Reviewer’s report

Title: Factors influencing uptake and adherence of the quadrivalent human papillomavirus vaccine in an Ontario cohort of Grade 8 girls

Version: 1 Date: 2 May 2011

Reviewer: Monika Naus

Reviewer’s report:

• Major Compulsory Revisions

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

While some of these are not ‘major’ I would consider these to be errors of fact and therefore require a response to ensure that the authors have obtained the required information to accurately represent the situation and their data.

1. Starting pages 4 an 5, the immunization record system is misnamed (i.e., there should be no ‘ing’) and its purpose incompletely and inaccurately misrepresented (e.g., page 11 last paragraph), as it is used to support both ISDA and DNA legislative requirements. This is accurately reflected in the table ending page 24, but not in the text. See:

2. The legislative requirements (use of term “mandatory”) of the ISPA are misrepresented; as well, the legislation is never named, nor are the specifics related to vaccines under the schedule under the Act. This is an important contextual piece for a reader unfamiliar with Ontario public health.

3. I believe that both ‘grade’ and ‘class’ are variables in IRIS, and not merely date of birth. The authors should check whether these were not used in the analysis because they were incomplete, or whether these variables were not requested.

• Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

1. With respect to the objectives, the term ‘factors associated with its use’ is somewhat misleading, as there was reliance on administrative data without attempts to establish factors by direct subject contact. I would suggest using terms such as ‘correlates’ of use.

2. It would be useful in the study design section to outline why this design was chosen, e.g., why KFLA, whether the option of choosing a larger health unit or several of different types, or alternately a random sample of girls from the provincial IRIS data base that could have been linked to the same data sets and
provided representative results for the Ontario population were considered.

3. Terminology of ‘adherers’ and ‘non-adherers’ for those who completed the series and those who partially completed the series is less clear than using ‘series completion’ and perhaps terms such as ‘partial series completion – 1 dose’ and ‘partial series completion – 2 doses’.

4. It would be useful if the authors could comment on whether neighbourhood incomes have been shown in Ontario or in this district to correlate with individual household incomes. It’s my understanding that in some areas, there is poor correlation.

5. Similarly, are there validations available to indicate that health encounter data based on physician billings and hospital separations as used in this study are ‘indicators of health status’, as stated on the bottom of page 7? As well, with a larger proportion of the population accessing non-medical health services, this should be cited as a limitation of the data sources used or otherwise commented upon. Elsewhere in the paper the authors state that assembly of data from the administrative data bases constitutes the subject’s ‘medical history’. If this has been validated against a more complete set of records, this would be worth pointing out.

6. Top of page 8: medical conditions of interest appear to have been focused on autoimmune disease and immune mediated disease, but no reason for this is stated nor is this grouping commented upon in the results section. If this was a focus of analysis it would be worth stating why, and providing specific results. As well, it would be worthwhile providing some additional explanation as to why and how these and other medical encounter data were expected to be associated with HPV vaccination. What was the hypothesis being explored here, especially in reference to the large number of diagnostic medical codes that were each analyzed for associations? The risk in such a ‘broad spectrum’ analysis is finding spurious associations, and I wonder if the authors had a hypothesis that they were testing here. It’s not clear.

7. In ‘Results’, 2nd sentence, specify the percent of the Ontario population studied i.e., 1.36%. In final sentence in same paragraph, should read: “based on our assumptions these girls were between 12.7 and 13.6 years…. ” as this was an artefact of the definition of the cohort, and not true assessment of age at the time of grade 8 entry, as is discussed in the final section of the paper.

8. Page 9, paragraph starting ‘After adjustment’, should read “with MMR” rather than “against MMR” as this is a vaccine name. Similarly, ‘vaccines’ needs to be inserted before ‘and were even more likely’.

9. Top of page 10 discussion about urban/ rural: was there any attempt to correlate income to rurality as the results of this analysis appear to go in the opposite direction to income. This could be examined in logistic regression with multiple variables. In last sentence of top paragraph, replace ‘from individual’ with ‘with three types of’

10. Bottom of page 10, suggest delete ‘where a girl need only be present to receive the vaccine’ as this is clearly not the only factor (i.e., presence in school) for HPV immunization.
11. Same paragraph and thought, it would be important to consider both intentional and unintentional non completion. While the variables examined may not have been sufficient to examine this, although these may be recorded in IRIS, the authors assume that non-completion for the series is unintentional because of lack of access to services. Hepatitis B vaccine was also assessed and is given in a series; was non completion of the hepatitis B vaccine series similarly correlated with income quintiles? Are data available from the school boards in KFLA or Ministry of Education related to school attendance by the correlates examined in this study in order to make the conclusions that the authors make?

12. Page 11, last paragraph: surveys have included both parental and girls’ attitudes.

13. Page 12, 3rd paragraph: suggest use of ‘correlates’ over ‘clinical predictors’ (which also appears on page 13) as the latter term is quite unclear in this context given that data used were entirely from administrative data bases. Sentence ‘While it also benefits from validated exposure data’ is unclear. In the final section of this paragraph, reference to errors based on assumptions of age and grade attendance; this can be quantified with data available from the school board(s) and/ or Ministry of Education.

14. Top of page 13, second line, should read not ‘not born’ but …’resided in Ontario throughout their lifetime’. In this paragraph it would also be appropriate to discuss available data on health encounters with non-medical health professionals and those whose data are not in OHIP which would not be captured in the data sets examined, I believe, as this is another limitation. In this paragraph it would be more accurate to state ‘we did not assess’ than ‘unable to consider’, as the design was not set up to directly question the recipients, and this was presumably intentional.

15. In Conclusion suggest ‘will likely have’ can be substituted with ‘has’. In 2nd sentence, replace ‘influence’ with ‘correlate with’ as influence suggests a causal relationship and this cannot be ascertained using the study design.

16. The contact information for the first author appears to be a personal home address; this is not ideal and perhaps the contact should be an author (second or last) with a work address where follow up can be obtained if contact is established at future date.

• Discretionary Revisions

These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential.

1. Suggest that tables asterisk or otherwise flag (with S.S. for instance) significant ORs

2. Figure 1 is not necessary as the numbers are provided in the text; as well, it’s displayed as a ‘flow diagram’ which is likely not appropriate given what’s being presented, i.e., that the group of girls assessed were about 1% of the Ontario population.
3. Regarding the titles of both a table and figure ‘patterns of use’ it would be clearer to state that these were HPV vaccine initiation and series completion rates.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests