

MANAGEMENT OF BRONCHIAL ASTHMA

Objectives:

By the end of this session, you should know:

- What is Asthma? How common in KSA?
- How to diagnose asthma in adults and children, according to the latest NICE (NG80) guidelines?
- How to manage chronic asthma in adults and children in primary care?
- How to identify patients at high risk of a life-threatening asthma attack?
- How to advise patients on the use of (different types of) inhalers?
- Provide a comprehensive approach for the management of patients with asthma in family medicine.

Done by:

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References

- Doctor's slides and notes

Important *Notes* *Extra* *Golden*

Editing file [link](#)

What is asthma? Saudi Initiative on Asthma (SINA)

Asthma 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
- often with variable expiratory airflow limitation can be demonstrated.
- Asthma is a common lung condition that causes occasional breathing difficulties.
- It affects people of all ages and often starts in childhood, although it can also develop for the first time in adults.
- There's currently no cure, but there are simple treatments that can help keep the symptoms under control, so it does not have a big impact on one's life.

Until now some people die from severe asthmatic attack

Pt needs can be easily handled in primary care

Some pt may have attack once/ year

SINA guideline is based on GINA guideline



Guidelines

The Saudi Initiative for Asthma - 2019 Update: Guidelines for the diagnosis and management of asthma in adults and children

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der of the airways. It is “defined by the cough, chest tightness, and cough that vary over time and in intensity. Variable expiratory airflow limitation can be demonstrated.”[1,2] In Saudi Arabia, with increasing prevalence.[3] It is often with variable expiratory airflow limitation (ED) visits, hospitalizations, and deaths. [4,5]

toward a long-term enhancement plan for the Saudi Initiative for Asthma (SINA) was launched in 2018 with special attention to nonasthma specialists, including primary care and general practitioners. The views of a panel of children represent the views of a panel from the diagnosis and

See a...
Review A summary of the new GINA strategy: a roadmap to asthma control.
Reddel HK, Bateman ED, Becker A, Boulet LP, Cruz AA, Drazen JM, Haahlela T, Hurd SS, Inoue H, de Jongste JC, Lemanske RF Jr, Levy ML, O'Byrne PM, Paggiaro P, Pedersen SE, Pizzichini E, Soto-Quiroz M, Szefler SJ, Wong GW, FitzGerald JM
Eur Respir J. 2015 Sep; 46(3):622-39.
[PubMed] [Ref list]

The Saudi Initiative for Asthma - 2019 Update: Guidelines for the diagnosis and

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2. Asthma GI. Global Strategy for Asthma Management and Prevention: GINA 2018. [Last accessed on 2018 Nov 16]. Available from: <http://www.ginasthma.org/> [Ref list]

Taxonomy

See a...

How common is Asthma in KSA ?

Hindawi
BioMed Research International
Volume 2018, Article ID 8102527, 9 pages
https://doi.org/10.1155/2018/8102527

Review Article

Time Trends and Regional Variation in Prevalence of Asthma and Associated Factors in Saudi Arabia: A Systematic Review and Meta-Analysis

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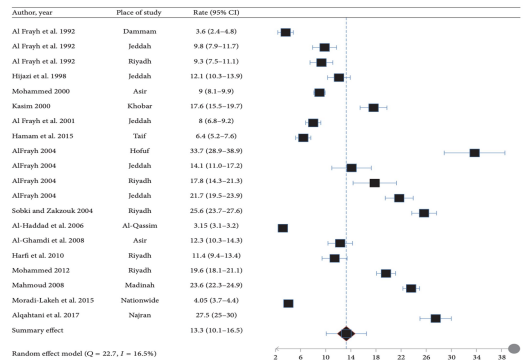


FIGURE 3: Forest plot for proportion of "asthma" and its 95% confidence interval in the prevalence studies.

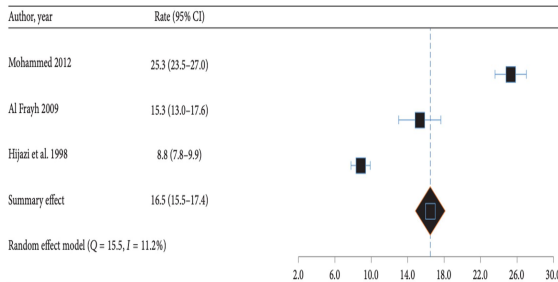
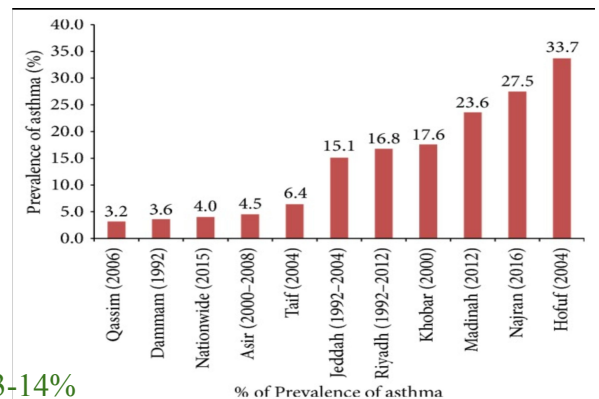


FIGURE 4: Forest plot for proportion of "lifetime wheeze" and its 95% confidence interval in the prevalence studies.



There is a variation among the country

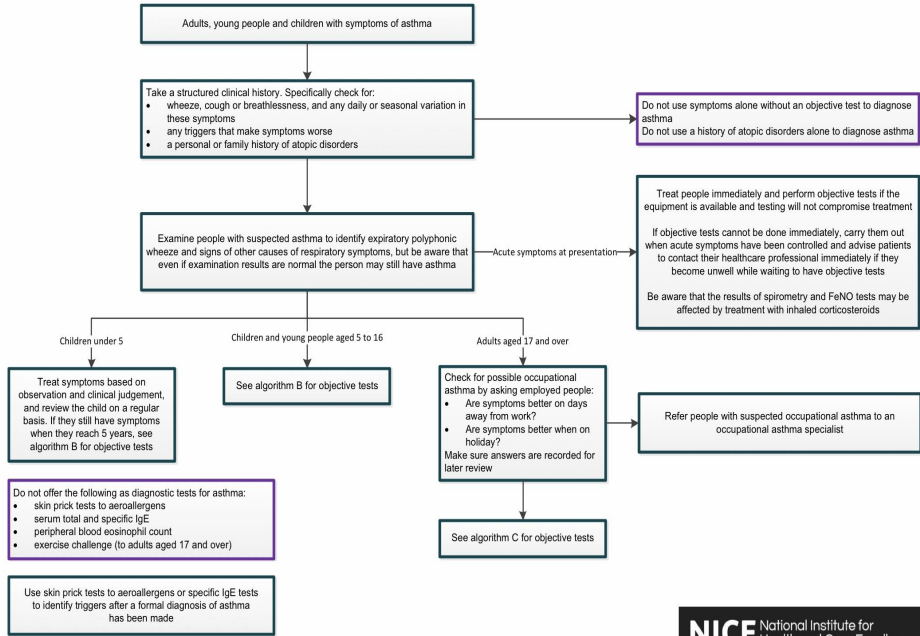
- prevalence in KSA is 13-14%
- 3 things mainly to Dx:

Reversibility
Variable
Symptomatic

- Some studies say "weezing" is enough to diagnose but can be due to other diseases such as:
 - COPD
 - Foreign body
 - Bronchiectasis
 - URTI
 - Tumor or anything that causes obstruction of airway
 - Nasal obstruction may cause a sound similar to wheeze

Diagnosis of Asthma in children and adult – NICE (NG80) GUIDELINES

Algorithm A Initial clinical assessment for adults, young people and children with suspected asthma

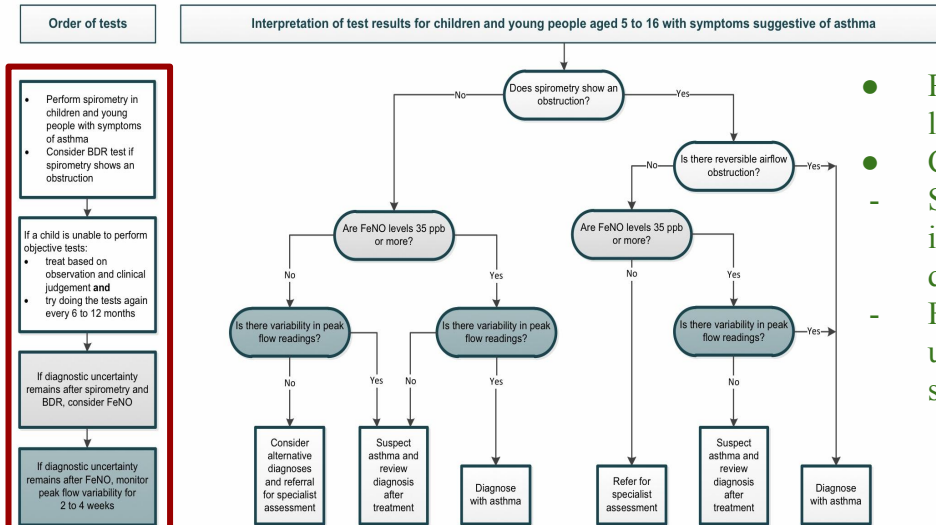


This algorithm is based on recommendations from NICE's guideline on [asthma: diagnosis, monitoring and chronic asthma management](#) (2017)

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Algorithm B Objective tests for asthma in children and young people aged 5 to 16



FeNO, fractional exhaled nitric oxide
BDR, bronchodilator reversibility

Positive test thresholds
 Obstructive spirometry: FEV1/FVC ratio less than 70% (or below the lower limit of normal if available)
 FeNO: 35 ppb or more
 BDR: improvement in FEV1 of 12% or more
 Peak flow variability: variability over 20%

This algorithm is based on recommendations from NICE's guideline on [asthma: diagnosis, monitoring and chronic asthma management](#) (2017)

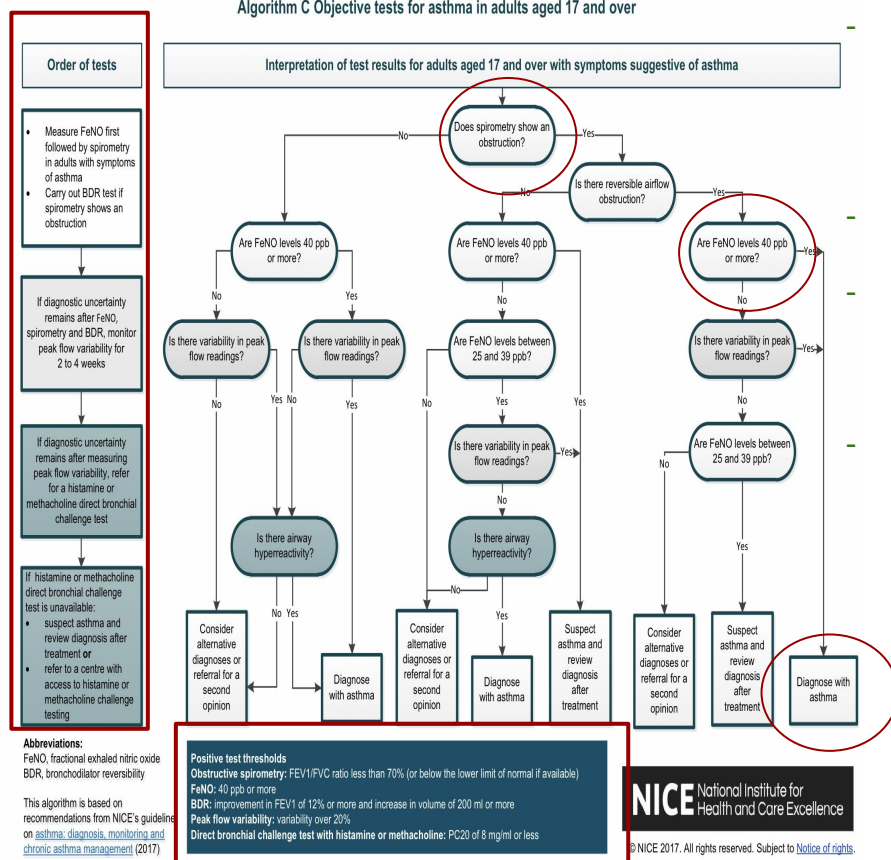
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- Read the steps on the left first to understand.
- Children
- Spirometers and BDR is enough for the diagnosis
- FeNO only if there is uncertainty(second stage)

Diagnosis of Asthma in children and adult – NICE (NG80) GUIDELINES

Algorithm C Objective tests for asthma in adults aged 17 and over



- **Adult**
- Start with FeNO first followed by spirometry if spirometry shows obstruction we go for BDR.
- The three of them are used for the diagnosis.
- If uncertain after doing the tests we monitor peak flow variability for 2 to 4 weeks.
- If still uncertain we do histamine or methacholine test at hospital sittings.

Forced Exhaling Nitric Oxide(FeNO):

<https://youtu.be/c8e-vmZBWy8>

Overview of asthma pathways:

Asthma overview - NICE Pathways



Diagnostic summary:

[Recommendations](#) | [Asthma: diagnosis, monitoring and chronic asthma management](#) | [Guidance](#) | [NICE](#)

Pharmacotherapy of Asthma

Medication	Purpose	Common Adverse Effects
Short-acting beta-2-agonists	Immediate relief of symptoms	Tachycardia, jitteriness
Inhaled corticosteroids	Mainstay of long-term therapy	Thrush, dysphonia, potentially osteopenia at high doses
Long-acting beta-2-agonists	Long-term therapy when inhaled corticosteroids have not adequately controlled symptoms Useful for nocturnal symptoms	Tachycardia, jitteriness

Salbutamol = ventolin

Omalizumab ¹	For patients with allergies and asthma not controlled by inhaled corticosteroids and long-acting beta-2-agonists	Injection site reactions, viral infections, anaphylaxis
Leukotriene antagonists	Another option for patients with allergies and poorly controlled asthma	No significant adverse effects
Mepolizumab ² and Reslizumab ²	Another option for patients with allergies and asthma not controlled by inhaled corticosteroids and long-acting beta-2-agonists, targeted to persons with multiple asthma exacerbations over the past year	Herpes zoster, headaches, injection site reactions (mepolizumab); oropharyngeal pain, anaphylaxis (reslizumab); avoid in persons with active helminthic infections
Systemic corticosteroids	Immediate therapy for exacerbations or long-term therapy in patients with refractory asthma	Traditional corticosteroid side effects (weight gain, hyperglycemia, bone loss)
Theophylline	Similar to long-acting beta-2-agonists but used less frequently	Dose-related tachycardia, nausea, jitteriness



Red Flags in Asthma:


- **How to identify patients who are at high risk of a life-threatening asthma attack?**

Features of patients at high risk of a **life-threatening** asthma attack include:

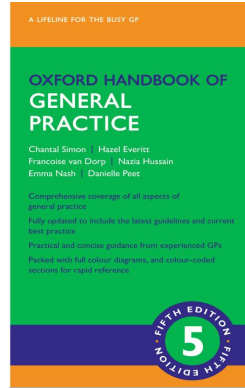
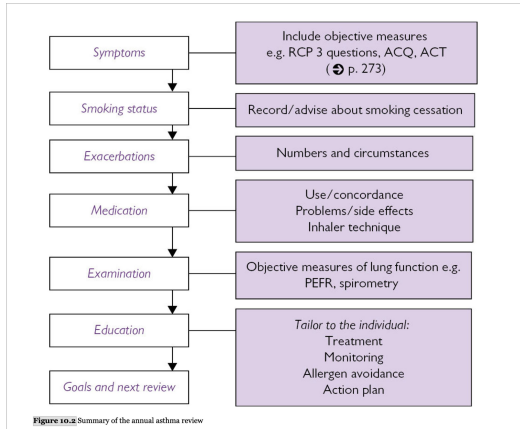
- History of an asthma attack, particularly one treated in hospital.
- Prescription of more than 12 short-acting beta-agonist inhalers (SABAS) per year.
- The need to use a SABA regularly, especially more than once every four hours.
- Prescription of insufficient preventer inhalers (such as inhaled corticosteroids (ICS)).
- The need for three different asthma medications (in addition to a short-acting bronchodilator) to maintain control.
- Concurrent mental health problems.

- **Which asthma patients to refer?**

Specialist Referral Is Recommended:

- Suspected occupational asthma.
 - Poor response to treatment.
 - Diagnostic uncertainty.
 - If recommended tests, such as FeNO or bronchial challenge, are unavailable
 - Needed two courses of systemic corticosteroids in the past year.
 - Had two or more attendances at the emergency department for their asthma in the past year
 - A past admission to a high dependency unit for asthma
 - Poor symptom control despite correct inhaler technique and good adherence.
 - Asthma with concurrent anaphylaxis or food allergy.
- 

Can Asthma be managed in family medicine?



- Average 15% family medicine doctor patients are asthmatic.
- At least review the pt once a year to check his control.
- Some pt only has episodic asthma
- Some pt inhaler ICS episodic & SABA through the year

Observe and give advice on the person's inhaler technique:

- At every consultation relating to an asthma attack.
- In all care settings when there is deterioration in asthma control.
- When the inhaler device is changed.
- At every annual review.
- If the person asks for it to be checked.

The Correct Use of Inhalers:

- <https://www.nice.org.uk/guidance/ng80/resources>

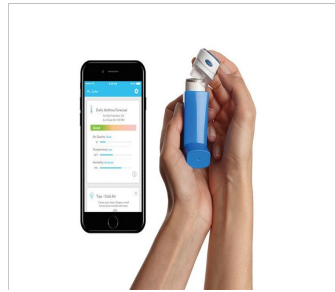
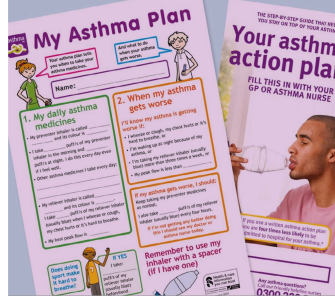
Inhaler techniques:

Shake the inhaler before use
 Hold the inhaler up-right
 Tilt head slightly back
 Place lips tightly over mouth piece
 Exhale Inhale slowly
 Actuate inhaler at start of inhalation
 Hold breath as long as you feel comfortable
 Leave time before next puff

very important to know how to demonstrate the technique of inhaler use: 1.Shake inhaler 2.remove cap 3.exhale 4.press inhaler & inspire and hold breath for 5 sec and then breath out completely and slowly



What is the FP's role in managing asthma?



www.ginasthma.org/wad @ginasthma

World Asthma Day

• Uncovering Asthma Misconceptions •

May 5, 2021 Global Initiative for Asthma

How is asthma diagnosed?

- The diagnosis of asthma is based on the history of characteristic symptoms patterns and evidence of variable airflow limitation. This should be documented from bronchodilator reversibility testing or other tests.
- Test before treating, whenever possible, to document the evidence for the diagnosis of asthma before starting controller treatment, as it is often more difficult to confirm the diagnosis afterwards.
- Additional strategies may be needed to confirm the diagnosis of asthma in particular populations, including patients already on controller treatment, the elderly, and those in low-resource settings.

Description of asthma:

Symptoms and airflow limitation may occur spontaneously or in response to conditions, and may recur after about five weeks or months of remission.

On the other hand, patients can experience episodic symptoms (intermittent) or asthma that may be persistent and vary a spectrum from mild to severe. Asthma is usually associated with airway hyperresponsiveness or airflow limitation, and may be associated with other respiratory conditions. However, these associations are not universal, but vary by population and environment.

Asthma Phenotypes

Asthma is a heterogeneous disease, with different underlying disease processes.

How is lung function testing used?

Asthma is characterized by variable airflow limitation, i.e. a variable lung function that varies over time and is associated, to a greater extent, in healthy populations. In children, lung function may vary only slightly over time and is usually not fully obstructed in the same way. Presumably controlled asthma is associated with greater variability in lung function than well-controlled asthma.

Cases from Dr slides

● Kareem

- Kareem is a 22 year old fitness instructor who has come to see you following spirometry organised by your colleague. He seeks your advice about an ongoing **cough** that he hasn't been able to shake off. He describes a non-productive cough which is most noticeable at **night time** and on waking.
- He has also been aware of his breathing when fitness training, and has occasionally had to cut short his exercise due to a **tight feeling in his chest**.
- He is usually very fit and well, troubled only by mild eczema. He has never smoked.
- On further questioning he says his mother and sister have asthma. o Respiratory examination today is normal, including normal observations. Spirometry five days ago, completed in the mid-afternoon, demonstrated no obstruction (normal).
- Looking back at Kareem's patient record, you note a peak flow taken two years ago which was significantly lower than his most recent value. At that time, your colleague also noted that Kareem had an audible wheeze.

- Go with same order of the adult algorithm
FeNO ...
- It is an exercise induced asthma.
- Refer to specialist to have second opinion to confirm the diagnosis. (عشان يقدمون له تعويض للعمل)
- eczema doesn't rule out exercise induced asthma and not necessarily b.c of the eczema to be atopic or allergic asthma

Sarah

- Sarah, 35 years old, normally sees another family physician in your practice.
- She is here today to get another salbutamol inhaler, as her current supply has run out.
- Looking at her notes, she was first given a salbutamol inhaler five years ago when she reported wheeze on exertion.
- Her notes say "?asthma", but no firm diagnosis was recorded, and no reasoning for a diagnosis was recorded.

We need to confirm her diagnosis by the same steps in the algorithm
FeNO>
spirometry>
BDR

QUESTIONS

1. Khalid, a 34-year-old electrician, returns to see you following completion of spirometry. He initially presented with wheeze and night time cough. **According to NICE guidance, which one of the following statements is true regarding his spirometry?**

- A. Asthma can be excluded if spirometry is normal.
- B. Spirometry showing obstruction without reversibility is diagnostic of asthma.
- C. A combination of spirometry showing reversible airway obstruction and FeNO level of 40 ppb or more confirm the diagnosis of asthma.
- D. A fixed FEV₁/FVC ratio of less than 70% to define obstruction.
- E. A post-bronchodilator increase in FEV₁ of 6% or higher, confirms reversibility

Correct answer is **C**.

A= no it can't be excluded.

B= should be reversible and variable

D= FEV₁/FVC ratio should be less than 70% or 80% is correct but it shouldn't be fixed it should be variable

E= Reversibility test FEV₁ must show 12% or more improvement from baseline after inhalation of short acting beta2-agonists.

2. A colleague seeks your advice regarding a discharge letter received from a private respiratory outpatient clinic. The letter details the assessment of Hassan, a 46 year old non-smoking plumber in whom a diagnosis of asthma was confirmed by the respiratory consultant. The letter includes the results of all diagnostic tests completed at the clinic. Your colleague is confused by the fractional exhaled nitric oxide (FeNO) result: it is normal. He can't understand how it can be normal even though Hassan has been confirmed as having asthma.

Which one of the following statements regarding FeNO is true?

- A. A positive FeNO test confirms airways inflammation, and can help identify patients who are likely to respond to inhaled corticosteroids
- B. Patients who smoke are liable to have increased FeNO readings
- C. A FeNO test is always positive in a patient with asthma
- D. FeNO is of limited clinical usefulness due to the long time required for completing a test
- E. FeNO will remain at the same level regardless of treatment with inhaled corticosteroids

Correct answer is **A**.

QUESTIONS

B= false, smoking ↓ FeNO

C=“always not always correct”

D= not available everywhere

E= it chang

3. Lamar, 15-years-old, attends your clinic with her mother Sara. In the past month, Lamar has experienced sudden spells of breathlessness which resolved spontaneously. Her energy levels are lower than normal, and she is worried she won't be able to do her best in her school exams. Sara's step-daughter has asthma, and she is worried Lamar might be developing it too.

Which one of the following symptoms/signs would make you consider a diagnosis other than asthma?

- A. Obstructive spirometry
- B. Symptoms worse in the early morning or at night
- C. History of eczema or allergic rhinitis
- D. Breathlessness with light-headedness and peripheral tingling
- E. Lack of audible wheeze on auscultation during a symptomatic time

Correct answer is **D**.

A= in favor with asthma

E= You can't exclude asthma due to absence of wheeze.

Some pt can present with cough and normal chest sounds

4. Amani is a 12 year old girl who presents to your clinic with her mother. Amani has been experiencing frequent episodes of cough and chest tightness in the last two months. Her symptoms are also worse in the morning. Today she says she feels fine, although two weeks ago her cough woke her up in the night on three different days in one week. On examination, you can hear bilateral expiratory wheeze. Amani has a past medical history of eczema and hay fever. Amani's mother also has hay fever. On further questioning, Amani does not have any other symptoms of note. You note that Amani had several peak flow values recorded one year ago when her symptoms were troublesome. Over four weeks, her peak flows varied significantly.



QUESTIONS

According to NICE guidance, what is the most appropriate step now?

- A. Prescribe a short acting beta agonist (SABA) for her to take as needed
- B. Arrange spirometry with reversibility testing
- C. Arrange a six week treatment trial of inhaled corticosteroids (ICS) with monitoring and a SABA to take as needed
- D. Confirm her diagnosis of asthma and start her on long term ICS
- E. Fractional exhaled nitric oxide (FeNO) testing

Correct answer is **B**.

E= child don't do it until uncertainty

C= done if the patient doesn't have access to spirometry or if she is not able to do spirometry for any reason .

