Measuring FeNO with the FeNObreath®

Methods of Measuring FeNO

The ATS/ERS 2005 recommendations for standardized procedures for the measurement of exhaled nitric oxide (FeNO) testing highlight that while evidence shows ambient levels of NO do not affect the result, it is preferable to avoid doubt by removing it from the breath sample[1].

This can be done by either:

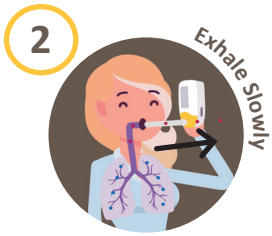
'Partitioning' the sample; effectively ignoring the potential initial spike caused by ambient NO; or
Inhaling through an NO scrubber prior to exhalation; FeNObreath® utilizes the first Partitioning Method.

What is the Partition Method?

The Partition Method is a method of measuring Fractional Exhaled Nitric Oxide (FeNO) in accordance with the ATS/ERS guidelines[1]. The Partition Method essentially 'parts' the breath sample, and omits the first few seconds to ensure any potential high ambient levels of NO present in the breath is not measured during sampling.

How does the Partition Method work?

When prompted by the FeNObreath®, the patient simply needs to exhale slowly through the mouthpiece into the device, following the onscreen motivational guide.

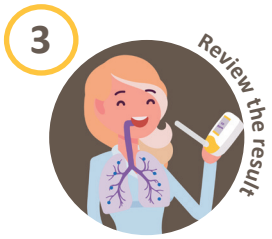


As the breath sample enters the FeNObreath® FeNO device, the first few seconds are partitioned and vented through the device bypassing the sensor chamber. After the partition period has elapsed, the pump will begin to draw the remaining viable sample into the sensor chamber, where the breath sample will be analysed.

Once the breath sample has been analysed, a result is shown instantly onscreen.

Is the Partition Method effective at measuring FeNO?

Both methods of FeNO measuring have been shown to result in excellent repeatability, reproducibility and comparability[2,3,4,5,6,7,8].



Additionally, the FeNObreath® device's electrochemical sensor has been validated against the gold standard, chemiluminescence technology[7] . The FeNObreath® device's use of the Partition Method has been subject to many clinical studies and case study write-ups proving its accuracy.

Why did we choose the Partition Method?

1. It's easy for patients to perform
2. It's accurate
3. The patient does not have to inhale through a device that has been used on multiple prior patients as even highly effective BVF filters may not be 100% effective; and the patient does not have to inhale through an NO scrubber*;

Therefore, the FeNObreath® FeNO device was designed, using the Partition Method, not only to comply to ATS/ERS guidelines for FeNO testing, but to reduce any risk posed to patients, while ensuring optimal user-friendly test methods and accuracy.

*NO scrubbing filters typically utilise potassium permanganate (a potentially hazardous substance) which has been referenced in certain conditions, if inhaled, to cause irritation to the nose, throat and lungs causing coughing and/or shortness of breath[9,10,11,12]. Even though the likelihood of these risks may be low, by avoiding the need for inhalation through the device and/or an NO scrubber, means these risks do not arise and this is another reason why we chose this technique for FeNObreath®. The FeNObreath® also utilises an NO scrubber for accuracy but this does not form any part of the breath pathway.

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