Investigating the potential of hand-held expiratory flow meters in COPD screening programmes

Dear Sirs,

In the June issue of the *PCRJ*, papers by Frith *et al.* and Sichletidis *et al.* describe prospective studies of the use of a hand-held expiratory flow meter (Piko-6®) as a screening tool for chronic obstructive pulmonary disease (COPD) in primary care.^{1,2} A recently introduced screening programme in a general practice surgery in Buckinghamshire UK, suggests a potential further simplification of the screening process to make it more achievable in a busy primary care setting.

When patients register at the practice, smoking history is recorded. A positive smoking history (≥ 15 pack-years or ≥ 20 years smoked) is used as the trigger for forced expiratory volume in one second (FEV₁) measurement using a hand-held expiratory flow meter (Pulmolife®) during a GP/nurse consultation. This screening is performed opportunistically when patients attend for problems other than respiratory complaints; this is to ensure that the measurement taken represents baseline lung function. An FEV₁ value of $<90\%$ predicted triggers referral for full spirometry with reversibility testing. From this information an attempt is made to confirm or refute a diagnosis of COPD.

The current programme is an extension of a previous screening programme for the early detection of COPD using the hand-held expiratory flow meter (Pulmolife®). This device only measures FEV₁ – unlike the Piko-6® which measures the ratio of FEV₁ to the forced expiratory volume in six seconds (FEV₁/FEV₆). Whilst use of the Pulmolife® meter probably results in higher rates of referral for full spirometry than with the Piko-6®, opportunistic use of a Piko-6® -type meter (COPD-6®) was identified as problematic due to the added time and effort required by the patient, particularly since this occurs during a non-respiratory consultation.

The results of the screening programme are shown in the Table. 74/151 (49.0%) of patients with a relevant smoking history had an FEV₁ $<90\%$ predicted; so far 36 out of 74 have undergone full spirometry with reversibility, and 7/36 (19.4%) received a diagnosis of COPD. 38 patients are still awaiting full spirometry.

The advantages of this method lie in advancing potential COPD patients to the stage of full spirometry with minimal additional input of time and resources. Since smoking history is noted on registration as a

Table showing patient outcomes following the addition of a hand-held expiratory flow meter to a COPD screening programme

	Patients	
Screen	196	-
Pack years ≥ 15 or Years smoked ≥ 20	151	-
FEV ₁ $<90\%$ predicted	74	-
Full Spirometry	36	38 not yet had full spirometry
COPD diagnosis	7	-

matter of course, and the FEV₁ measurements are taken opportunistically during pre-existing consultations, the only additional cost to this practice is that of the hand-held expiratory flow meter. When we consider that use of the hand-held expiratory flow meter reduced the rate of referral to full spirometry to only 49% in this practice it represents a time and cost-effective addition to the process. We also find that a negative screening result (COPD screener or full spirometry) placed on the medical summary can be useful in guiding diagnosis in future clinical consultations.

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Conflicts of interest

The authors declare that they have no conflicts of interest in relation to this article.

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