Objective tests for asthma in adults aged 17 and over

**Interpretation of test results for adults aged 17 and over with symptoms suggestive of asthma**

- **Does spirometry show an obstruction?**
  - NO
  - **Are FeNO levels 40 ppb or more?**
    - NO
    - **Is there variability in peak flow readings?**
      - NO
      - **Is there airway hyperreactivity?**
        - NO
        - Consider alternative diagnoses or referral for a second opinion
        - Diagnose with asthma
      - YES
      - Diagnose with asthma
    - YES
    - **Are FeNO levels between 25 and 39 ppb?**
      - NO
      - **Is there variability in peak flow readings?**
        - NO
        - Diagnose with asthma
        - Suspect asthma and review diagnosis after treatment
      - YES
      - **Are FeNO levels 40 ppb or more?**
        - NO
        - **Is there variability in peak flow readings?**
          - NO
          - **Suspect asthma and review diagnosis after treatment**
          - Diagnose with asthma
        - YES
        - Diagnose with asthma
  - YES
  - **Is there reversible airflow obstruction?**
    - NO
    - **Are FeNO levels 40 ppb or more?**
      - NO
      - **Is there variability in peak flow readings?**
        - NO
        - Consider alternative diagnoses or referral for a second opinion
        - Diagnose with asthma
      - YES
      - Diagnose with asthma
    - YES
    - **Are FeNO levels between 25 and 39 ppb?**
      - NO
      - **Is there variability in peak flow readings?**
        - NO
        - **Suspect asthma and review diagnosis after treatment**
        - Diagnose with asthma
      - YES
      - Diagnose with asthma
  - YES
  - **Are FeNO levels 40 ppb or more?**
    - NO
    - **Is there variability in peak flow readings?**
      - NO
      - **Suspect asthma and review diagnosis after treatment**
      - Diagnose with asthma
    - YES
    - **Are FeNO levels between 25 and 39 ppb?**
      - NO
      - **Consider alternative diagnoses or referral for a second opinion**
      - Diagnose with asthma
    - YES
    - Diagnose with asthma

**FeNO** = fractional exhaled nitric oxide; **BDR** = bronchodilator reversibility

**Positive test thresholds**

- **Obstructive spirometry**: FEV₁/FVC ratio less than 70% (or below the lower limit of normal if available)
- **FeNO**: 40 ppb or more
- **BDR**: improvement in FEV₁ of 12% or more and increase in volume of 200 ml or more
- **Peak flow variability**: variability over 20%
- **Direct bronchial challenge test with histamine or methacholine**: PC₂₀ of 8 mg/ml or less