Reviewer's report

Title: A portrait of single and multiple HPV-type infections in Brazilian women of different age strata with squamous or glandular cervical lesions

Version: 2  Date: 17 October 2013

Reviewer: Leonardo Simonella

Reviewer's report:

- Major Compulsory Revisions

A key limitation of the analysis is the lack of appropriate adjustment for multiple testing as well as lack of reporting of 95% confidence intervals. The probability of making at least one Type 1 error among multiple tests = 1 – (1-alpha)^m (where m is the number of hypotheses being tested). The authors should consider testing their observations for statistical significance using False Discovery Rate. This approach is designed to control the proportion of false positives among the set of rejected null hypotheses.

An additional issue is the small number of women with histologically confirmed lesions. A major conclusion for the paper is based on comparing the prevalence of multiple infections in CIN2+ relative to glandular lesions. I would think appropriate adjustment for p-value, as discussed above, is required.

The authors indicate the population source. However, there is no indication of how the population compares with women in Brazil (i.e. age group, ethnicity, socioeconomic status etc). A recommendation to improve the paper would be to compare the sample prevalence of high and low risk with a systematic review of HPV prevalence, and/or one of the HPV prevalence studies published for Brazil – see Simonella et al. for an example.

I don’t agree with merging ASC-US and ASC-H into ASC. I think this is a major error when inferring the difference in the prevalence of HPV types according to predicted cytology grade. It would be more appropriate to combine ASC-US and LSIL into one group, while ASC-H and HSIL into another. Please see the systematic review by Gary Clifford et al. published in 2003.

Figure 1 – while the intent should be applauded, the interpretation is a little confusing. Prevalence over 100% is not something that should be used.

I would add 95% confidence intervals to the age-specific distribution data in figure 2.

- Minor Essential Revisions

Page 8 – per cent needs to be corrected

- Discretionary Revisions

Table 1 – combined age groups into 10 year groups
Table 3 – Would consider reporting top 3 mix of multiple infection.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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'