

## FRACTIONAL EXHALED NITRIC OXIDE TESTING

Nitric oxide can be measured in exhaled breath and can serve as a measure of the level of airway inflammation. In individuals with asthma, fractional exhaled nitric oxide (FeNO) may be a useful indicator of type 2 (T2) inflammation in the airway.

### FeNO Testing in the Diagnosis of Asthma

#### KEY POINTS

- FeNO measurement may support a diagnosis of asthma in individuals for whom the diagnosis is uncertain, even after a complete history, physical examination, and spirometry testing including bronchodilator responsiveness.
- In children ages 4 years and younger who have recurrent episodes of wheezing, FeNO measurement does not reliably predict the future development of asthma.

#### IMPLEMENTATION GUIDANCE AND CONSIDERATIONS FOR SHARED DECISION MAKING

- FeNO levels greater than 50 ppb (or greater than 35 ppb in children ages 5–12 years) are consistent with elevated T2 inflammation and support a diagnosis of asthma.
- Allergic rhinitis and atopy, which can be present in individuals with and without asthma, are associated with increased FeNO levels. Taking these factors into consideration is critical for accurately interpreting FeNO test results.



#### RECOMMENDATIONS

- In children ages 0–4 years with recurrent wheezing, the Expert Panel recommends against FeNO measurement to predict the future development of asthma.
- In individuals ages 5 years and older for whom the diagnosis of asthma is uncertain using history, clinical findings, clinical course, and spirometry, including bronchodilator responsiveness testing, or in whom spirometry cannot be performed, the Expert Panel conditionally recommends the addition of FeNO measurement as an adjunct to the evaluation process.

## FeNO Testing in the Management of Asthma in Individuals Ages 5 Years and Older

### KEY POINTS

- FeNO testing should not be used in isolation to assess asthma control, predict a future asthma exacerbation, or assess the severity of an exacerbation.
- FeNO measurement may be used in conjunction with an individual's history, clinical findings, and spirometry as part of an ongoing asthma monitoring and management strategy which includes frequent FeNO assessments.

### IMPLEMENTATION GUIDANCE AND CONSIDERATIONS FOR SHARED DECISION MAKING

- Interpret FeNO levels in conjunction with other clinical data because these levels are affected by comorbid conditions, including allergic rhinitis and atopy, or behaviors such as smoking.
- Cutpoints for adjusting therapy to reduce the risk of exacerbation have not been established.



### RECOMMENDATIONS

- In individuals ages 5 years and older with persistent allergic asthma, for whom there is uncertainty in choosing, monitoring, or adjusting anti-inflammatory therapies based on history, clinical findings, and spirometry, the Expert Panel conditionally recommends the addition of FeNO measurement as part of an ongoing asthma monitoring and management strategy that includes frequent assessments.
- In individuals ages 5 years and older with asthma, the Expert Panel recommends against the use of FeNO measurements in isolation to assess asthma control, predict future exacerbations, or assess exacerbation severity. If used, it should be as part of an ongoing monitoring and management strategy.