



## Terms of Reference

### 1. \*Purpose of the APW

The purpose of this work is to do modelling population benefit versus individual risk (benefit-risk assessments) for the tetravalent live attenuated dengue vaccine developed by Takeda (TAK-003)

### 2. \*Background

The Immunization Vaccines and Biologicals (IVB) Department's Agenda, Policy and Strategy (APS) Unit, Immunization Policy Team is responsible for establishing the Strategic Advisory Group of Experts on Immunization (SAGE) and its working groups, who will advise WHO on overall global policies and strategies, ranging from vaccines and technology, research, and development, to delivery of immunization and its linkages with other health interventions.

SAGE Working Group on Dengue vaccination is established by the Secretariat as a resource intended to support WHO in the preparation of SAGE deliberations by reviewing and providing evidence-based information and options for policy or strategy recommendations to be decided by SAGE.

The APW is to do the modelling population benefit versus individual risk of TAK-003

### 3. \*Planned timelines (subject to confirmation)

Start date: 1 May 2023

End date: 30 June 2023

Total duration: 2 months

### 4. \* Objectives and Outputs (Deliverables)

Objective 1: Vaccination scenarios and input parameters agreed with the SAGE Working Group on dengue vaccines.

- Output 1.1: Draft methodology document providing scenarios, key input parameters values and data sources, and key outputs;
- Output 1.2: Conference call held to present the draft methodology to the Impact Modelling subgroup and receive feedback;
- Output 1.3: Revised methodology document incorporating feedback from Impact Modelling subgroup on the draft document (from conference call and any written comments);

Objective 2: Estimates of the impacts of Dengue vaccination strategies as outlined in the questions in Annex presented to the Impact Modelling subgroup.

- Output 2.1: Slide deck with preliminary scenario results for one or more questions
- Output 2.2: Conference call held to present the preliminary scenario results to the Impact Modelling subgroup and receive feedback

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<sup>1</sup> This template is only to be used for APWs granted to Companies, and not for APWs granted to Individuals.

- Output 2.3: Slide deck with final scenario results incorporating feedback from the Impact Modelling subgroup on the preliminary results (from conference call and any written comments);
- Output 2.4: Conference call held to present the final scenario results to the Impact Modelling subgroup;

**Objective 3:** The estimates of the impacts of dengue vaccination strategies as outlined the questions in Annex have been disseminated in a format that is publicly accessible to audiences around the world.

- Output 3.1: Pre-print or other report format posted on a publicly accessible website reporting the final scenario results.

### **Questions:**

*Note: Bidders do not need to be able to answer all questions but should specify in their proposals which question(s) and sub-question(s) for which geographic settings and scenarios will be addressed.*

### **Topic I: Vaccination strategies to maximize in-person schooling provision**

1. What are the estimates of population-level and individual-level benefit/risk over 10 and 20 years, stratified by age of recipient, serostatus of recipient and by average transmission intensity in a setting?

Note: Transmission intensity is best quantified by average force of infection, though average seroprevalence in a specific age group (e.g. 11-year-olds) can be used as a proxy. A range of year-by-year serotype dominance scenarios should be examined, informed by surveillance data from a range of settings, as well as a range of vaccine efficacy (or lack of) by serotype and serostatus and serotype specific infectivity and disease severity.

2. What is the cost-benefit of vaccination programmes without pre-vaccination screening, or by pre-vaccination screening dependent upon seroprevalence in a specific age group (e.g. pre-vaccination screening in low seroprevalence settings, and no pre-vaccination screening in high seroprevalence settings).
3. What is the threshold seroprevalence for pre-vaccination screening by when such an effort becomes either cost-effective or has the most favorable benefit-risk ratio.

Given the tight deadlines for the modelling to help inform policy recommendations for the SAGE meeting in September 2023, the deadline for submission of the report with the key findings is 30 June 2023. Interim results should be shared during one of the SAGE Working Group meetings via Zoom or TEAMS.

### **5. \*Place of assignment**

This work will be done remotely. Travel is not required for the assignment.