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From the authors:

We thank P.H. Quanjer and co-workers for their valuable comments to our paper [1]. Chronic obstructive lung disease (COPD) is a syndrome and we welcome a debate on how to define it in an epidemiological setting.

First of all, we should state that we are in favour of forced expiratory volume in 1 s (FEV_1)/(forced) vital capacity ((F)VC) ratio lower than the 5th percentile of the normal distribution as the diagnostic criterion for COPD. That is why our paper recommends this criterion for COPD in epidemiological studies [1]. However, we should acknowledge that there are controversies on this topic. For the sake of completeness, the study by MANNINO *et al.* [2] was cited. We agree that MANNINO *et al.* [2] showed that the age-adjusted hazard ratio of mortality of those with an $FEV_1/FVC < 0.7$ and greater than the 5th percentile of the FEV_1/FVC ratio did not reach the level of significance when compared to those with an $FEV_1/FVC > 0.7$. However, they also showed that there is a clear dose–response relationship, with increasing hazard ratios of mortality with decreasing FEV_1/FVC, the reference being an $FEV_1/FVC > 0.7$. An $FEV_1/FVC < 0.70$ may be considered a risk factor for the development of COPD as diagnosed by an FEV_1/VC less than the lower limit of normal [3].

As to the question of using a bronchodilator prior to spirometry in epidemiological studies, we think that the criteria for COPD used in epidemiological studies should be the same as in the clinical setting, in which post-bronchodilator spirometry is recommended. This will enhance interpretation and comparison between studies as well as communication with politicians and healthcare providers. Spirometric reference values based on post-bronchodilator values are already available [4].

If the research question also relates to reversibility, then both pre- and post-bronchodilatory spirometry should be performed. Studies show that it is not only the level of FEV_1/(F)VC that may differ between pre- and post-bronchodilator values of the ratio, but also the observed risk factor–disease relationships, especially those related to age and smoking [5]. The potential risks of inhaling a β-agonist in the recommended doses are negligible [6].

We acknowledge that there is the possibility that some subjects choose to abstain from participating in an epidemiological study because they do not want to inhale the medication. However, in a Norwegian community sample aged 18–73 yrs, this figure was only 3%. The characteristics of the nonresponders in this study did not differ overtly from those seen in other studies [5, 7, 8]. As to the cost, our experience is that the cost, in both time and money, of using a short-acting bronchodilator is very modest compared with the total cost of running a community study on COPD.

As shown by both our report and the comments of P.H. Quanjer and co-workers, there are several methodological questions related to the diagnostic criteria of COPD. This clearly points to the need for further epidemiological surveys on COPD.

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Statement of Interest: A statement of interest for P.S. Bakke can be found at www.erj.ersjournals.com/site/misc/statements.xhtml

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