



Accurate spirometry interpretation: Top Tips



Use ratios with the LLN to better understand patterns of airflow³

Calculate a ratio of the FEV₁ to the FVC or VC (whichever is largest)³. A reduced FEV₁ ratio indicates airway obstruction;⁷this *can* be compared to a fixed ratio of 0.7 as a cut-off however, comparing it to the LLN (z-score <-1.645) is preferable to help avoid missed- or mis-diagnoses.^{4,7,8}

Review both volume-time and flow-volume curves for specific features to help confirm the type of respiratory disease^{3,9}





Take a clear clinical history and use this alongside the patient's clinical presentation to determine the diagnosis ^{2,3}

Spirometry is only one part of the patient assessment. Interpreting spirometry results in the context of the clinical picture will help to ensure an accurate diagnosis. Consider referring to a specialist for further investigation if a clear diagnosis cannot be made.^{2,3}



Use $FEV_1\%$ predicted or FEV_1z -score (depending on the underlying

disease cause) to assess the severity of airflow obstruction^{8,10,11}

- Post-bronchodilator FEV1 % predicted is used to define severity of obstruction in COPD (not the FEV1 ratio) $_{8,10}$
- $\,$ The FEV_1z-score is used to assess severity of obstruction in other respiratory conditions, including asthma 11

	NICE/GOLD8,10	ARTP11
Post-bronchodilator spirometry	FEV ₁ % predicted	FEV ₁ z-score
Mild	≥ ^{80%}	≥-2.0
Moderate	50-79%	<-2.0
Moderately severe	-	<-2.5
Severe	30-49%	<-3.0
Very severe	<30%*	<-4.0

Note that this is the severity of airway obstruction and not the severity of disease.⁸



References:

*Or FEV1 <50% with respiratory failure.10

ARTP, Association for Respiratory Technology and Physiology; COPD, chronic obstructive pulmonary disease; FEV1, forced expiratory volume in 1 second; FVC, forced vital capacity; GOLD, Global Initiative for Chronic Obstructive Lung Disease; LLN, lower limit of normal; NICE, National Institute for Health and Care Excellence; PEF, peak expiratory flow; VC, vital capacity.

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