

## EDITORIAL

# Check the FEV<sub>1</sub> for all adult smokers, even patients without respiratory symptoms

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Clinical practice guidelines (CPGs) usually become more complicated over time, but new evidence – including a study published in this issue of the *PCRJ* – makes COPD case-finding easier and much more efficient. The forced expiratory volume in one second (FEV<sub>1</sub>) should be measured using an inexpensive pocket spirometer for all smokers aged 40 and over, regardless of the presence or absence of respiratory symptoms. Only the one patient in eight with a low FEV<sub>1</sub> then needs pre- and post-bronchodilator spirometry to confirm clinically-important COPD.

More than 30,000 spirometry tests were done by 440 Swiss GPs for their currently-smoking patients,<sup>2</sup> as recommended by many CPGs. Of those with good quality spirometry and short respiratory questionnaires, about 13% had clinically-important COPD for which inhaler treatment might be considered (a low FEV<sub>1</sub>/forced vital capacity (FVC) ratio, and FEV<sub>1</sub> below 65% predicted), but these patients were no more likely than the others to report cough, phlegm, wheeze, or dyspnoea.<sup>1</sup> As confirmed by other investigators,<sup>3</sup> the COPD screening questionnaires developed and advertised by drug manufacturers<sup>4-6</sup> provided no value in primary care settings beyond knowledge of smoking status and age. These questionnaires may help to promote “COPD awareness” (and increase inhaler sales) when published in the popular media, but some smokers without worrisome respiratory symptoms may falsely conclude that they are not at increased risk of having COPD.

About a quarter of adult smokers in the Swiss study reported that they became short of breath when hurrying or walking up a slight hill.<sup>1</sup> This corresponds to Grade 2 on the Medical Research Council (MRC) dyspnoea scale. However, the same percentage of Swiss patients reported this level of dyspnoea when spirometry was entirely normal or when spirometry showed moderate to severe airway obstruction. This suggests that performing spirometry only for patients who report dyspnoea on exertion is not helpful for detecting COPD. Of course, smokers who have slowly developed very severe COPD (FEV<sub>1</sub> below about 1 litre) are likely to report having to stop to catch their breath after walking a few minutes on level ground (MRC Grade 4), but only 1% of adult smokers had this degree of impairment.

Most of the Swiss GPs found it difficult to obtain diagnostic-quality spirometry tests more than 80% of the time.<sup>2</sup> Only about 40% of the tests met relaxed quality goals (at least three acceptable manoeuvres with the highest two FEV<sub>1</sub>s matching within 200mL). The standardised spirometry quality goals include FEV<sub>1</sub> repeatability within 150mL.<sup>7,8</sup> Between 80% and 90% of tests done by experienced technologists meet these goals,<sup>9,10</sup> demonstrating that the standards are realistic.

Obtaining good quality spirometry tests at each exam is essential when comparing the results from one visit to the next to determine if a clinically-important change in lung function has occurred due to treatment (or disease progression). However, when the results will be used only to determine the presence or absence of clinically-important airway obstruction – as when screening for COPD in smokers – tests with suboptimal quality can still be useful in some cases. For example, even if all of the manoeuvres stop too soon (causing the FVC to be under-reported), when the FEV<sub>1</sub> is within the normal range COPD is ruled out (but not asthma). When a pocket spirometer or peak expiratory flow (PEF) meter is used in the first stage of COPD screening, poor quality manoeuvres may cause a falsely low FEV<sub>1</sub> or PEF, but these results are not used to make a diagnosis.<sup>11-13</sup> Instead, the low

values prompt the patient to be referred to the second stage where optimal quality pre- and post-bronchodilator spirometry is done by experienced technologists.

Some "key opinion leaders" call for early detection of COPD, with FEV<sub>1</sub>/FVC < 0.70 and FEV<sub>1</sub> values within the normal range;<sup>14</sup> but evidence has accumulated that these smokers do not have an increased risk of dyspnoea, respiratory morbidity or mortality.<sup>15-17</sup> COPD does not become clinically important until the FEV<sub>1</sub>/FVC ratio is below the age-corrected fifth percentile<sup>18</sup> and FEV<sub>1</sub> below about 65% predicted (in the middle of GOLD stage 2). Spirometry must be used to confirm clinically-important COPD in smokers with dyspnoea before a prescription for a daily COPD inhaler is considered,<sup>19</sup> because dyspnoea is often due to factors other than airway obstruction in adult smokers.

### Conflict of interest declaration

None.

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