

Fractional Exhaled Nitric Oxide testing (F_ENO test)

Respiratory

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available
- If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111
- Keep the environment clean and tidy
- Let's work together to keep infections out of our hospitals and care homes.

Introduction

This leaflet has been written to provide information about $F_{E}NO$ testing. We hope it answers some of the questions or concerns you may have. It is not intended to replace talking to a healthcare professional.

What is a Fractional Exhaled Nitric Oxide or $F_{E}NO$ ("fee-no") test?

Your doctor has asked that you have a $F_{E}NO$ test. This is a way to measure inflammation (swelling) in the airways of the lungs. The test may be used to help diagnose asthma, to evaluate a chronic cough, or to see how well inhaled steroid treatment is working in patient's already diagnosed with asthma.

What does the test involve?

You will be seated for the test. You will be asked to breathe into a portable device as pictured below.



How do I prepare for the test?

Smoking before the $F_{E}NO$ test can affect the result, so avoid smoking beforehand if you can. It can cause anything from a 30-60% reduction in the result. Avoid Nitrate rich food, such as green leafy vegetables and beetroot, also caffeine and alcohol can also affect the result, so do not eat or drink these for an hour or two before the test. They can cause a 40-60% increase in result.

What is nitric oxide?

Nitric oxide is found in the atmosphere, and is higher in areas with air pollution. It is also produced in the body, especially if there is inflammation. A higher level of nitric oxide measured in your breath may be a sign of asthma.

What happens during a F_ENO test?

You breathe into a plastic mouthpiece attached to a handheld monitor. The monitor shows the reading on its screen. You will breathe in deeply, with your mouth open, and then breathe out little by little until your lungs are empty. The breath out will normally take 10 seconds in adults (6 seconds in children). Some devices will make a sound to help keep the flow at the right level throughout the test. You may have to do the same measurement up to 3 times.

Are there any side effects?

There are no significant side effects to this test, you will simply be asked to blow out into a mouthpiece for 6-10 seconds at a steady consistent pace or flow. It is a very low risk test.

What will the results look like?

The results will be measured in parts per billion (ppb) of nitric oxide in your breath. Your health care professional will also check your symptoms, such as cough, wheeze and shortness of breath.

More than 50ppb of nitric oxide (NICE Asthma, 2024) indicates that your airways are inflamed, and it is possible that you may have asthma.

Higher levels of nitric oxide are found in the exhaled breath of patients with a type of asthma called eosinophilic asthma.

This is asthma driven by high levels of a type of white blood cell called eosinophil's.

If you have high levels of eosinophil's in your blood it can cause the airways to become inflamed, leading to asthma symptoms and asthma attacks.

Why measure F_ENO?

- To help diagnose asthma
- To obtain a baseline measurement to help monitor patients with asthma
- To help guide changes needed with patients asthma medication
- Check compliance to inhalers (steroid inhalers).

F_ENO measurements can also be used to monitor treatment of specific asthma medications such as Omalizumab (Xolair) injections.

Omalizumab (or Xolair) injection is used to decrease the number of asthma attacks (sudden episodes of wheezing, shortness of breath, and trouble breathing) in people with allergic asthma (asthma caused by inhaling substances such as dander, pollen, and dust mites) whose symptoms are not controlled with inhaled steroids.

What are the advantages of F_ENO testing?

- Painless, quick and reliable test
- Can be used to help diagnosis in patients who have a normal spirometry test
- Can help identify Asthma in patients also diagnosed with COPD (smokers).

What are the disadvantages?

- The result must be interpreted by someone with good clinical knowledge after obtaining a thorough clinical history from the patient
- Only helps diagnose patients who have a specific type of asthma, such as eosinophilic asthma. This is a form of asthma driven by high levels of a type of white blood cell called eosinophils. If you have high levels of eosinophils in your blood it can cause the airways to become inflamed, leading to asthma symptoms and asthma attacks.

What should I do if I no longer wish to have the F_ENO test?

Please contact the department as soon as possible so that the appointment slot can be allocated to another patient.

If you have any questions or require further information please contact:

The Respiratory Centre (B1)

New Cross Hospital

Wolverhampton Road

Wolverhampton

WV10 0QP

01902 695061

Monday to Friday 9:00am until 5:00pm.

English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。