Open call: Comparative modelling of dengue vaccine public health impact
April 13, 2015

1. Description

This is an open call for groups involved in modelling the impact of dengue vaccination to participate in a comparative modelling exercise to inform World Health Organization’s Strategic Advisory Group of Experts on Immunization (SAGE) recommendations about dengue vaccination.

2. Objectives

To understand the potential long-term population impact and cost-effectiveness of dengue vaccines currently undergoing clinical trials in order to inform global and national vaccine policy.

To identify areas of consensus and drivers of differences between predictions from different modelling approaches.

3. Scope

Any transmission dynamic model of dengue which has been used to examine the potential public health impact of prophylactic vaccination, and whose results and key features have been documented either in (i) peer reviewed journal article(s), or (ii) unpublished technical documentation to the standard of a journal article.

Transmission dynamic models of dengue vaccination produced by modellers based in dengue endemic countries to the highest modelling standards are particularly sought.

4. Process

4.1. In collaboration with modelling groups, WHO and its consultants will produce an overview of key features of dengue vaccine models which highlights similarities and differences to the extent to which these can be determine using existing results.

4.2. WHO and its consultants to provide modelling groups with
   (a) A small number of vaccine profiles for modelling, representing characteristic features of dengue vaccines in the current pipeline.
   (b) A range of epidemiological model outcomes that will be used for comparison.
   (c) A range of epidemiological settings (countries) in which outcomes should be derived.

   (b) and (c) will be discussed with the modelling groups before being finalised, so that as far as possible we will reproduce the settings to which the models have already been calibrated, and the outcomes that the models are already equipped to produce.

4.3. Modelling groups will produce the requested outcomes in the given settings based on the given vaccine profiles.

4.4. Should any clinical trial results of existing pipeline dengue vaccines become publicly available in the interim, or be made available to all modelling groups involved in the exercise by confidential arrangement with the trial investigators, WHO and the modelling groups will decide by consensus whether or not any of the modelled vaccine profiles should be adapted to incorporate this new knowledge.

4.5. In the longer term, additional exploratory work to compare baseline model outcomes (without vaccination) in a wider range of settings may be conducted by mutual consent from all modelling groups in order to further understand the similarities and differences between the models.

4.6 Economic outputs will be based upon costing parameters agreed to by a subgroup on dengue costing
5. Outputs

Report for WHO’s Strategic Advisory Group of Experts on Immunization (SAGE) to inform a global position paper on dengue vaccines.

Peer reviewed publication with (i) lead modeller of each modelling group and lead WHO consultant as joint first authors, (ii) other modellers, WHO staff and consultants who meet ICMJE criteria for authorship as co-authors.

6. Procedure

All groups who meet the criteria set out in Section (3) are invited to submit an expression of interest consisting of (i) a one page summary of the main features of their dengue vaccine model (see Appendix) and (ii) full detailed documentation (such as a journal article or technical report) describing the model. WHO consultants will assess whether models meet the necessary criteria for participation.

7. Timelines

April 13 2015: Call opens.

April 24 2015 1200-1400 GMT: Teleconference to answer any questions regarding this call. Please contact vannicek@who.int to confirm participation and receive the call-in number. Brief notes will be taken about all questions answered during the call and disseminated to any groups wanting them.

May 8 2015: Deadline for expressions of interest in form of one-page model description and technical documentation.

May 22 2015: Modelling groups to be informed of whether or not they were shortlisted.

Late May 2015: Teleconference to finalise details of model comparison process.

Mid June 2015: Presentation of analysis plan to WHO Immunization and Vaccines Implementation Research Advisory Committee (IVIR-AC) for comment and endorsement.

December 2015: Completion of comparative epidemiological and economic modelling work.

April 2016: SAGE meeting for decision on global dengue vaccine policy.

Beyond April 2016: Further model comparison work by mutual agreement from all modelling groups.

Please contact Dr Kirsten Vannice (vannicek@who.int) with any further questions.