Reviewer's report

**Title:** A large, population-based study of age-related associations between vaginal pH and human papillomavirus infection

**Version:** 1  **Date:** 19 September 2011

**Reviewer:** Jimmy Twin

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This is an interesting article showing an age-related association between HPV infection and vaginal pH. I feel however that a few key points regarding the HPV types detected are missing from this article, which may strengthen the authors' findings.

**Major Compulsory Revisions**

1. The description of the study population in the Methods section is hard to follow. It is not clear at all where the 9094 participants in the study came from. Were these participants all part of the 9165 women with vaginal pH measurements? The vast majority of this paragraph can be summarised nicely with a flow chart and make it easier for the reader to follow.

2. The Statistical Analysis component of the Methods section is far too long compared to the rest of the methods described that are concise and to the point. Remove any justification of the methodology used, for example, age being the focal point of the analysis. Include information regarding the statistical program(s) used with their version number.

3. This study employed a method able to detect 18 different HPV types/groups. However, there is no mention in the Results section of the distribution of HPV types detected in this population. It would be of interest to show the association between HPV type and vaginal pH and age, in particular high risk (carcinogenic) versus low risk types.

4. This paper reports a high level of multiple HPV types detected. Which multiple HPV types were detected, and did this vary within the population? Did they all possess high risk types?

5. It would be of interest to make a distinction between persistent and sporadic detection of HPV based on the HPV type detected in these individuals over time.
Minor Essential Revisions

1.
It is acceptable in bacterial nomenclature to abbreviate a genus and its associated species to C. trachomatis (italicized), in the case of Chlamydia trachomatis, without stating this abbreviation in parentheses initially. In addition, use the proper format for Lactobacillus (italicized) species (Background section).

2.
In the Methods section more information is required detailing the detection of C. trachomatis DNA. Labco Biomedical Products manufacture several C. trachomatis detection assays. Are you referring to the Chlamydia trachomatis (CT) PCR-DEIA kit by Labco Biomedical Products? If so, please add information regarding the targets this assay will detect and that fact it is a real-time PCR assay coupled with a DNA Enzyme ImmunoAssay. Did you quantify the bacterial load or determine serovars? It would be of value to include what effects vaginal pH has upon detectable C. trachomatis load.

3.
Please include p values in Tables 2 and 3.

4.
In the Results section concerning Table 2, how can a woman possess more than one HPV type if she is HPV negative?

Discretionary Revisions

1.
In the Conclusions section, the shared region of the bacterial ribosome used in metagenomic studies is the 16S ribosomal RNA or 16S rRNA.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests