Author's response to reviews

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

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ANSWERS TO THE EDITOR

1. Rationale of the study
The rationale of the study has been rewritten. A number of paragraphs have been suppressed and several others have been added. The study has been focused on the problem of comorbidity in patients suffering COPD.

In the Spanish study referenced in the introduction (reference 3) figures of prevalence in Spain using the ERS and GOLD COPD definitions have been supplied. The first version of the manuscript referred to the prevalence using ERS criteria (4.5%) while the new version measures prevalence using GOLD criteria (10.2%).

2. Definition of COPD case in the study:
The study has been performed using Expanded Diagnosis Clusters (EDC). The following patients have been considered to be suffering COPD: those having EDC RES04 including chronic bronchitis, emphysema and COPD. This has been stated on page 6, section Methods.

3. COPD underdiagnosis
Bibliographic references regarding COPD underdiagnosis by family physicians have been added. Reference number 20 corresponds to a Spanish study allowing our study to address the underdiagnosis problem.

4. Prevalence analysis in different surgeries
We find the observation by Dr Hansen extremely interesting but at the moment we cannot perform comparisons of prevalence between practices.

5. Family Physicians selection:
Electronic Health Record (EHR) allows us to bind clinical information to surgery citation schedules. The research team has selected unanimously two criteria for using EHR: EHR must have been updated in at least 64% of the assisted visits and the mean number of acute or chronic episodes for patient and GP per year must be above four. The objective when establishing these inclusion criteria for the family physicians in the study was to identify those making frequent use of
EHR. We think that these criteria selection has introduced no bias in the identification of COPD patients.

All the family physicians involved in the study had worked in the family practice during the whole 2007 and EHR had been introduced to them in 2003.

6. Use of ACG® Case – Mix-System Software:
ACG® Case – Mix-System Software has been used for data processing but in this study we do not make use of ACGs (equivalent resource consumption groups) but we use EDCs which are diagnosis clusters with similar clinical characteristics. This is stated in section Materials and Methods.

Bibliographic references regarding studies using ACG® Case – Mix-System to investigate (co) morbidity have been added.

7. Chronic disease selection:

Taking the study by O’Halloran cited in the bibliography as reference 19 and after having represented empirically and graphically prevalence and resource usage for each disease those having highest prevalence or resources usage have been selected. 26 chronic conditions (diseases and risk factors requiring
medical attention) were selected in this fashion. We designate them high prevalence/high impact conditions following the definition by Broemenling.

We have not found two identical diseases lists among the published comorbidity studies. Most published studies use diseases lists shorter than ours and lists only partially coincide.

8. **Sample representativeness:**
   The geographical area, study carried on, includes the southern part of the Madrid Region; it has a total population of 887134 inhabitants some residing in the city of Madrid and others in small towns located in an area inside a circle with radius 50 Km centered in Madrid. The family physicians in the study belong to 35 different health centers located in the area. These 35 centers represent 89% of the total number of existing centers in that area. The representativeness of this sample in relation to the whole Spanish population regarding age and sex has been checked out.

9. **Table 1 has been removed.**