Reviewer's report

Title: A Case-Control Study of Determinants for High and Low Dental Caries Prevalence in Nevada Youth

Version: 1 Date: 1 October 2010

Reviewer: WAEL SABBAH

Reviewer's report:

A case-control study of determinants for high and low dental caries prevalence in Nevada Youth.

This is an interesting study which used data collected routinely in schools to compare students with highest DMFT score to caries free students and to NHANES data, and to explore factors associated with high DMFT and D scores.

Introduction:
The authors justified the research, the use of data on individuals with the highest levels of caries rather than the whole population, and identified the complexity of the determinants of dental caries. The review identified the role of behaviour in the development of dental caries with a focus on behavioural factors used in the analysis, ignoring other direct behavioural factors not used in the study such as diet, oral hygiene, and frequency and type of dental visits.

Methods:
Although the importance of social condition was reported in the introduction, the analysis did not include any socioeconomic factors.

A lot of attention was given to smoking and passive smoking, both very important health-related behaviours. However there is no known mechanism linking them to coronal caries, and are probably surrogates to life style and other behaviours linked directly to caries. We were not told why the more direct behaviours such as sugar consumption, tooth brushing and dental visits were not included in the analysis. Needless to say, that the availability of dental insurance does not necessarily mean routine dental visits for check up and preventive services. Although regression analysis was conducted, multivariable variables analysis was not employed.

Results:
Table 2 compared 30% of Nevada students with highest caries level to a nationally representative sample. Naturally the sample with highest caries levels in Nevada showed higher levels of caries than the national average.

Table 3 would be easier to read and make comparison if reported percentages within the case group rather than numbers. For example, it is more meaningful to say 61% and 43% of students without and with sealants were in the case group,
respectively.
Since Table 4 only shows the results from bivariate regression analysis, it could be merged with Table 3.

Discussion:
Page 10, 2nd paragraph: the authors stated that the global average of caries is no more than 3 DMFT, and that the case group had higher caries than the global and national average. However, the case group represents individuals with highest caries level in Nevada. We do not know from the results of this study how the average of caries in the whole population of Nevada compares to national or global average. It should be made clear that the authors do not imply that caries levels in Nevada are higher than the national or global average.

There was a significant difference between males and females in DMFT score but not in D component. It would be use useful if the authors comment on this specific finding.

Other limitations of the study should be reported in the discussion. For example, the lack of controlling for socioeconomic factors, and direct oral health behaviours (hygiene, dental visits and sugar consumption), and limiting the regression analysis to bivariate, rather than multivariate analysis.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests