

GINA

At-A-Glance Asthma Management Reference

for adults, adolescents and children 6–11 years



Updated 2017

This resource should be used in conjunction with the Global Strategy for Asthma Management and Prevention (updated 2017) - www.ginasthma.org.

Health professionals should use their own professional judgment in assessing and treating patients, and should take into account any local regulations or guidelines.

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DEFINITION & DIAGNOSIS OF ASTHMA

Asthma is a common and potentially serious chronic disease that can be effectively treated to control symptoms and minimize the risk of flare-ups (exacerbations). Asthma is usually characterized by chronic airway inflammation.

The two key defining features of asthma are:

- A history of variable respiratory symptoms such as wheezing, shortness of breath, chest tightness, cough
- Variable expiratory airflow limitation.

When making the diagnosis of asthma, document:

- **A typical pattern of symptoms**, e.g. more than one type of respiratory symptom; often worse at night or early morning; varying over time and in intensity; triggered by colds, exercise, allergen exposure, laughter or smoke
- **Physical examination**: often normal, but may show wheezing on auscultation, especially on forced expiration
- **Expiratory airflow limitation**: confirm that when FEV_1 is reduced, FEV_1/FVC ratio is reduced (this ratio is normally > 0.75 – 0.80 in healthy adults, and >0.90 in children)
- **Excessive variation in lung function**: for example,
 - Bronchodilator reversibility, i.e. FEV_1 increases by $>12\%$ and 200mL (in children, by $>12\%$ of predicted value) after inhaling a bronchodilator
 - FEV_1 increases by $>12\%$ and 200mL (or PEF by $>20\%$ on same meter), after 4 weeks of anti-inflammatory treatment

For abbreviations, see page 5.

ASSESSMENT OF ASTHMA

Box 1. Assessing the two domains of asthma control

A. Asthma symptom control in the last 4 weeks

Daytime symptoms more than twice/week? Yes No

Any night waking due to asthma? Yes No

Reliever needed more than twice/week? Yes No

Any activity limitation due to asthma? Yes No

None of these = asthma symptoms **well-controlled**

1–2 of these = asthma symptoms **partly-controlled**

3–4 of these = asthma symptoms **uncontrolled**

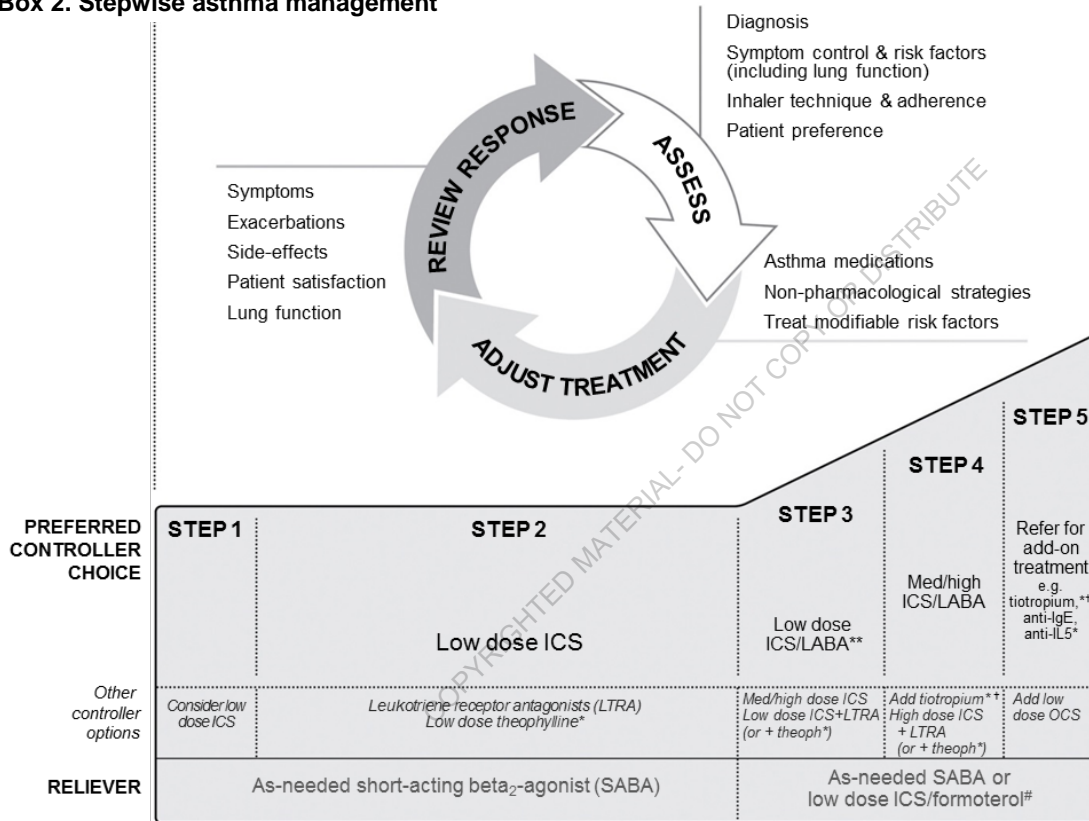
2. Risk factors for poor asthma outcomes

- **For exacerbations:** uncontrolled symptoms; no ICS, or poor adherence, or incorrect inhaler technique; excessive reliever use; low FEV₁ especially if <60% predicted; major psychological or socioeconomic problems; smoking; blood eosinophilia; pregnancy
- **For fixed airflow limitation:** lack of ICS treatment; low initial FEV₁; smoking or occupational exposures; chronic mucus hypersecretion; blood eosinophilia
- **For medication side-effects:** frequent oral steroids; long-term high dose ICS; use of P450 inhibitors; (local: high dose or potent ICS; incorrect inhaler technique)

For every person with asthma, also check:

- Inhaler technique, adherence, medication side-effects
- Do they have a written asthma action plan (p.7)?

Box 2. Stepwise asthma management



ABBREVIATIONS

DPI: dry powder inhaler
FEV₁: forced expiratory volume in 1 second
FVC: forced vital capacity
HFA: hydrofluoroalkane propellant
ICS: inhaled corticosteroid
IgE: immunoglobulin E
IL5: interleukin 5
LABA: long-acting beta₂-agonist
LTRA: leukotriene receptor antagonist
OCS: oral corticosteroids
PEF: peak expiratory flow
SABA: short-acting beta₂-

*Not for children <12 years
**For children 6–11 years, preferred Step 3 treatment is medium dose ICS.

#Low dose ICS/formoterol is reliever for ICS/formoterol maintenance and reliever therapy (see p.7).

†Tiotropium by mist inhaler is an add-on option for patients ≥12 years with a history of exacerbations

Consider stepping up if: uncontrolled symptoms, exacerbations or risks, but first check diagnosis, inhaler technique and adherence

Consider stepping down if: symptoms controlled for 3+ months and low risk for exacerbation. Ceasing ICS is not advised for adults

GENERAL ASTHMA MANAGEMENT

The long-term goals of asthma management are symptom control and risk reduction. Management includes:

- **Medications:** Prescribe an inhaled reliever for every patient with asthma, and a controller medication for most adults and adolescents with asthma. Start with a low dose ICS (see Boxes 2 and 3), and review response.
- **Treating modifiable risk factors** such as smoking.
- **Providing non-pharmacological strategies** if relevant, e.g. physical activity; avoid occupational exposures.

Important issues for all patients with asthma include:

- Training in inhaler skills and adherence
- A written asthma action plan (see p.7)
- Advice about self-monitoring of symptoms and/or PEF
- Regular medical review.

Patients should be reviewed 1–3 months after starting controller treatment, and every 3–12 months after that. Review pregnant women with asthma every 4–6 weeks.

Box 3. Inhaled corticosteroid doses for adults (mcg/day)

Inhaled corticosteroid	Low dose	High dose
Beclometasone propionate (HFA)	100–200	>400
Budesonide	200–400	>800
Ciclesonide	80–160	>320
Fluticasone furoate	100	200
Fluticasone propionate (HFA or DPI)	100–250	>500
Mometasone furoate	110–220	>440
Triamcinolone acetonide	400–1000	>2000

For a complete list, see GINA 2017 report

ADJUSTING ASTHMA TREATMENT

Stepping up asthma controller treatment

- *Sustained step-up (for at least 2–3 months)* if symptoms and/or exacerbations persist despite 2–3 months of controller treatment. First check for common causes, particularly incorrect inhaler technique, poor adherence, incorrect diagnosis, or symptoms not due to asthma.
- *Short-term step-up (for 1–2 weeks)* with a written asthma action plan, e.g. during colds or allergen exposure.
- *Day-to-day adjustment by patient*, for patients prescribed low dose beclometasone/formoterol or budesonide/formoterol as maintenance and reliever therapy.

Stepping down asthma controller treatment

Consider stepping down when asthma is well-controlled for 3 months. Choose an appropriate time (e.g. not travelling, no respiratory infection, not pregnant). Reduce ICS dose by 25–50% at 2–3 month intervals. Confirm patient has a written action plan, monitor closely and book a follow-up visit.

Written asthma action plans

Provide all patients with asthma with a written asthma action plan appropriate for their level of health literacy, including:

- Their usual asthma medications
- When and how to increase their reliever and controller medications and start oral corticosteroids if needed
- How and when to access medical care if symptoms fail to respond

MANAGING ASTHMA EXACERBATIONS

Assess exacerbation severity while starting SABA, and oxygen if needed. Assess dyspnea, respiratory rate, pulse rate, oxygen saturation and lung function.

Consider alternative causes of breathlessness

Arrange immediate transfer for patients with severe or life-threatening asthma (e.g. drowsy, confused, or silent chest).

Start treatment with repeated doses of inhaled SABA (by puffer and spacer, or by nebulizer if exacerbation is life-threatening or $FEV_1 < 30\%$ predicted); give oral corticosteroids early, and if needed give controlled flow oxygen to achieve target saturation of 93–95% in adults and adolescents (94–98% in children 6–11 years).

Monitor symptoms and oxygen saturation frequently, and measure lung function after one hour.

For severe exacerbations, add ipratropium bromide, and consider giving SABA by nebulizer. In acute care facilities, consider giving intravenous magnesium sulfate if the patient is not responding to intensive initial treatment.

Do not routinely perform chest X-ray or blood gases or prescribe antibiotics.

Arrange ongoing treatment before discharge. Most patients with an exacerbation should be prescribed regular ongoing controller treatment containing ICS to reduce risk of further exacerbations. Provide follow-up for all patients after an exacerbation, preferably within a week or less.

See full details in GINA 2017 resources at www.ginasthma.org