Reviewer's report

Title: Canadian oncogenic human papillomavirus cervical infection prevalence: Systematic review and meta-analysis

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Reviewer: Gary Clifford

Reviewer's report:

The authors report on a systematic review of studies reporting on HPV type-specific prevalence in Canada. A rigorous review has been performed, even if, in the end, there are relatively few studies, which are very heterogenous in their design and the populations studied. Inuit populations appear to represent a particular source of heterogeneity.

It is a shame that it was not possible to show meta-analytical findings of HR HPV prevalence by age or population, rather than just a description of studies.

In terms of HPV-type distribution, it is not clear whether any additional knowledge has been gained in comparison to larger more robust meta-analyses, which although not Canada-specific, show very similar findings. Indeed, the authors suggest that this is the first meta-analysis of cervical lesions other than normal cytology and cancer. However, such summaries for LSIL (Clifford et al, 2005 CEBP) and HSIL (Clifford et al, 2003 BJC) do already exist and are worthy of comparison to the present results. Also, the number of Canadian studies contributing to ASCUS, LSIL and HSIL remain very few. The percentage of these lesions that might be preventable by 16/18 vaccines is complicated by the issue of a high prevalence of multiple infections and lack of knowledge about which type has produced the lesion. This is much less an issue in cancer, which is the key basis for prevention decisions.

I was unclear about the utility of Figure 4. Population-based data is better expressed as a population-based prevalence, unless a large gain in eligible data can be made by shifting to HPV-positive cases also among more opportunistic studies. This appears not to be the case, with the curious findings that there is one less eligible study for HPV52 in the wider inclusion criteria.

The use of the term "false negatives" for a normal PAP smear in an HPV-positive women is mis-leading. In terms of disease-risk it could be that the HPV-test is "false-positive".

I was not clear about how the use of "a representative sampling strategy", "attempted to address of non-response bias" and other criteria of methodological quality were judged - they seem very open to interpretation. I was particularly surprised that 74% of studies somehow attempted to address non-response bias, which in my opinion, is always almost impossible to know. Perhaps it is the definition of "attempting" which is the issue.
The best definition for the 13 HR HPV types is now: Bouvard et al, Lancet Oncology, 2009, following the decision of the IARC Monograph working group.

It was not entirely clear if only studies with typing information were included. What about studies with HC2 only, and no genotyping. Perhaps there were no such studies but could/would they have contributed to the overall HR HPV prevalence estimates, even if no typing was done?

**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