Reviewer's report

Title: Causes of death in asthma, COPD and non-respiratory hospitalized patients. A multicentric study

Version: 3 Date: 29 January 2013

Reviewer: Mark Weatherall

Reviewer's report:

The authors present a cross-sectional study of a set of deaths from a number of hospitals for four months of the year examining the association between respiratory diagnoses and deaths from cardiovascular disease.

Major compulsory revisions

The study is not a case-control study as the source of the patients was those who died in hospital and not a group with a disease and a group without the disease.

The sample is limited in a number of ways, not discussed by the authors. It was unclear how the cause of death was determined or how many patients had post-mortems to confirm diagnostic accuracy. Although the authors have used reasonable criteria to assign diagnoses of asthma and COPD it was unclear what happened to those without clear diagnoses (excluded from the analysis), for example how many were there and why were each excluded? It was also unclear how certain the authors were that those who did not have asthma/COPD actually did not have these disorders. This sample is of those dying in hospital. What proportion of deaths in Spain do not occur in hospital?

There are a number of weaknesses in the presentation of the data summaries and the analyses.

The authors should consistently present numerators and denominators and not just proportions in all of the tables and the text.

P values cannot = 0.000; the usual practice is to present very small P values as <0.001 (or whatever the journal style is)

In the statistical analysis section it is not that variables have normal distributions but that normality assumptions (e.g. distribution of residuals) are not met.

In Table 1: I was unclear about contingency table analysis it looks like the authors have compared each row separately rather than a proper Chi-square analysis of the complete contingency tables? In ANOVA have presented P values for individual contrasts and not overall and there are no point estimates and CI and probably no pre-specified contrasts

Table 2: Similar problems for this table
Table 3: Although have N's not presenting P values and unclear what hypotheses were being tested

Table 4: Unclear is the Odds ratio for association between death from CVS disease versus from other, in which case need appropriate N/N's to accompany ‘crude’ OR

Table 5: Need the other N/N but also probably not a sensible analysis as have divided up CVS system deaths

Minor compulsory revisions

There has been no control of type I error rate and many statistical tests have been performed, with no comment on this as a weakness.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare I have no competing interests