CORRESPONDENCE

Population prevalence of COPD

To the Editors:

The study by SHIRTCLIFFE *et al.* [1] discusses the use of various definitions of abnormal spirometric results to estimate the prevalence of chronic obstructive pulmonary disease in New Zealand and raises a major question that is not addressed in the analyses.

Childhood asthma is common and can lead to a degree of irreversible airflow obstruction in adulthood. In another New Zealand study, based on the Dunedin longitudinal population-based cohort, SEARS *et al.* [2] reported that persistent or relapsing childhood asthma was present in 26.9% of 26-yr-old study subjects. This is not dissimilar to the prevalence of doctor-diagnosed asthma (24%) in subjects undergoing pulmonary function testing in the Wellington study. RASMUSSEN *et al.* [3] also reported that airway remodelling, based on an abnormal post-bronchodilator forced expiratory volume in one second/forced vital capacity ratio, determined as a ratio ≥ 2 SD below the mean for healthy age- and sex-matched individuals, was present in 22% of males and 10.5% of females with asthma at 26 yrs of age.

It is likely, therefore, that a proportion of subjects determined by spirometry to have “chronic obstructive pulmonary disease” in the Wellington study [1] have asthma-related impairment of lung function. The prevalence of nonasthma-related chronic obstructive pulmonary disease could be determined by excluding subjects with a history of doctor-diagnosed asthma, and if so I suspect the actual prevalence of chronic obstructive pulmonary disease, especially in the younger age groups, reported by SHIRTCLIFFE *et al.* [1] as 5.6% in those aged <40 yrs and 12% among nonsmokers, would then be significantly lower than reported.

M.R. Sears

Firestone Institute for Respiratory Health, McMaster University, Hamilton, ON, Canada.

STATEMENT OF INTEREST

None declared.

REFERENCES

- 1 Shirtcliffe P, Weatherall M, Marsh S, *et al.* COPD prevalence in a random population survey: a matter of definition. *Eur Respir J* 2007; 30: 232–239.
- 2 Sears MR, Greene JM, Willan AR, *et al.* A longitudinal, population-based, cohort study of childhood asthma followed to adulthood. *N Engl J Med* 2003; 349: 1414–1422.
- 3 Rasmussen F, Taylor DR, Flannery EM, *et al.* Risk factors for airway remodeling in asthma manifested by a low post-bronchodilator FEV₁/vital capacity ratio: a longitudinal

population study from childhood to adulthood. *Am J Respir Crit Care Med* 2002; 165: 1480–1488.

DOI: 10.1183/09031936.00120907

From the authors:

M.R. Sears is correct in his assumption that a proportion of subjects determined by spirometry to have “chronic obstructive pulmonary disease (COPD)” in our Wellington, New Zealand study have asthma-related impairment of lung function [1]. This comment also applies to all other prevalence surveys using purely spirometric criteria, especially those which base their diagnosis of COPD on pre-bronchodilator values only. We are not aware that other criteria, such as self-reporting of a doctor’s diagnosis, a diagnosis based on the presence of respiratory symptoms, or a diagnosis based on other definitions of airflow obstruction, have any greater claim to accuracy in determining prevalence rates. In fact, our study showed that only 17 (15%) out of 116 subjects who met the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria had a doctor’s diagnosis of COPD. The GOLD definition of COPD is the internationally accepted criteria [2] and is the definition we used for estimating COPD prevalence. It is also the criteria chosen in the recently reported Burden of Obstructive Lung Disease (BOLD) initiative [3].

We calculated the proportion of subjects in the study with asthma. A subject was considered to have asthma if: there was a post-bronchodilator increase in forced expiratory volume in one second (FEV₁) $\geq 15\%$ predicted [4]; subjects had peak flow variability $\geq 20\%$ during 1 week of testing [4]; subjects had doctor-diagnosed asthma in conjunction with current symptoms (wheeze, or nocturnal shortness of breath and wheeze, or nocturnal chest tightness in the preceding 12 months); or there was doctor-diagnosed asthma in conjunction with inhaler use in the preceding 12 months. Subjects could belong to more than one of these categories.

Out of the 749 study participants, 179 (24%) met the criteria for a diagnosis of asthma. Of these, 135 (75%) out of 179 had a doctor’s diagnosis, 61 (34%) met the criteria for peak flow variability and 43 (24%) met the criteria of 15% reversibility in FEV₁. Of the participants in the study with GOLD-defined COPD, 65 (56%) out of 116 also met the definition of asthma. Of these, 45 (69%) out of 65 had a doctor’s diagnosis of asthma, 32 (49%) had peak flow variability and 31 (47.6%) had 15% reversibility (these were not mutually exclusive).

The relationship between asthma and COPD is complex. Historically, COPD and asthma have become increasingly differentiated over time [5] and in the “classic” forms of presentation may be easy to separate by the means of structural and physiological findings [6]. However, these