

Improving Diagnosis and Management of Asthma through F_{ENO} Measurement



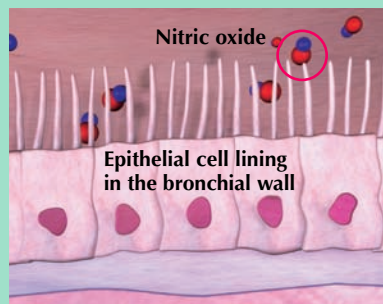
Aerocrine

What is NO?

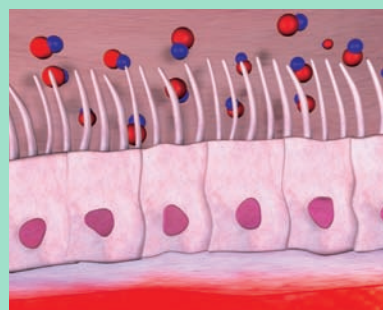
Nitric oxide (NO) is produced in the epithelial cells of the bronchial wall as an intrinsic part of the inflammatory process. NO production has been shown to increase when there is eosinophilic airway inflammation^{1,2}.

The presence of endogenous NO in exhaled air was first reported in 1991 by Gustafsson et al.³ and in 1993 Alving et al. found that NO in exhaled air was elevated in patients with asthma⁴. Since that time research has been directed at uncovering the role that NO plays in airway inflammation.

There has been a continuous flow of research and a large body of data (nearly 1,500 publications in peer reviewed medical journals) to confirm the clinical value of exhaled NO measurement.



Normal epithelial cells. Minimal release of NO.



Activated epithelial cells during inflammation demonstrate increased production of NO.

"...the new studies... ...are highly suggestive of long-term benefit of F_{ENO} inflammometry in asthma management. The bottom line is that F_{ENO} inflammometry is an easy test which is helpful to target steroid treatment, to reduce steroids where possible, and to provide significant benefits in terms of less hyperresponsiveness and less inflammation without leading to overall need for more steroids at the group level. On the basis of these findings, F_{ENO} offers more for day-to-day asthma management than any of the conventional lung function tests."

Editorial, Eur Respir J 2005;26:1-3⁵

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Asthma Management Made Easy

The measurement of fractional exhaled nitric oxide ($F_{E_{NO}}$) has been validated as a way of measuring the airway inflammation that underlies asthma.

$F_{E_{NO}}$ measurement is:

- ✓ *Accurate*
- ✓ *Reproducible*
- ✓ *Immediate*
- ✓ *As informative as biopsy*

$F_{E_{NO}}$ measurement offers:

- ✓ *Correct asthma diagnosis*
- ✓ *Rapid identification of non-compliance*
- ✓ *Insights into steroid effectiveness*
- ✓ *Prediction of steroid response*
- ✓ *Steroid dose-titration that reduces cost and improves patient outcome*
- ✓ *Notification of loss of control*
- ✓ *Prediction of asthma relapse*

The American Thoracic Society, in conjunction with the European Respiratory Society, have developed guidelines on how exhaled NO measurements should be performed⁶. Measurements performed according to these guidelines are called Fractional Exhaled Nitric Oxide ($F_{E_{NO}}$). The guidelines state that exhaled NO measurements must be performed at a controlled and standardized exhalation flow rate as the $F_{E_{NO}}$ value is highly flow dependent.

The $F_{E_{NO}}$ values in this brochure are valid for the standardized 50mL/s flow rate only.