

LETTER TO THE EDITOR

REGRESSION EQUATIONS FOR PREDICTION OF NORMAL LUNG FUNCTION

Sir,

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We read with interest the study by Nair and colleagues in a recent issue of this Journal (1). The authors have derived regression equations for the prediction of normal lung functions in south Indian children. However, they have not addressed the key issue of the ability of these equations to correctly predict normal values for various parameters. The square of the correlation coefficient (r^2), which reflects the proportion of variation in the observed data explained by the independent variables in the regression equation, is of importance in this respect. A low r^2 value means that the regression equation is of little clinical utility in its present form, and needs to be revised, either by the introduction of more independent variables, or by changing the

format of the equation (for example to a quadratic or a cubic form). A residual standard deviation (RSD) or a standard error of estimate (SEE) is also needed to evaluate how well the regression equations fit the data they describe. These values will also help in defining the normal range of values based on the regression equation. Current recommendations (2) state that the normal range of values lies between the predicted value ± 1.645 RSD (or SEE). A large value of RSD (or SEE) will therefore render the equation useless in predicting lung function, due to a very large normal range. Unless such analysis is provided, the authors cannot recommend use of these equations for prediction of lung function in the general population.

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