Reviewer's report

Title: Identifying Diabetics in Medicare Claims and Survey Data: Implications for Health Services Research

Version: 2 Date: 28 February 2014

Reviewer: Alun Edwards

Reviewer's report:

1. The purpose of this study is clearly stated and addresses an important question - though it is one that is not new and several attempts have been made, in a variety of health systems to determine the validity of diabetes diagnosis in administrative databases.

2. In this case 3 different comparators are used a) patient self-report b) clinical warehouse coding c) A1c

Minor Essential revisions

3. There are perhaps some clinical principles or nuances that influence the data analysis which may not have been considered in the design. The Methodology is reasonable or would have been were it not for some cultural changes over the past few years.

4. First - the A1c is not the 'gold standard' of diagnosis of diabetes since 2010. It has become an option for diagnosis. While it is generally useful, there are some authorities that consider there are limitations to its use in diagnosis (with numerous publications about lack of reliability in certain races, certain medical conditions etc). This manuscript accepts the A1c validity as a diagnostic indicator of diabetes without question (even reference to the 2010 International Guidelines would help). There is undoubtedly a proportion of the population where A1c will be compromised as a reflection of metabolic/glycemic state. The authors correctly point out that aggressively treated diabetic patients can achieve A1c levels below 6.5 (or even 6.0%).

There also needs to be comment on the accuracy and reproducibility of A1c assays performed on stored filter paper samples. There have been problems, historically, with A1c measurement on fresh samples - this is not an insignificant issue and might be important if the A1c is accepted as a diagnostic arbiter.

5. The approaches to comparison are sensible and I think the statistical approaches are appropriate. Efforts to ensure completeness of the data for all the subjects study are relatively rigorous. The case definitions of diabetes in the warehouse are fairly standard - though perhaps generous in being 'anytime' rather than in the recent years.

Discretionary changes

6. In general the writing is clear - the reading becomes a bit heavy in the results
and discussion sections when the terms 'discordant' and 'concordant' cause more effort in understanding. I wonder if describing the groups by other terms might not help.

7. The results and analysis may have been influenced by another recent trend - the insidious, and perhaps invidious, increase in labelling of patients with 'pre-diabetes'. This condition may well be lumped with diabetes when physicians talk to their patients so affecting self-report rates. There is however no ICD-9 code for pre-diabetes so it will not be recorded as a problem in administrative databases. This will likely prejudice results in favour of self-report and the A1c definition of pre diabetes at 6.0 - 6.49% is not considered in the analysis. The authors show some indication of awareness of this in discussing the health care utilization between groups. I think that this trend would have been in place in 2006 when the data was gathered.

Major revision

8. I think re-analysis to include people with A1c in the 6.0 to 6.49 might be of value and greatly help the analysis of the study population, given the confusion in labelling if pre-diabetes and diabetes are being lumped. Without it, I'm not sure we learn enough about administrative data and their validation for general interest - though 'local' use within the Medicare system might be informed.

The discussion doesn't completely satisfy the slightly unexpected increased diabetes rate in the CWC classification - I think that the lack of clinical data available to the authors that would allow analysis of the health coding process is a limitation. It is hard to try to explain perceived faults of administrative databases if the ways they are compiled are methodologically mysterious. By the same token, without more clinical data it is hard to speculate about things that impact health care utilization data.

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests'