Reviewer's report

Title: Outcome measures for oral health based on clinical assessments and claims data. Feasibility evaluation in practice

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Reviewer: Maha El Tantawi

Reviewer's report:

The point of the study is important and sheds light on a much needed area where dentistry has lagged behind the medical profession for some years. The manuscript includes lots of details that sometimes make it difficult for a reader to follow. It needs to be revised and to be made more concise by avoiding repetition and by placing the information where readers expect to find it so that the rationale for an indicator is place in the Methods section, for example, rather than in the Results as is currently the case. Please notice the following:

1. The authors need to explain the concept/meaning of proof of practice they used in the title and in several areas in the manuscript.

2. The title, aim and several areas indicate that the focus is on developing indicators of quality of care. The authors totally omit all patient-based and non-clinical indicators such as pain, quality of life, satisfaction with care and professionals, length to getting an appointment, ... The dimensions of quality of health care services includes many other aspects. It is up to the authors to select which of these they address. However, the title and aim as well as other areas need to reflect this.

3. Since the authors used clinical indicators, why were not indicators of oral health status used by others included/referred to in Introduction or Discussion? Example are those used by the Association for State and Territorial Dental Directors in the US of percentage of children with decay, with untreated caries or with sealant and so on. The objective differs but the authors already referred to indicators developed/used for other purposes.

4. If the aim is to assess the quality of care provided so that 3rd party such as insurance organizations can evaluate the care their clients receive, how can clinical assessment be used as source for outcome measures? How would this be applied? Is it suggested that these items be added to the clinical records of patients so that they are later extracted for evaluation? It would not be very helpful if dentists are asked to generate data for the purpose of evaluating the quality of care they provide. This would introduce bias. One of the indicators differed when clinically assessed and when the records were used as source of data. A potential explanation for this is examiner bias.
5. The authors refer to the controlling for the effect of some factor in one part of the manuscript. This requires multivariable analysis which would be most useful to assess the several factors included (diabetes, smoking, socioeconomic, age and provider). The methods of analysis described refer only to bivariate analysis. This raises the chance of type 1 error and increases the risk of spurious conclusions. If multivariable methods were used, they need to clearly shown and explained.

6. Some indicators are built on very few observations (table 8, n=34) and for others, the number isn't clearly defined (table 9). It is recommended that the indicators that were not assessed be removed and may be they can be just mentioned in the methods since data doesn't support or refute their merit.

7. Some tables contain only percentages while others contain numbers and percentages. Pls add numbers to all so that the reader can see the sample size used in assessing each indicator.

8. There is mention in the manuscript to reliability of the indicators. How was this assessed?

9. The aim definitely needs revision. Oral health cannot be assessed by clinical examinations performed by clinicians in their practices because of the high variability. They cannot also be used as the gold standard for claims or records data to validate them for the same reason. The authors must justify the inclusion of this data. If the aim is restricted to developing indicators of quality of care from records (claims and clinical), this may provide more focus and would be more useful.

10. The number of GPs needs to be explained. Are these 3-5 practitioners/dentists or practices with potentially several dentists per practice? Their number is too small to assess the ability of the indicators to discriminate between dentists. In comparing values across patients’ groups, we know from the literature that patients from low SES are expected to have poor oral health. When data supports this, we can infer that the indicator discriminates between people based on SES. How can this be applied to dentists. At best, the indicators would support the presence of variation among dentists in treatment decisions and care process. This is already supported by huge literature. The claim that the indicators, therefore, have discriminant validity is questionable.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
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Yes

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