Reviewer's report

Title: Identifying and characterizing COPD patients in US managed care A retrospective, cross-sectional analysis of administrative claims data

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Reviewer: Linda Simoni-Wastila

Reviewer's report:

This is a well-written paper that addresses an important methodological issue -- assessing COPD patient disease severity in claims-based data. Lab information and detailed notes are not available in such data, and in order to conduct comparative effectiveness and health services research, developing methods to assess disease severity in secondary data are vital.

All comments are minor essential revisions.

--page 6: NCPCS codes -- should be HCPCS codes?

--page 6: complexity. The authors should provide a rationale for how and why the various ICD-9 and HCPCS codes were used to develop levels of complexity. It is not sufficient to merely list these in an appendix. What guided their selection? other studies? accepted guidelines (eg, GOLD)? a consensus of pulmonologists?

--page 9: Data analysis -- DTEC and graphPad Prism software are not commonly recognized software programs in health services research. More information is required about these systems and how they compare to recognized standards, eg. SAS and STATA.

--page 10, second line -- insert 'the' before 7,671,018

--page 13, comorbid conditions -- why did the authors cherry-pick comorbid conditions? or were the ones reported out the most prevalent COPD comorbidities? It would be very important to have a count of conditions per respondent or, best, use a standard comorbidity adjuster such as the HCC/DCG to adjust and weight comorbidities.

--page 14: exacerbations -- this is a marvelous approach to consider, but the authors fail to describe any approaches for validating their approach with medical records, charts, clinic observations. This is a serious limitation and, at the least, deserves some discussion even as a limitation.

--Discussion: general comment -- the authors use the term 'complexity' and allude to it vis a vis 'severity' -- but, exactly how do the two compare? are these terms the same? some discussion is needed, both upfront in 'setting the stage' as well as in the backend.

--Discussion: page 16 -- conjoint COPD and asthma is not inconsiderable. Perhaps an estimate of comorbidity of these two conditions cited here?

--Discussion: limitations -- the authors discuss limitations but other than a rather
cursory ‘differences could be due to unrecognized confounders’ (page 17), there is no discussion of omitted variables, such as duration of COPD, smoking status (current, history), medication use, etc.

--Discussion, page 17 -- why are the authors unable to extract the <65 from the data? At the least, some sensitivity analyses around age could be conducted to address the concern of age-related differences in COPD 'complexity'.

--Table 5, title: typo in Medicare

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare I have no competing interests.