

Investigations

- Spirometry should be performed in patients who are aged over 35, are current or ex-smokers, and who have a chronic cough.
- Spirometry should be considered in patients with **chronic bronchitis**. A significant proportion of these will go on to develop airflow limitation.
- A true assessment of severity should include assessment of the degree of airflow obstruction and disability, the frequency of exacerbations and the following prognostic factors:
 - Health status, breathlessness (MRC scale), **body mass index** (BMI), exercise capacity.
 - Forced expiratory volume in one second (FEV1), **arterial blood gases** for partial pressure of oxygen in arterial blood (PaO₂).
 - Presence of complications, e.g. **cor pulmonale**.

The BODE index (= BMI, airflow **O**bstruction, **D**yspnea and **E**xercise capacity index) should be used to assess the prognosis when the component information is available: measurement of the BODE index includes measurement of BMI, FEV1 as percentage of predicted, dyspnea (modified MRC score) and exercise tolerance (6-minute walking distance).

Further investigations

If diagnostic uncertainty remains, referral for more detailed investigations, including imaging and measurement of carbon monoxide transfer factor (TLCO) should be considered.

- At the time of their initial diagnostic evaluation, in addition to spirometry all patients should have:
 - **CXR** to exclude other pathologies.
 - **CBC** to identify **anemia** or **polycythaemia**.
 - **BNP-NT** to identify heart failure.
 - BMI calculated.
- Additional investigations should be performed to aid management in some circumstances:
 - Serial domiciliary peak flow measurements: to exclude asthma if diagnostic doubt remains.
 - Alpha-1-antitrypsin: if early onset, minimal smoking history or family history.
 - TLCO: Detailed Pulmonary Function Testing to investigate symptoms that seem disproportionate to the spirometric impairment.
 - CT scan of the thorax: to investigate symptoms that seem disproportionate to the spirometric impairment, investigate abnormalities seen on a CXR and assess suitability for surgery. Only as needed.
 - **ECG**: to assess cardiac status if there are features of cor pulmonale.
 - **Echocardiogram**: to assess cardiac status if there are features of cor pulmonale.
 - **Pulse oximetry**: To assess the need for **oxygen therapy**. If there is cyanosis or cor pulmonale present, or if FEV1 is less than 50% predicted.
 - Sputum culture: to identify organisms if sputum is persistently present and purulent, to include atypical mycobacterium.