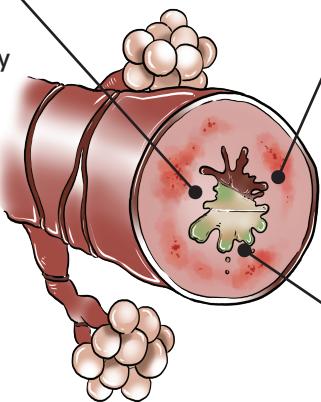


Pathophysiology**Inflammation**

Airway wall edema +
submucosal inflammatory
cell infiltration

Inhaled corticosteroids
daily
+
IV/oral steroids

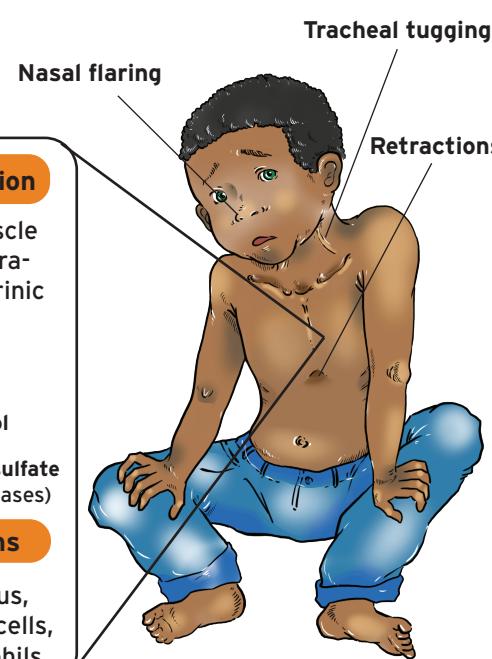
**Bronchoconstriction**

Airway smooth muscle
constriction via para-
sympathetic muscarinic
M3 receptors

Ipratropium Albuterol
 +
 Magnesium sulfate
(for severe cases)

Airway secretions

Comprised of mucus,
desquamated lining cells,
intraluminal eosinophils

**Presentation****Cough**

- Nocturnal
- Varies with seasons
- Lasts <3 weeks
- In response to specific exposures (i.e. cold air, exercise)
- Usually dry and hacking

! Cough symptoms are not always present!

Wheezing

- Expiratory
- ! Absent wheeze (a "silent chest" on exam may raise concern for dangerous airflow limitation!)

Other symptoms

- Breathlessness
- Chest tightness
- Chest pressure
- Chest pain

Diagnosis**Spirometry**

- Reversible airflow obstruction
(FEV1 < 80% expected)
- Reduced FEV1/FVC

! Normal pre-bronchodilator spirometry does NOT rule out asthma!

**Other information
(Not required)****Imaging**

- CXR not required for diagnosis
- CXR usually normal, may show hyperinflation bronchial thickening, atelectasis

VBG

- May be used for severe exacerbations
- Expect low CO₂ due to tachypnea

! A normal CO₂ in an asthma exacerbation = think possible impending respiratory failure!

**History
(To obtain from patient)**

- Symptom control
- Controller medication
- Asthma triggers
- Impact on participation in school/activities
- Previous exacerbations:
 - Hospitalization
 - ICU admissions
 - Intubations
- Number of oral cortico-steroid courses in past year
- **Atopic triad:** asthma, eczema, allergic rhinitis

Management**Chronic outpatient**

Treat according to asthma severity

- ① # symptomatic days/wk
- ② # nighttime awakenings
- ③ Frequency of SABA use
- ④ Interference with daytime activities

- Oral steroids
- Give albuterol Q4H
- If no improvement, seek medical attention

Initial outpatient

- IV, oral steroids
- Give albuterol +/- ipratropium
- Space tx as able
- Consider discharge to home once spaced to albuterol Q4H

Acute exacerbation**ED/urgent care****Inpatient care****Asthma education**

- Trigger avoidance
- Importance of hand hygiene, flu vaccine
- Use of rescue/controller meds
- Appropriate use of inhaler
- Asthma action plan