

FEV₆ WORKS AS WELL AS FVC IN DETERMINING A RESPONSE TO BRONCHODILATOR

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FEV₆ has been demonstrated to work as well as FVC in algorithms used to interpret basic spirometry, but its performance in identifying a bronchodilator response has not been confirmed. A significant bronchodilator response has been variously defined as: an increase of 200 ml and 12% from baseline in either FEV₁ or FVC (ATS); an increase of 200 ml and 12% calculated as percent of predicted (ERS) and an increase in FEV₁ of more than 400 ml from baseline (NICE COPD guideline). **Methods:** Results from 168 consecutive adult patients referred for spirometry with bronchodilator testing were analysed. All tests met ATS quality criteria. Bronchodilator responses based on FEV₁, FVC, and FEV₆ were analysed using ATS and ERS and NICE criteria. The NICE 400 ml criteria was applied to FVC. FEV₆ responses were treated the same as FVC. **Results:** Compared with ERS or NICE criteria, the ATS criteria categorise significantly more patients as responsive to bronchodilator regardless of the spirometric parameter used (See table). As expected, the NICE system results in fewer positive FEV₁ responses to bronchodilator. For FVC and FEV₆, NICE criteria resulted in categorisations similar to the ERS criteria but produced fewer positive responses than the ATS criteria. FVC and FEV₆ were equivalent regardless of the criteria used.

	ATS (%)	ERS (%)	NICE (%)
FEV₁	21	9	5
FVC	17	11	13
FEV₆	19	12	10
FEV₁ or FVC	26	15	14
FEV₁ or FEV₆	25	14	12
FVC or FEV₆	20	14	15

Discussion: Current bronchodilator response criteria vary significantly in identifying positive responses to bronchodilator. FEV₆ performs as well as FVC in determining bronchodilator response across the board and provides further evidence that it can be substituted for FVC.

Key Words: Bronchodilator response, FEV₁, FVC, FEV₆