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# Normal spirometry predictive values for the Western Indian adult population

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The Western Indian adult population appears to have lower lung volumes compared to the Euro-American population. Use of GLI normal values may result in overdiagnosis of respiratory disease and locally derived equations should be used in clinical practice. <https://bit.ly/3aMAN4s>

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**ABSTRACT** Interpretation of spirometry involves comparing lung function parameters with predicted values to determine the presence/severity of the disease. The Global Lung Function Initiative (GLI) derived reference equations for healthy individuals aged 3–95 years from multiple populations but highlighted India as a “particular group” for whom further data are needed. We aimed to derive predictive equations for spirometry in a rural Western Indian adult population.

We used spirometry data previously collected (2008–2012) from 1258 healthy adults (aged 18 years and over) by the Vadu Health and Demographic Surveillance System. We constructed sex-stratified prediction equations for forced expiratory volume in 1 s (FEV<sub>1</sub>), forced vital capacity (FVC), and FEV<sub>1</sub>/FVC using the Generalised Additive Model for Location, Scale and Shape (GAMLSS) method to derive the best fitting model of each outcome as a function of age and height.

When compared with GLI Ethnicity Codes 1 (White Caucasian) and 5 (Other/Mixed), the Western Indian adult population appears to have lower lung volumes on average, though the FEV<sub>1</sub>/FVC ratio is comparable. Both age and height were predictive of mean FEV<sub>1</sub> and FVC; and for females, the variability of response was also dependent on age. FEV<sub>1</sub>/FVC appears to have a very strong age effect, highlighting the limitations of using a fixed 0.7 cut-off value.

The use of GLI normal values may result in overdiagnosis of lung disease in this population. We recommend that the values and equations generated from this study should be used by physicians in their routine practice for diagnosing disease and its severity in adults from the Western Indian population.