201-400 ³	> 400 ³ (400)
ciclesonide pMDI (Alvesco®)	≤ 200	201-400	> 400 (800)	100	101-200 ³	> 200 ³ (200)
fluticasone propionate HFA pMDI (Flovent®) + spacer	≤ 250	251-500	> 500 (2000)	≤ 100	101-200 ³	> 200 ³ (400)
fluticasone propionate DPI (Flovent® Diskus)	≤ 250	251-500	> 500 (2000)	≤ 100	101-200 ³	> 200 ³ (400)

Abbreviations: DPI = dry powder inhaler; HFA = hydrofluoroalkane; Max LD = maximum licensed dose; pMDI = pressurized metered dose inhaler (aerosol)

^a Dosage equivalents are approximate and depend on factors such as inhaler technique. Pediatric equivalency doses are less well established. Total daily doses usually divided into two doses. Once daily dosing may be effective in some patients with milder disease. Ciclesonide is given as a single daily dose except for 800 mcg/day which is given in two divided doses.

^b Administration of ≥ 200 ug/day fluticasone or equivalent in pediatric patients may be associated with systemic side effects.

Pediatric patients treated with high dose inhaled corticosteroids should be under the care of a paediatrician or pediatric respirologist.

Managing Chronic Asthma

- Action plan: If control is poor, increase therapy; if control is good, decrease therapy.
- Periodically discuss asthma control with the patient; encourage patient/family to actively self-manage.
- Identify and eliminate barriers to effective control.
- Consider measuring PEF at each office visit.
- If there is poor response to therapy and compliance and inhaler technique are appropriate, consider an alternative diagnosis and/or referral for further assessment.
- Recommend annual influenza vaccination for patients and their families.
- In the office consider an asthma registry, automated recall system, and flowcharts/handouts/check-lists.