Reviewer's report

Title: A Cost-utility Analysis of Cervical Cancer Vaccination in Preadolescent Canadian Females

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Reviewer: milena sant

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This study estimates the cost utility of HPV vaccination in a 12-years age cohort and compares it with that of conventional pap smear screening.

A first step of this analysis is the estimate of cervical cancer incidence and mortality by a Markov cohort model, and its validation against the observed incidence and mortality.

My main criticisms are the following:

The model used for estimating incidence and mortality is not sufficiently clearly described. In particular, the covariates included in the model should be listed because this model is the basis on which the whole study results rely.

For instance, the authors should specify whether the model for estimating incidence (and mortality) includes as independent variables the prevalence of HPV infection at various ages or other risk factors (eg smoking prevalence), or if it takes into account only age or cohort. Figure 1 gives only a general idea on how the model works.

The effectiveness of a vaccination programme is related also to the prevalence of infection in the population, thus one can speculate that the effectiveness of this programme may vary as well, according to the prevalence of HPV infection (or positivity) in the reference population.

This should be highlighted also in the discussion

The results of the study are based on two main assumptions:

1) A duration of immunity from 10 to 30 years. The reference quoted for vaccine efficacy (page 7 of the manuscript) states that up to 4.5 years after vaccination immunity is not vanished. It is not clear if after 4.5 years the immunity is still present. To my knowledge, this is still a controversial issue for HPV vaccination, however all the results presented in tables 2 and 4 are based on the assumption that immunity lasts from 10 to 30 years.

2) A hypothetical 75% vaccine coverage. This assumption seems to be based on a reference for hepatitis vaccination. However, this latter is administered in a different way: at least in many countries hepatitis vaccination is among the obligatory vaccinations for newborn, whereas HPV vaccination is usually offered to scholarships.
Other points:
Figures and Tables should be re drafted because many of them are unclear and use abbreviations that are not explained. For instance:

Figure 1 should be self explaining: avoid the abbreviations and /or define it within the figure.

A exhaustive legend should be included, explaining briefly the model.

Table 1:
Within the table, line 7: there are two asterisks without explanation
line 12 vaccine costs: should be $135/dose

In conclusion, in my opinion the article should not be published in its present state and should be re-submitted with major changes.

The methods of analysis need to be described more clearly. The results of the analyses and the conclusions of the study are based on assumptions that should be proven, or at least more appropriate references should be provided.