

FENO INTERPRETATION GUIDE

BASED ON INTERNATIONALLY RECOGNISED CUT-OFF POINTS



Interpretation of FeNO levels for the assessment of patients with suspected or diagnosed asthma

| FeNO levels and assessment of airway inflammation, from the ATS guidelines ¹ | | | NICE Guideline (NG80) ² | NICE Guideline (NG80) ² | |
|---|----------|--------------|------------------------------------|------------------------------------|-----|
| FeNO (ppb) | LOW | INTERMEDIATE | | HIGH | |
| Adults | < 25 | 25-50 | 25-40 | > 50 | >40 |
| Children | < 20 | 20-35 | 20-35 | > 35 | >35 |
| Type 2 inflammation | Unlikely | Possible | | Likely | |

| Undiagnosed | Diagnosis in ICS treatment-naïve patients with suspected asthma (symptomatic during past 6+ weeks) ¹ | | |
|-------------------------------|--|--|--|
| Diagnostic considerations | <p>Consider alternative diagnoses</p> <ul style="list-style-type: none"> Non-eosinophilic asthma Rhinosinusitis COPD Bronchiectasis Cystic fibrosis, primary ciliary dyskinesia Post-viral bronchial hyperresponsiveness Vocal cord dysfunction Anxiety/hyperventilation Gastroesophageal reflux disease Cardiac disease Pulmonary hypertension/embolism | <p>Interpret cautiously</p> <p>Evaluate clinical context</p> | <p>Supports a diagnosis of asthma</p> |
| Considerations for management | Not likely to respond to ICS | May respond to ICS Monitor change in FeNO | Likely to respond to ICS |



Symptomatic

Monitoring in ICS-treated patients with a confirmed diagnosis of asthma¹

| | | | |
|--------------------------------------|--|---|---|
| Considerations for management | Possible alternative diagnoses Unlikely to benefit from increase in ICS | Persistent allergen exposure Inadequate ICS dose Poor adherence Steroid resistance | Persistent allergen exposure Poor adherence or inhaler technique Inadequate ICS dose Risk for exacerbation Steroid resistance |
| | Consider monitoring change in FeNO | Consider monitoring change in FeNO | Consider monitoring change in FeNO |
| | A significant increase or decrease is +/- 10 ppb | A significant increase or decrease is +/- 10 ppb | A significant increase or decrease is +/- 20% |



Asymptomatic

Monitoring in ICS-treated patients with a confirmed diagnosis of asthma¹

| | | | |
|--------------------------------------|--|--|---|
| Considerations for management | Adequate ICS dose Good adherence ICS taper | Adequate ICS dose Good adherence | Poor adherence or inhaler technique ICS withdrawal or dose reduction may result in relapse |
| | Consider monitoring change in FeNO | Consider monitoring change in FeNO | Consider monitoring change in FeNO |
| | A significant increase or decrease is +/- 10 ppb | A significant increase or decrease is +/- 10 ppb | A significant increase or decrease is +/- 20% |

The interpretation of FeNO levels should be determined in individual patients with reference to the context in which the measurement is being obtained.¹ Rhinovirus infection, allergic rhinitis, atopy, and intake of nitrate-containing foods (primarily green, leafy vegetables) can cause an increase in FeNO value.^{3,4} Cigarette smoking leads to reduced basal FeNO values, but FeNO is still raised in smokers with asthma compared with smokers without asthma.³



For a quicker way to interpret FeNO results, use our interactive online tool.
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References: 1. Dweik RA et al. An official ATS clinical practice guideline: interpretation of exhaled nitric oxide levels (FENO) for clinical applications. Am J Respir Crit Care Med. 2011 184(5):602-15. 2. National Institute for Health and Clinical Excellence (NICE). Asthma: diagnosis, monitoring and chronic asthma management. NICE guideline [NG80]. 2017. 3. Bjermer L et al. Current evidence and future research needs for FeNO measurement in respiratory diseases. Respir Med. 2014 108(6):830-841. ATS = American Thoracic Society; COPD = chronic obstructive pulmonary disease; FeNO = fractional exhaled nitric oxide; GERD = gastroesophageal reflux disease; ICS = inhaled corticosteroids.

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