

PEFR TECHNIQUE

1. As with describing inhaler technique, this station tests your knowledge of asthma as well as your knowledge of peak expiratory flow rate measurement and your ability to communicate with patients.

2. Firstly, it is good to check the patient's understanding of their condition. If they do not understand fully you should explain what is happening and that when they have an exacerbation they find breathing more difficult. Furthermore, you should explain why measuring their PEFr is an important as a guide to how well controlled their asthma is at that time.

3. Explain to the patient that they should be checking their PEFr regularly, particularly if their asthma is worse than usual.

4. Start by describing the different steps in PEFr measurement to the patient. These are:

- Connect a clean mouthpiece.
- Ensure the marker is set to zero.
- Stand up or sit upright.
- Take as deep a breath in as you can and hold it.
- Place the mouthpiece in your mouth and form as tight a seal as possible around it with your lips.
- Breathe out as hard as you can.
- Observe and record the reading.
- Repeat the process 3-4 times and record the highest reading.
- Note down the reading in a diary to allow comparison with readings on other days.

5. Once you have discussed through the process, you should show the patient how to perform the measurement. Do this by measuring your own PEFr.





6. Once you have done this you should ask the patient to show you how they would perform the measurement. Make sure that they are doing this correctly and correct any mistakes which they might be making.

7. Finish by asking the patient if they have any questions or concerns about either their asthma or the PEFr measurement.

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Queen's University
Belfast

Peak expiratory flow rate measurement

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Check list 

Skill	Peak expiratory flow rate measurement
Learning outcome	In combination with supervised accredited practice the successful student should be able to perform a peak expiratory flow rate measurement on a patient
	Peak flow measurement is a procedure in which the maximum flow rate of expired air is measured. The measurement obtained is called the peak expiratory flow rate (PEFR). PEFR can be measured with a peak expiratory flow rate meter, a portable, hand-held device. Peak flow measurement using

a peak flow meter is particularly useful for individuals with *asthma*. During an asthma flare-up, the large airways in the lungs begin to narrow. This slows the speed of air leaving the lungs. A peak flow meter, when used properly, can reveal narrowing of the airways well in advanced of an asthma attack.

Peak flow meters can help to determine:

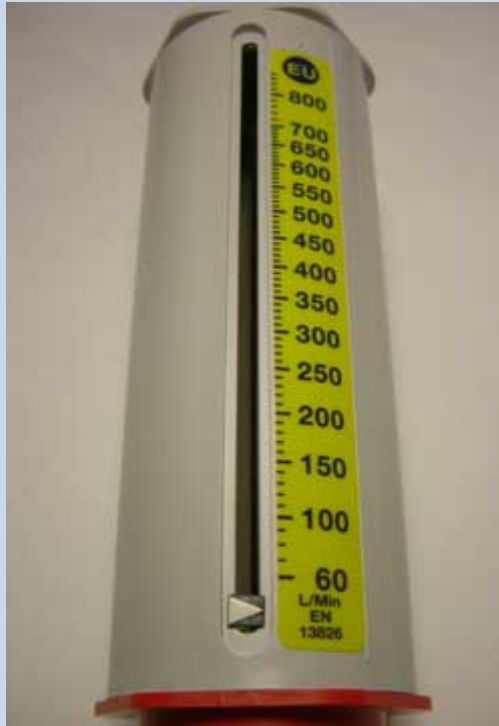
- when to seek emergency medical care
- the effectiveness of an asthma management and treatment plan
- when to stop or add medication as directed by a doctor
- what triggers the asthma attack (*such as exercise-induced asthma*)

Peak flow meters are available on NHS prescription in the UK . There are several different makes of peak flow meter and two different types known as *low* and *standard* range.

- Low range peak flow meters are designed for children, or those with impaired function of their lungs.



- Standard range peak flow meters are for adults.



A peak flow meter can be used by most adults and children over six years of age. Children under six years of age are not usually prescribed them because they tend to have difficulty in using a peak flow meter. It is more important to concentrate on getting a child to take their medication effectively and gauge asthma control by their symptoms.

Procedure

Introduction	Identify your self to the patient & ascertain the patient's details	
Patient instructions & consent	<p>In order to obtain accurate results you need to fully inform & involve the patient in this procedure. Therefore take time to explain:</p> <ul style="list-style-type: none"> • The purpose of the test • The technique • The test may need repeated up to three times <p>Usually it is worth well demonstrating the technique to the patient by performing your own PEFr measurement. Ensure that your patient understands your instructions & is willing to carry out the procedure.</p>	
Hand washing	Click here for link	
Equipment	Peak flow meter & disposable	

required

mouth piece. Always ensure the serviceability of the peak flow meter.



Procedure

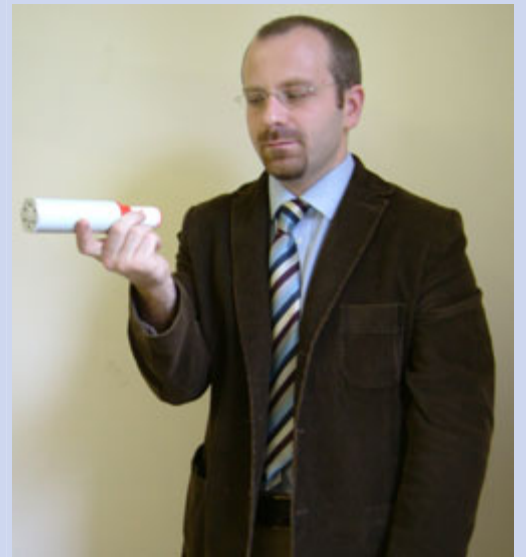
Attach new disposable mouth piece to the peak flow meter.



Before each use, make sure the sliding pointer on the peak flow meter is reset to the 'zero' mark.



Ask the patient to stand up & hold the peak flow in a horizontal position.

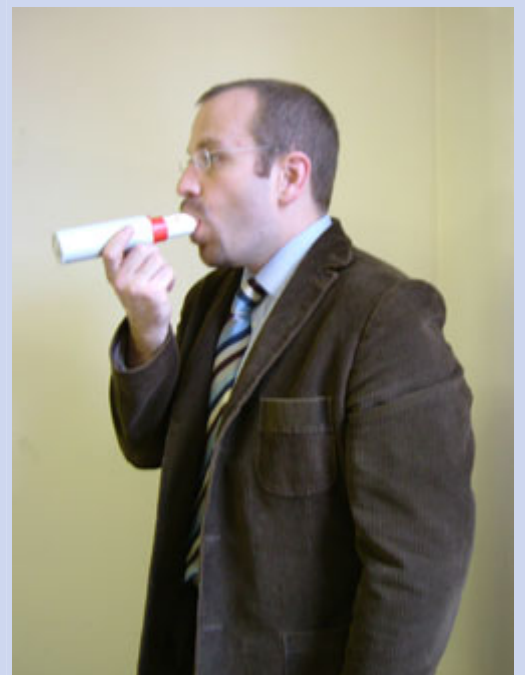


Take care not to place your fingers over the scale.



Ask the patient now to take a deep breath in & make a tight seal with their lips around the mouth piece.

Now ask the patient to blow out as hard & as fast as they can.
Remember a *“fast blast”* is better than a *“slow blow.”*



Note the number where the sliding pointer has stopped on the scale.



Reset the pointer to 'zero'.



Repeat this routine three times. You will know you have done the technique correctly when the three readings are close together.

Record the highest of the three readings on a graph or in a notebook. Do not average these numbers together. This is called your "peak flow" and is measured in litres per minute.

12/12/05

3pm

Mr J Bloggs (DOB: 16/12/1971)

PEFR 600 l/min

**Dr N Flanders
(PRHO Bleep 007)**

Learning point! Factors affecting results include

- Insufficient effort during the test.
- Lack of a tight seal over the mouthpiece.
- Improper handling of the peak flow meter (*most devices must be held horizontally to achieve accurate measurements*)

Interpretation of results

Predicted normal PEFR

Normal predicted PEFRs vary from person to person according to age, height and gender.

[Click here for a link to a chart of normal PEFRs](#). It is important to note that a patient's personal best peak flow can be less than their predicted PEFR value and still be completely normal.

Personal best PEFR

Although predicted normal PEFR is determined by height, age and gender, it is preferable to gauge asthma control by comparing daily peak flow recordings with the patient's personal best PEFR reading. The personal best PEFR is the highest peak flow number a patient can achieve over a 2-3 week period when their asthma is under control. To determine a patient's personal best PEFR ensure the patient:

- Uses the same peak flow meter
- Records their PEFR twice a day for two weeks

Peak flow measurements can alert patients & doctors if a patient is experiencing difficulty with their breathing ~ before they are aware or certain of the change. By making regular measurements at times when the patient is feeling well, will have identified their personal best PEFR value. Then, if their PEFR falls significantly from their personal best PEFR, they will then know that something has to be done in order to bring their breathing function back towards its target value.

As a general rule, a peak flow value of 80% or greater of their personal best PEFR value is considered within a safe range; from 50 to 80% of their personal best PEFR value is a moderate fall; and less than 50% of their personal best PEFR value is considered a severe decrease in your breathing function. Urgent action needs to be taken if a severe decline in PEFR is less than half of their personal best PEFR.

Useful link

[Asthma UK](#)