Reviewer’s report

Title: Comorbidity in patients with Chronic Obstructive Pulmonary Disease in Family Practice: a cross sectional study.

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Reviewer: Douglas Mapel

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The stated aim of this study from the abstract and introduction was to quantify the prevalence of COPD in a network of family practices in Madrid, and describe and quantify their chronic comorbidity. The authors conclude that COPD is common in this population, and they identified 10 other diseases and conditions that were higher than expected.

Major Concerns

The study aim is not very innovative and it is not clear how this study makes a unique contribution to the literature. It is not surprising that COPD was common among the adults in this population – the authors cite several articles from Spain that have already demonstrated this. There are also many published studies that have examined the prevalence of specific comorbid conditions in COPD, some conducted in Spain, most which provide much more detail and insight than this study. I suspect that the results of this study would not be much of a surprise to the doctors practicing in this system, and without providing any new insights into the problem of COPD comorbidities, I doubt that this data will be of much use or interest to those elsewhere.

The case identification system used by the authors is not well validated in COPD in general, and the authors do not provide any validation of its sensitivity or specificity for COPD in their system. Such a validation project would be unique and of general interest since the Hopkins ACG system gets a lot of promotion but actually has very little cross validation for specific diseases. Furthermore, since the purpose of this project is to examine COPD comorbidities, the comorbidities need to be validated as well.

The prevalence of asthma among COPD patients in this cohort is curiously low, especially as compared to other projects that have examined COPD and comorbidity prevalences using actual patient testing and/or medical record abstraction. Some of the other diseases such as liver disease and renal insufficiency curiously high. I suspect that this has more to do with the way that the ACG algorithms work, or the way that comorbidities are recorded, than the true prevalences of these comorbidities. The ACG system was developed for practice management and for describing ‘case-mix’ patterns for clinic managers. It is not a reliable epidemiologic tool, especially for less common conditions. There needs to be another system for validating the prevalence of specific
comorbidities other than or in addition to the ACG.

Tables 1, 2, and 3 need to be consolidated into one table.

As the authors of this manuscript have also found, the background prevalence of COPD increases substantially with age, as do most of the comorbidities. Previous studies have also found that men tend to have more cardiovascular complications, while women tend to have more respiratory diseases and cancer. The SPR system used by the authors completely obscures the important affects that age and sex have on the epidemiology of comorbidities in COPD. It would also be much more useful to see the prevalences of the various comorbidities stratified by age and sex rather than presented as a population mean.

**Level of interest:** An article of insufficient interest to warrant publication in a scientific/medical journal

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests