# How to distinguish between uncontrolled and severe asthma

| | |
|---|---|
| Watch patient using their inhaler. Discuss adherence and barriers to use | Compare inhaler technique with a device-specific checklist, and correct errors; recheck frequently. Have an empathic discussion about barriers to adherence. |


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# How to distinguish between uncontrolled and severe asthma

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|---|---|
| Watch patient using their inhaler. Discuss adherence and barriers to use | Compare inhaler technique with a device-specific checklist, and correct errors; recheck frequently. Have an empathic discussion about barriers to adherence. |
| Confirm the diagnosis of asthma | If lung function normal during symptoms, consider halving ICS dose and repeating lung function after 2–3 weeks. |


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# How to distinguish between uncontrolled and severe asthma

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|---|---|
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| Confirm the diagnosis of asthma | If lung function normal during symptoms, consider halving ICS dose and repeating lung function after 2–3 weeks. |
| Remove potential risk factors. Assess and manage comorbidities | Check for risk factors or inducers such as smoking, beta-blockers, NSAIDs, allergen exposure. Check for comorbidities such as rhinitis, obesity, GERD, depression/anxiety. |


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# How to distinguish between uncontrolled and severe asthma

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|---|---|
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| Consider treatment step-up | Consider step up to next treatment level. Use shared decision-making, and balance potential benefits and risks. |


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# How to distinguish between uncontrolled and severe asthma

| | |
|---|---|
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| Remove potential risk factors. Assess and manage comorbidities | Check for risk factors or inducers such as smoking, beta-blockers, NSAIDs, allergen exposure. Check for comorbidities such as rhinitis, obesity, GERD, depression/anxiety. |
| Consider treatment step-up | Consider step up to next treatment level. Use shared decision-making, and balance potential benefits and risks. |
| Refer to a specialist or severe asthma clinic | If asthma still uncontrolled after 3–6 months on Step 4 treatment, refer for expert advice. Refer earlier if asthma symptoms severe, or doubts about diagnosis. |


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# Asthma flare-ups (exacerbations)

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# Identify patients at risk of asthma-related death

- Patients at increased risk of asthma-related death should be identified
  - Any history of near-fatal asthma requiring intubation and ventilation
  - Hospitalization or emergency care for asthma in last 12 months
  - Not currently using ICS, or poor adherence with ICS
  - Currently using or recently stopped using OCS
    - (indicating the severity of recent events)
  - Over-use of SABAs, especially if more than 1 canister/month
  - Lack of a written asthma action plan
  - History of psychiatric disease or psychosocial problems
  - Confirmed food allergy in a patient with asthma
- Flag these patients for more frequent review


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# Written asthma action plans

- All patients should have a written asthma action plan
  - The aim is to show the patient how to recognize and respond to worsening asthma
  - It should be individualized for the patient's medications, level of asthma control and health literacy
  - Based on symptoms and/or PEF (children: only symptoms)
- The action plan should include:
  - The patient's usual asthma medications
  - When/how to increase reliever and controller or start OCS
  - How to access medical care if symptoms fail to respond
- Why?
  - When combined with self-monitoring and regular medical review, action plans are highly effective in reducing asthma mortality and morbidity


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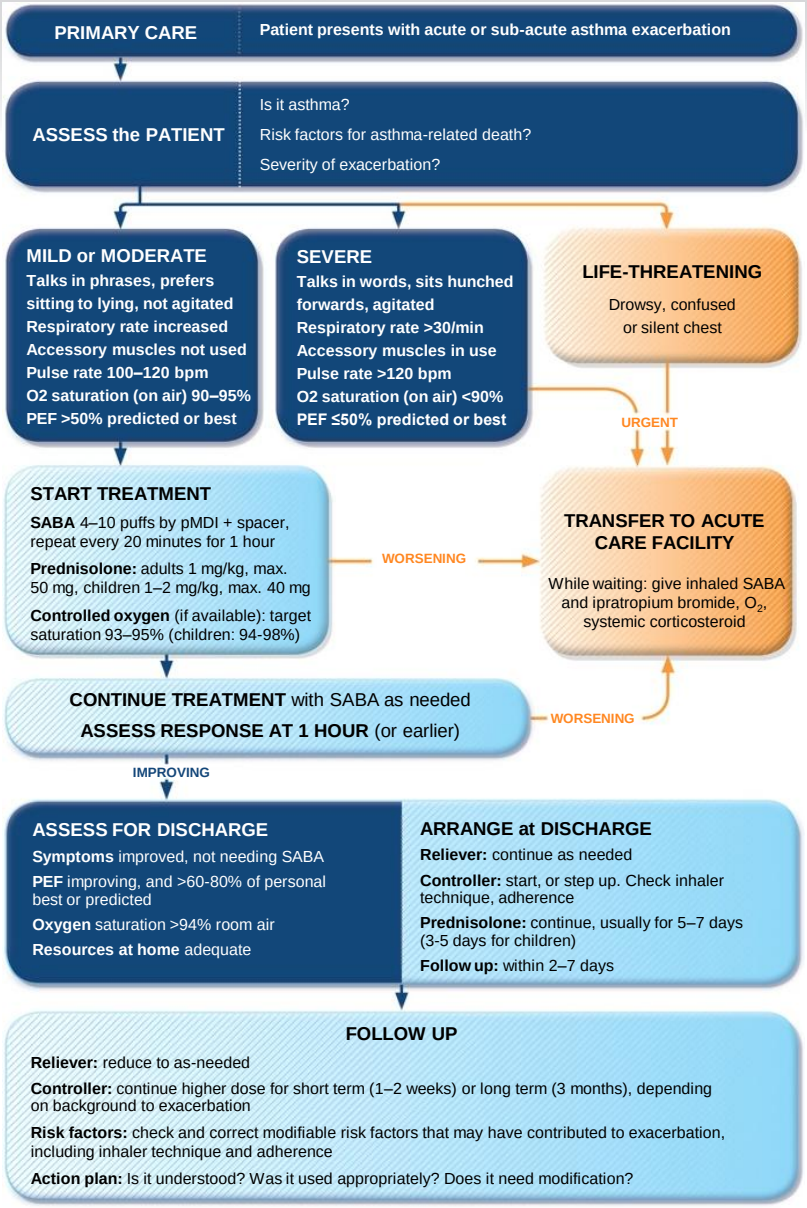
# Managing exacerbations in primary care





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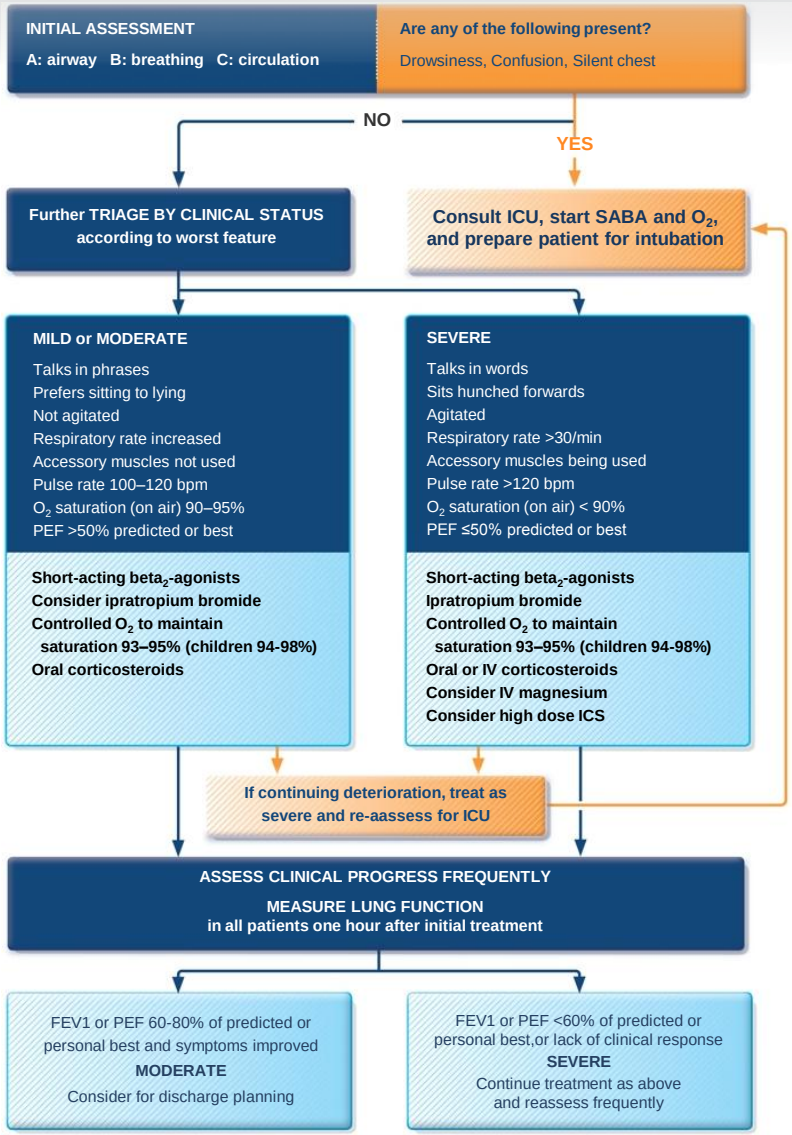
# Managing exacerbations in acute care settings





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# Follow-up after an exacerbation

- Follow up all patients regularly after an exacerbation, until symptoms and lung function return to normal
  - Patients are at increased risk during recovery from an exacerbation
- The opportunity
  - Exacerbations often represent failures in chronic asthma care, and they provide opportunities to review the patient's asthma management
- At follow-up visit(s), check:
  - The patient's understanding of the cause of the flare-up
  - Modifiable risk factors, e.g. smoking
  - Adherence with medications, and understanding of their purpose
  - Inhaler technique skills
  - Written asthma action plan


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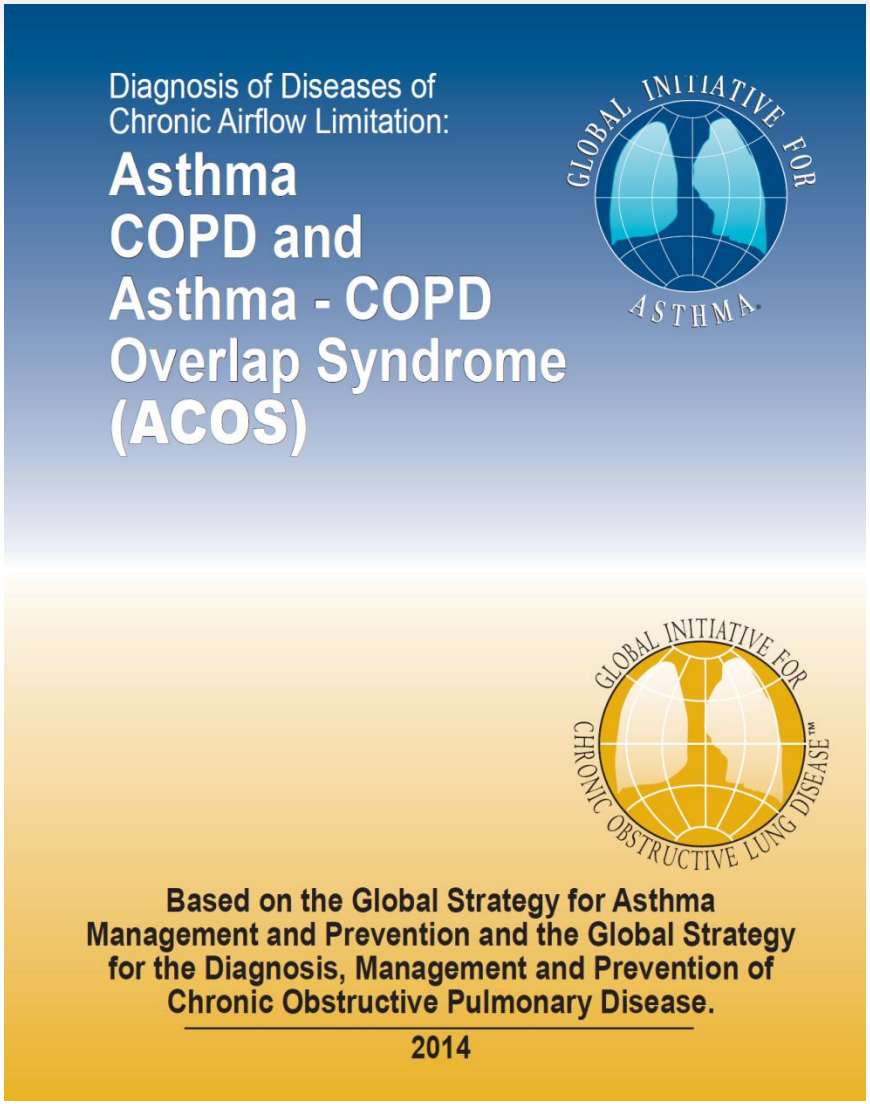
# Diagnosis of diseases of chronic airflow limitation

UPDATED!

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# Background

- Patients with features of both asthma and COPD have worse outcomes than those with asthma or COPD alone
  - Frequent exacerbations
  - Poor quality of life
  - More rapid decline in lung function
  - Higher mortality
  - Greater health care utilization
- Reported prevalence of ACOS varies by definitions used
  - Concurrent doctor-diagnosed asthma and COPD are found in 15–20% of patients with chronic airways disease
  - Reported rates of ACOS are between15–55% of patients with chronic airways disease, depending on the definitions used for ‘asthma’ and ‘COPD’, and the population studied
  - Prevalence varies by age and gender


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# Definitions

## Asthma

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation. [GINA 2015]

## COPD

COPD is a common preventable and treatable disease, characterized by persistent airflow limitation that is usually progressive and associated with enhanced chronic inflammatory responses in the airways and the lungs to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patients. [GOLD 2015]

## Asthma-COPD overlap syndrome (ACOS) [a description]

Asthma-COPD overlap syndrome (ACOS) is characterized by persistent airflow limitation with several features usually associated with asthma and several features usually associated with COPD. ACOS is therefore identified by the features that it shares with both asthma and COPD.

A specific *definition* for ACOS cannot be developed until more evidence is available about its clinical phenotypes and underlying mechanisms.


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# ‘Asthma-COPD overlap’ - UPDATED

- The word ‘syndrome’ has been removed from the previous term ‘asthma-COPD overlap syndrome (ACOS)’ because:
  - This term was being commonly used in the respiratory community as if it was a single disease (‘the asthma-COPD overlap syndrome’)
  - There are two medically-accepted definitions of ‘syndrome’
  - This distracted from the key messages for clinicians and regulators
- The aim is to focus attention back on the original issues
  - These patients are commonly seen in clinical practice
  - They are almost always excluded from the RCTs that provide the evidence base for treatment recommendations, and from studies of underlying mechanisms
  - Current guidelines have opposite safety-based recommendations
    - Asthma: never use LABA without ICS
    - COPD: start treatment with LABA and/or LAMA, without ICS


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# Asthma-COPD overlap – new 'Key Points'

- Distinguishing asthma from COPD can be problematic, particularly in smokers and older adults. Some patients may have clinical features of both asthma and COPD
- The descriptive term asthma-COPD overlap (ACO) is useful to maintain awareness by clinicians, researchers and regulators of the needs of these patients, since most guidelines and clinical trials are about asthma alone or COPD alone.
- However, the term asthma-COPD overlap does not describe a single disease entity. Instead, as for asthma and COPD, it likely includes patients with several different forms of airways disease (phenotypes) caused by a range of different underlying mechanisms.


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# Asthma-COPD overlap – new ‘Key Points’

- Thus, in order to avoid the impression that this is a single disease, the term Asthma COPD Overlap Syndrome (ACOS), used in previous versions of this document, is no longer advised.

- This consensus-based description of asthma-COPD overlap is intended to provide interim advice to clinicians, while stimulating further study of the characteristics, underlying mechanisms and treatments for this common clinical problem


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# Step 1 – Does the patient have chronic airways disease?



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## STEP 2

### SYNDROMIC DIAGNOSIS IN ADULTS

(i) Assemble the features for asthma and for COPD that best describe the patient.
(ii) Compare number of features in favour of each diagnosis and select a diagnosis

| Features: if present suggest - | ASTHMA | COPD |
|---|---|---|
| Age of onset | ❑ Before age 20 years | ❑ After age 40 years |
| Pattern of symptoms | ❑ Variation over minutes, hours or days<br>❑ Worse during the night or early morning<br>❑ Triggered by exercise, emotions including laughter, dust or exposure to allergens | ❑ Persistent despite treatment<br>❑ Good and bad days but always daily symptoms and exertional dyspnea<br>❑ Chronic cough & sputum preceded onset of dyspnea, unrelated to triggers |
| Lung function | ❑ Record of variable airflow limitation (spirometry or peak flow) | ❑ Record of persistent airflow limitation ($FEV_1$/FVC < 0.7 post-BD) |
| Lung function between symptoms | ❑ Normal | ❑ Abnormal |
| Past history or family history | ❑ Previous doctor diagnosis of asthma<br>❑ Family history of asthma, and other allergic conditions (allergic rhinitis or eczema) | ❑ Previous doctor diagnosis of COPD, chronic bronchitis or emphysema<br>❑ Heavy exposure to risk factor: tobacco smoke, biomass fuels |
| Time course | ❑ No worsening of symptoms over time. Variation in symptoms either seasonally, or from year to year<br>❑ May improve spontaneously or have an immediate response to bronchodilators or to ICS over weeks | ❑ Symptoms slowly worsening over time (progressive course over years)<br>❑ Rapid-acting bronchodilator treatment provides only limited relief |
| Chest X-ray | ❑ Normal | ❑ Severe hyperinflation |

NOTE: • These features best distinguish between asthma and COPD. • Several positive features (3 or more) for either asthma or COPD suggest that diagnosis. • If there are a similar number for both asthma and COPD, consider diagnosis of ACOS

| DIAGNOSIS | Asthma | Some features of asthma | Features of both | Some features of COPD | COPD |
|---|---|---|---|---|---|
| CONFIDENCE IN DIAGNOSIS | Asthma | Asthma | Could be ACOS | Possibly COPD | COPD |


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**STEP 3**
PERFORM
SPIROMETRY

Marked
reversible airflow limitation
(pre-post bronchodilator) or other
proof of variable airflow limitation

$FEV_1/FVC < 0.7$
post-BD


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# Step 3 - Spirometry

| Spirometric variable | Asthma | COPD | ACOS |
|---|---|---|---|
| Normal $FEV_1$/FVC pre- or post-BD | Compatible with asthma | Not compatible with diagnosis (GOLD) | Not compatible unless other evidence of chronic airflow limitation |
| Post-BD $FEV_1$/FVC <0.7 | Indicates airflow limitation; may improve | Required for diagnosis by GOLD criteria | Usual in ACOS |
| $FEV_1$ ≥80% predicted | Compatible with asthma (good control, or interval between symptoms) | Compatible with GOLD category A or B if post-BD $FEV_1$/FVC <0.7 | Compatible with mild ACOS |
| $FEV_1$<80% predicted | Compatible with asthma. A risk factor for exacerbations | Indicates severity of airflow limitation and risk of exacerbations and mortality | Indicates severity of airflow limitation and risk of exacerbations and mortality |
| Post-BD increase in $FEV_1$ >12% and 200mL from baseline (reversible airflow limitation) | Usual at some time in course of asthma; not always present | Common in COPD and more likely when $FEV_1$ is low | Common in ACOS, and more likely when $FEV_1$ is low |
| Post-BD increase in $FEV_1$ >12% and 400mL from baseline | High probability of asthma | Unusual in COPD. Consider ACOS | Compatible with diagnosis of ACOS |

*GINA 2016, Box 5-3*

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| STEP 4 INITIAL TREATMENT* | | | | | |
|---|---|---|---|---|---|
| | Asthma drugs No LABA monotherapy | Asthma drugs No LABA monotherapy | ICS and consider LABA +/or LAMA | COPD drugs | COPD drugs |

*Consult GINA and GOLD documents for recommended treatments.


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# Step 4 – Commence initial therapy

- Initial pharmacotherapy choices are based on both efficacy and safety
- If syndromic assessment suggests asthma as single diagnosis
  - Start with low-dose ICS
  - Add LABA and/or LAMA if needed for poor control despite good adherence and correct technique
  - Do not give LABA alone without ICS
- If syndromic assessment suggests COPD as single diagnosis
  - Start with bronchodilators or combination therapy
  - Do not give ICS alone without LABA and/or LAMA
- If differential diagnosis is equally balanced between asthma and COPD, i.e. ACOS
  - Start treatment as for asthma, pending further investigations
  - Start with ICS at low or moderate dose
  - Usually also add LABA and/or LAMA, or continue if already prescribed


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**STEP 5**
SPECIALISED INVESTIGATIONS or REFER IF:

- Persistent symptoms and/or exacerbations despite treatment.
- Diagnostic uncertainty (e.g. suspected pulmonary hypertension, cardiovascular diseases and other causes of respiratory symptoms).
- Suspected asthma or COPD with atypical or additional symptoms or signs (e.g. haemoptysis,
- weight loss, night sweats, fever, signs of bronchiectasis or other structural lung disease).
- Few features of either asthma or COPD.
- Comorbidities present.
- Reasons for referral for either diagnosis as outlined in the GINA and GOLD strategy reports.


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# Step 5 – Refer for specialized investigations if needed

| Investigation | Asthma | COPD |
|---|---|---|
| DLCO | Normal or slightly elevated | Often reduced |
| Arterial blood gases | Normal between exacerbations | In severe COPD, may be abnormal between exacerbations |
| Airway hyperresponsiveness | Not useful on its own in distinguishing asthma and COPD.<br>Higher levels favor asthma | |
| High resolution CT scan | Usually normal; may show air trapping and increased airway wall thickness | Air trapping or emphysema; may show bronchial wall thickening and features of pulmonary hypertension |
| Tests for atopy (sIgE and/or skin prick tests) | Not essential for diagnosis; increases probability of asthma | Conforms to background prevalence; does not rule out COPD |
| FENO | If high (>50ppb) supports eosinophilic inflammation | Usually normal. Low in current smokers |
| Blood eosinophilia | Supports asthma diagnosis | May be found during exacerbations |
| Sputum inflammatory cell analysis | Role in differential diagnosis not established in large populations | |


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# ΣΥΜΠΕΡΑΣΜΑΤΙΚΑ

- Το άσθμα είναι ένα σοβαρό παγκόσμιο πρόβλημα υγείας
- Η πλειονότητα των ασθματικών ασθενών πρέπει να λαμβάνει καθημερινή θεραπεία ελέγχου
- Τα εισπνεόμενα κορτικοειδή αποτελούν τον ακρογωνιαίο λίθο της αντιασθματικής θεραπείας
- Νέες (πιο στοχευμένες) θεραπείες αναμένονται για υποομάδες ασθματικών ασθενών με σοβαρό ανθεκτικό στη θεραπεία άσθμα

ΕΥΧΑΡΙΣΤΩ