Reviewer’s report

Title: Vaccinating children against influenza: overall cost-effective with potential for undesirable outcomes

Version: 1 Date: 30 Jul 2019

Reviewer: Chester Good

Reviewer's report:

1. The authors performed a CEA for the Netherlands to examine the impact of implementing a childhood influenza vaccination program. Their model improves upon previous models by accounting for both seasonal vaccine effectiveness and long-term changes in immunity following vaccination. They investigate a vaccine strategy (compared to existing strategy of vaccinating those at high risk and those over 60 years of age) for children 2-16 years. They demonstrate that a strategy of vaccinating 2-16-year-old children is very cost-effective, primarily by benefitting older patient cohorts. However, they also document an unexpected finding that a childhood vaccination program increases the likelihood of influenza pandemics in subsequent years, and furthermore they find that a net loss of health cannot be excluded. This provides an equally persuasive counter-argument to the finding that on average, extending vaccination to children age 2-16 is cost-effective and saves lives (of older individuals primarily).

2. The analysis is thoughtful and carefully performed, an elegant model that considers all appropriate inputs, and applies sensitivity analyses across those inputs to provide a robust model.

3. This is a thought-provoking paper. I have now read it through multiple times (initial review, and now with edits from reviews), and find myself going back and forth on how I would use the findings of the model to inform influenza policy. I think that what makes this paper fascinating is the lack of clear cut, easy answers here. Add to this the ethical considerations (exposing a vulnerable population to an intervention that provides little benefit and even potential harm, so that large numbers of another population will benefit substantially.

4. Please see my previous review, and considerations. I am pleased that the authors have responded to all comments, and as such I have no further specific recommendations. Thank you for the opportunity of reviewing this study.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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Yes

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