

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



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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. Bjerner 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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