

# CLINICAL GUIDE: WHICH LUNG FUNCTION TEST TO CHOOSE?

## Spirometry

(also known as Flow Volume Loops)

Measures FEV1, FVC, FEV1/FVC ratio and others

Spirometry is the gold standard for diagnosing obstructive airways diseases

- Routine Dyspnoea investigations (smokers etc)
- Asthma (perform Pre and Post Bronchodilator)
- COPD (assess severity of COPD and also potential response to Bronchodilator)
- Possible Upper airway obstruction (inspiratory loops)
- Asthma response to inhaler therapy
- COPD assess progress or decline
- Pre surgery assessment

**Table 1. Recommendations for spirometry in national clinical guidelines for asthma and COPD**

Asthma <sup>2</sup>	COPD <sup>4</sup>
Any patient with suspected asthma	Investigation of:
Making the diagnosis of asthma*	— unexplained breathlessness
Confirming a past diagnosis	— cough that is chronic (daily for 2 months), intermittent, unusual
Assessing risk of flare-ups	— frequent or unusual sputum production
Investigating recent worsening of asthma control	— relapsing acute infective bronchitis
Monitoring response to a change in treatment	Case-finding in people exposed to tobacco smoke or occupational dusts and chemicals, or patients with a strong family history of COPD
Periodically reviewing asthma (e.g. every 1-2 years)	Making the diagnosis of COPD <sup>†</sup>
At every visit for patients with severe asthma or patients with poor perception of airflow limitation (e.g. those who do not feel any different with a 15% decrease or increase in FEV <sub>1</sub> )	Reviewing treatment response and disease progression in people with COPD

\* Spirometric criteria in combination with clinical findings; the diagnosis of asthma cannot be made solely on the basis of spirometry findings, but also depends on clinical findings including symptoms and exclusion of alternative diagnoses.

† Spirometric assessment is essential to the diagnosis.

Table 1. Taken from National Asthma Council, The Spirometry Handbook for Primary Care

## Gas Transfer

Also known as DLCO/TLCO/Transfer Factor/gas diffusion. Measures ability to absorb oxygen from the lungs into the blood. Also measures lung volume indirectly via gas dilution method.

- Suspected COPD/Emphysema. Assess severity. Smokers and Ex Smokers
- Disease progression.
- Helps distinguish between Asthma and COPD
- Interstitial lung disease
- Reduced SpO<sub>2</sub>.

## Static Lung Volumes

Body Plethysmography is the gold standard for measuring lung capacity.

This test measures all the air in the lungs, which gives us the Total lung capacity, FRC – Functional residual capacity and RV – Residual Volume.

- Confirmation of reduced lung volumes
- Restrictive and interstitial lung disease
- Fibrosis

## Postural Spirometry & Respiratory Muscle Strength

- Neuromuscular diseases
- Diaphragm weakness