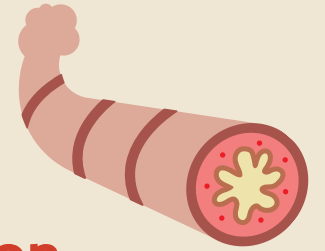




What is Asthma



A heterogeneous disease,
usually characterized by **chronic airway inflammation**.

It is defined by the history of respiratory symptoms and expiratory airflow limitation that **vary** over time and in intensity.

These variations are often **triggered** by certain factors.

Clinical Features

Hx of typical variable respiratory symptoms

- Wheeze
- Shortness of breath
- Chest tightness
- Cough

Physical Examination

- Expiratory wheezing on auscultation

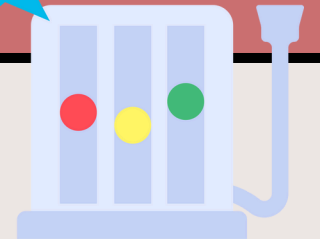
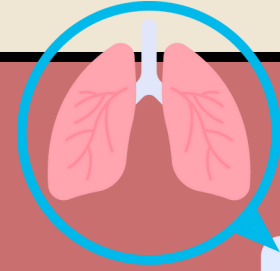
May be absent if airflow
severely reduced

Features that Increase the Probability of Asthma

- Patients experience more than one of these symptoms
- Symptoms recurrent or seasonal
- Symptoms worse at night or in the early morning
- Symptoms vary over time and in intensity
- Symptoms obviously triggered by viral infections, exercise, allergen exposure, weather
- Symptoms began in childhood
- Personal / family history of atopy

Investigations for Asthma

First-line



Spirometry

- **Best lung function test for diagnosis of asthma**
- **FEV1/FVC <0.7** → expiratory airflow limitation
- Post-bronchodilator **FEV1 or FVC** ↑ **>12% & >200mL** → reversibility

Further tests

Peak expiratory flow meter

- Not as reliable as spirometry
- Average **daily diurnal PEF variability >10%**

Bronchial provocation tests

- To assess airway hyperresponsiveness
- Challenge agents e.g. inhaled methacholine, histamine, mannitol

Allergy tests

- Skin prick testing/ serum specific IgE
- However not all asthma is allergic



Imaging

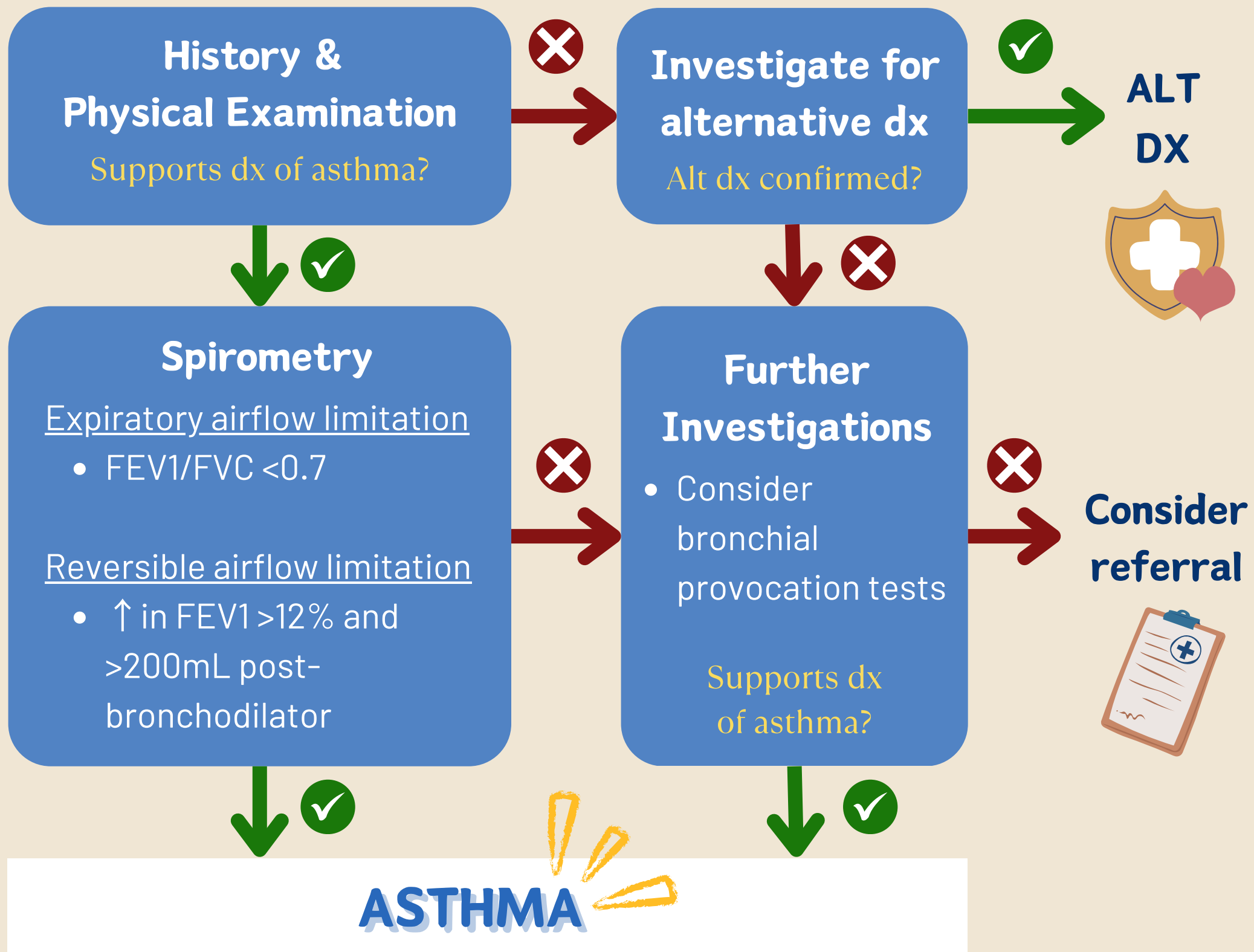
- CXR / CT lungs
- To investigate for comorbid conditions or alternative diagnoses

Diagnosing Asthma

History of typical variable
respiratory symptoms



Confirmed variable
expiratory airflow limitation



Assessing Asthma Symptom Control

GINA assessment of asthma control in adults, adolescents & children (6-11y)

In the past 4 weeks, has the patient had:

- Daytime asthma more than twice/week?
- Any night waking due to asthma?
- SABA reliever for symptoms more than twice/week?
- Any activity limitation due to asthma?

YES

NO

Well
controlled

Partly
controlled

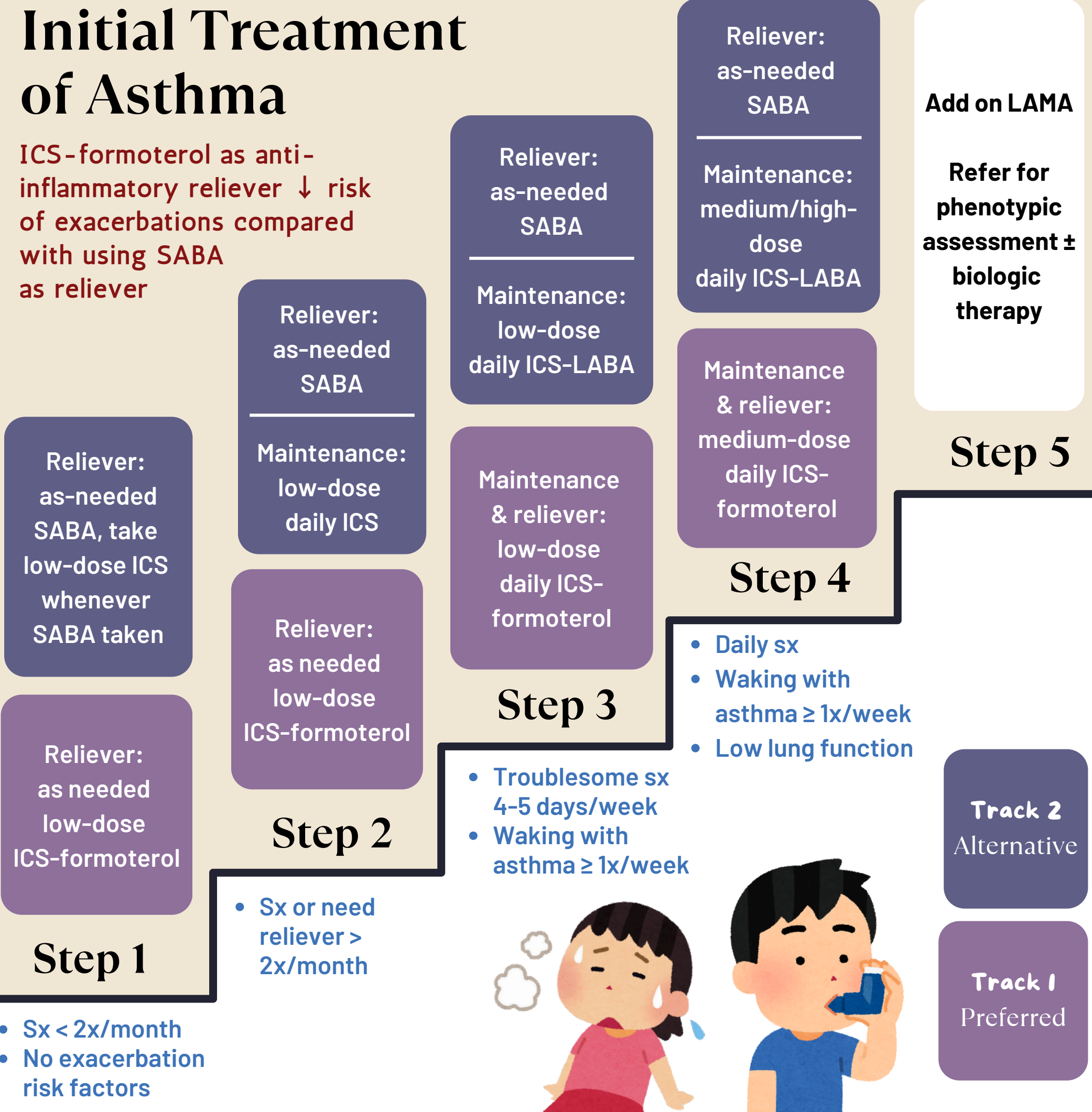
None of
these

1-2 of
these



Initial Treatment of Asthma

ICS-formoterol as anti-inflammatory reliever ↓ risk of exacerbations compared with using SABA as reliever



Management of Acute Exacerbation of Asthma in Adults



IMMEDIATELY

1. ASSESS SEVERITY AND START BRONCHODILATOR

Mild/Moderate

Can walk & speak whole sentences in one breath

- 4-12 puffs salbutamol via pMDI* + spacer

Severe

Any of: unable to speak in sentences, visibly breathless, increased work of breathing, SpO2 90-94%

- 12 puffs salbutamol via pMDI + spacer
- 8 puffs ipratropium via pMDI + spacer
- Start oxygen

Life-threatening

Any of: drowsy, collapsed, exhausted, cyanotic, poor respiratory effort, SpO2 < 90%

- Salbutamol & ipratropium via nebulisation
- Start oxygen
- Ventilate if required

*pMDI : pressured meter dose inhaler

WITHIN MINS

2. REASSESS SEVERITY

- Repeat dose every 20-30 mins for 1st hour

- Repeat dose every 20 mins for 1st hour

- Continuous nebulisation

If poor response, add IV MgSO4

WITHIN 1ST HR

3. START SYSTEMIC CORTICOSTEROIDS

Oral prednisolone / IV hydrocortisone

AT 1 HR

4. REASSESS RESPONSE TO TREATMENT

Dyspnea resolved

- Observe for >1 hour

Sx & signs unresolved

- Admit to hospital

Persist life-threatening

- Higher level care



Asthma Action Plan

May be based on symptoms and/or peak expiratory flow (PEF) measurements



All patients should have an individualised written AAP:

Maintenance/ Preventer Therapy

Doses & frequencies of regular medications

Treating Exacerbations

How to recognise sx of asthma deterioration and adjust tx in response

Managing Increased Severity

When to start oral corticosteroids & seek medical advice

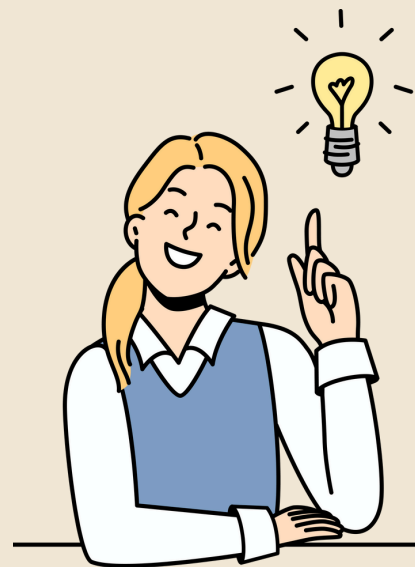
Danger Signs

When and how to seek urgent medical attention

TEST YOUR KNOWLEDGE!

A 30-year-old athlete presents to your office complaining of intermittent wheezing. The wheezing begins shortly after running. The patient admits to smoking 1 to 2 packs of cigarettes per day for 5 years. What findings would be consistent with this patient's presentation?

- A. Improvement in FEV1 after bronchodilator**
- B. Low oxygen saturation on finger oximetry**
- C. Decreased FVC on PFT testing**
- D. Dyspnea on assuming a supine position**



References

1. Global Strategy for Asthma Management and Prevention, 2023 (GINA Guidelines)
2. Australian Asthma Handbook Version 2.0
3. <https://www.who.int/news-room/fact-sheets/detail/asthma>
4. <https://asthma.org.au/about-asthma/asthma-symptoms/>
5. Pretest Medicine 13th edition

*We hope
this helps!*

