

Bronchodilator response various guidelines May 2023

What are acceptable criteria for a positive bronchodilator response?

This is dependent on the guideline that you use locally, which should be noted in the front of your portfolio. However, any of these will be acceptable:

GOLD (2023)

Discuss post bronchodilator spirometry and abnormal ratio as mandatory to establish a diagnosis of COPD.

GINA (2022)

Increase in FEV₁ of > 12%, together with an increase in volume of > 200 ml; greater confidence if increase is > 15% and >400 ml (adults)

Increase in FEV₁ of > 12% (children)

NICE (2021)

Regard an improvement in FEV₁ of 12% or more, together with an increase in volume of 200ml or more, as a positive test (17 years and older). Regard an improvement in FEV₁ of 12% or more as a positive test (aged 5 to 16)

ARTP Statement on Pulmonary Function Testing (2020)

It has been proposed that change should be expressed as percent of the subject's predicted value or as change in z-score as these methods are free from sex and size bias. A change in FEV₁ of >8% of predicted has been shown to be associated with a subsequent survival advantage that would favour a diagnosis of asthma and active treatment.

A change in z-score of 0.7 has also been proposed as a clinically meaningful change; improvement of FVC postbronchodilator of >0.64 was more pronounced in those with the most severe airflow obstruction, suggesting a clinically important relief of hyperinflation.

NICE (2019)

Over-reliance on a single reversibility test may be misleading unless the change in FEV₁ is greater than 400ml

BTS/SIGN (2019)

In adults with obstructive spirometry, an improvement in FEV₁ of 12% or more in response to either β₂ agonists or corticosteroid treatment trials, together with an increase in volume of 200 ml or more, is regarded as a positive test, although some people with COPD can have significant reversibility.

An improvement of greater than 400ml in FEV₁ strongly suggests underlying asthma.

In children, an improvement in FEV₁ of 12% or more is regarded as a positive test.

ATS/ERS (2019)

If a bronchodilator is administered, both the percentage change and the absolute change in FEV₁ and FVC compared with pre-bronchodilator values are reported.

Recent studies showed that reporting the change in FEV₁ as a percentage of the predicted FEV₁ or as z-scores avoids sex and height bias in assessing bronchodilator responsiveness