The Public Health Need for iNTS Vaccines and Preferred Vaccine Characteristics

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What is the **public health need** that an iNTS vaccine would address?

What is the **potential benefit** of the vaccine (in the target population)?
Overview of WHO guidance to facilitate vaccine development to regulatory approval, policy and use

1. Prioritization of targets for vaccine development
   - PDVAC review
   - R&D gaps/Research priorities
   - Decision point

2. Vaccine Value Profiles
   - Recommendation
   - Develop PPC/TPP for priority population/s

3. Develop a WHO R&D roadmap
   - *Development of a PPC and a FVVA can be an activity within the R&D roadmap

4. Develop WHO PPC or TPP*

5. Develop initial FVVA*

Preclinical and phases I-II

Post-phase II proof of concept, in parallel to phase III clinical trial design

**Abbreviations:**
- ECVP: Evidence Considerations for Vaccine Policy
- FVVA: Full Value of Vaccines Assessment
- IVB: Immunization, Vaccines & Biologicals
- IVIRAC: Immunization and vaccines related implementation research advisory committee
- PDVAC: Product Development Vaccine Advisory Committee
- PDR: Vaccine Product & Delivery Research
- PPC: Preferred Product Characteristics
- TPP: Target Product Profile

*Development of a PPC and a FVVA can be an activity within the R&D roadmap

1. Develop WHO ECVP
   - Clinical proof of concept and progression to pivotal licensure study
   - R&D and implementation gaps

2. WHO Vaccine Introduction and Access Roadmap
   - May include Revised FVVA based on efficacy and other country/regional specific data

3. PDVAC Oversight
   - IVIRAC Oversight of quantitative elements of FVVA
   - SAGE engagement

Slide credit: Birgitte Giersing, WHO/PDR
Facilitates alignment across key stakeholders and enhances decision-making around investment in vaccine development, policy-making, procurement, and introduction, particularly for vaccines intended for use in LMICs.

- E.g., What are the benefits of a vaccine?
- E.g., Should we invest in developing a vaccine?
- Should we recommend/fund the vaccine?
- Should we introduce the vaccine?
- E.g., What information is important for the target audiences to invest in vaccines and immunization programs?

Overview of iNTS FVVA (an IVI-WHO joint project)

- **Aim 1** – *Landscape analysis* of iNTS (epidemiology, diagnostics, knowledge gaps to accelerate development, licensure and use)

- **Aim 2** – *LMIC Stakeholder Consultation* on vaccine use and demand

- **Aim 3** – *R&D Roadmap and Preferred Product Characteristics*

- **Aim 4** – Determine the *Clinical Development Plan and Regulatory Pathway* to bring iNTS vaccines to licensure and WHO prequalification

- **Aim 5** – Develop *rationale for the development of an iNTS vaccine*
  - Business case
  - Investment case
  - Broader societal benefit analysis
Development of WHO Preferred Product Characteristics for NTS vaccines against invasive disease (in draft)

- WHO PPCs define preferred attributes for vaccines to be used in LMICs
- They are pathogen-specific rather than product-specific
- Typically, produced early in product development; aim to inform candidate-specific target product profiles (TPPs) as the vaccine development pipeline matures

**Timeline:**

- **Landscape analysis and LMIC Stakeholder Consultation (Nov/Dec 2021)**
- **PDVAC review and inputs (Feb 2022)**
- **Expert consultation on R&D Roadmap and PPCs (15-16 Nov 2023)**
- **Iterative reviews of draft PPC by FVVA and selected experts**
- **PDVAC review and inputs (13 Dec 2023)**
- **Public consultation (by Jan 2024)**

**Finalize WHO publication**
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Key PPC parameters (DRAFT)

Dose regimen and schedule

**Trivalent**: primary regimen may or may not require >1 dose to provide protection.

The main required window of protection for iNTS disease is until 3 years of age.

**Bivalent**: may be given to younger infants and therefore dosing schedule may differ from the trivalent.

Doses should coincide wherever possible with existing vaccine schedules, or align with visits for other new vaccine introductions e.g., malaria.
Draft PPC – scope

- Follows WHO standard guide for Preferred Product Characteristics and includes the following parameters:
  - Indication
  - Target population
  - Dose regimen and schedule
  - Safety
  - Clinical endpoints/efficacy
  - Duration of protection
  - Immunogenicity
  - Non-interference
  - Administration
  - Vaccine delivery strategy
  - Product stability and storage
  - Vaccine presentation
  - Registration, prequalification, programmatic suitability
  - Access and affordability
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