**Reviewer's report**

**Title:** The case for a universal hepatitis C vaccine to achieve hepatitis C elimination

**Version:** 1 **Date:** 11 Jul 2019

**Reviewer:** Reza Yaesoubi

**Reviewer's report:**

I appreciate the authors' effort to address my comments. I understand that conducting such a complex modeling study takes substantial time and efforts but I am afraid I cannot recommend to accept the paper in this current format.

Definition of Optimality. I'd like to mention again in my opinion the authors' definition of optimality is not consistent (and maybe in conflict) with the principals of health care resource allocation. The authors indicate:

"The optimal strategy was defined as the scenario that reached the WHO target of an 80% reduction in hepatitis C incidence by 2030 with lowest testing, treatment and vaccination costs. Where none of the scenarios reached the elimination target, the optimal strategy was defined as the one with the lowest 2030 incidence."

I highly doubt that a rational decision maker would allocate their resources based on an arbitrary objective of achieving 80% reduction in hepatitis C incidences by 2030. Instead, resources should be allocated to strategies that produce the highest health outcomes for the resources spent. Furthermore, in the presence of potentially conflicting objectives (e.g. minimizing incidence versus minimizing cost), the optimality of a strategy depends on how much the decision maker is willing to sacrifice on one objective to gain on the other. None of these are accounted for in the optimality definition presented by the authors.

I am not requesting that authors conduct extra analysis but I am suggesting to present their results in a fashion that is more consistent with the principals of health care resources allocation. One option is to remove cost from the analysis all together and only focus on the impact of strategies on the incidence of hepatitis C. In this option, figures such as those in the first row of Fig 4 would be meaningful and it is also clear that the goal here is not to identify the "optimal" (or the most efficient, or the most cost-effective) strategy but instead to identify the strategy that leads to the maximum reduction in the incidence of hepatitis C."
But if the authors choose to keep cost in the analysis, I suggest the following:

1. For each county, use cost-effectiveness planes (with total hepatitis C incidences averted by 2030 as the measure of effect) to identify the non-dominated scenarios (it is needless to say that a rational decision maker may choose only among non-dominated scenarios and therefore all county-level projections should be made assuming that dominated scenarios are not going to be used).

2. Update results based on the non-dominated strategies. For example,
   a. You can report the number of counties for which the vaccination strategies are not dominated by other strategies (and this of course varies by the vaccine price).
   b. Or in Fig 4, instead of "Number of counties where an 80% reduction in incidence could be achieved", you can report "Number of counties where an 80% reduction in incidence could be achieved by a non-dominated strategy".

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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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No

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