GAVI Alliance – Vaccine Investment Strategy Update

Melissa Malhame
Head, Market Shaping

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Vaccine Investment Strategy 2014-2019

*In development*

- 2000: HepB, Hib, Yellow Fever
- 2004: Pneumococcal Rotavirus
- 2005: Polio stockpile MNT
- 2006: Measles campaigns
- 2007: Measles 2nd dose
- 2008: HPV and rubella
- 2011: New Vaccine Investment Strategy endorses possible investments in HPV, typhoid, Japanese encephalitis, rubella, and meningitis A
- 2014-2019: ?
VIS process

- Start of VIS process
- WHO landscape analysis
- PPC guidance on VIS scope
- Technical Consultation Group
  - Oct
  - Nov
  - Dec
  - Jan
  - Feb
  - Mar
  - Apr
  - May
  - Jun
  - Jul
  - Aug
  - Sept
  - Oct
  - Nov
  - Dec
- Technical Consultation Group
- Independent Expert Group
- Phase I recommendations to PPC
- Phase I recommendations to Board
- Final VIS recommendations to Board
- Final recommendations to PPC
- Technical Consultation Group
- Independent Expert Group
- Online stakeholder survey and in-depth country interviews
- Analytical work, expert consultations
Scope of vaccines considered

- Inclusion criterion: anticipated licensure by 2019
- Out of scope: vaccines primarily indicated for emergency response or biosecurity purposes
- 15 vaccine candidates for VIS review:

<table>
<thead>
<tr>
<th>Potential expansion of GAVI vaccine support</th>
<th>Existing vaccines not supported by GAVI</th>
<th>‘Pipeline’ vaccines</th>
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<tbody>
<tr>
<td>DTP (booster)</td>
<td>Cholera</td>
<td>Malaria</td>
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<tr>
<td>Hepatitis B (birth dose)</td>
<td>Hepatitis A</td>
<td>Dengue</td>
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<tr>
<td>Measles (additional campaigns)</td>
<td>Hepatitis E</td>
<td>Enterovirus 71</td>
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<td>Meningococcal (additional serotypes)</td>
<td>Influenza</td>
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<tr>
<td>Yellow Fever (additional campaigns)</td>
<td>Mumps</td>
<td>Poliomyelitis</td>
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<td>Rabies</td>
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Demand, cost, impact and other features were analysed and documented for each vaccine.

1. Identify vaccination scenarios

2. Develop demand forecast

3. Develop cost estimates

4. Develop impact estimates

5. Assess other disease/vaccine features

6. Populate scorecards
Consultations identified 5 key criteria to drive initial prioritization in phase I

<table>
<thead>
<tr>
<th>Category</th>
<th>VIS Criteria</th>
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<tbody>
<tr>
<td>Health impact</td>
<td>Impact on child mortality</td>
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<tr>
<td></td>
<td>Impact on overall mortality</td>
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<tr>
<td></td>
<td>Impact on overall morbidity</td>
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<tr>
<td>Additional impact considerations</td>
<td>Epidemic potential</td>
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<td></td>
<td>Global or regional public health priority</td>
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<td></td>
<td>Herd immunity</td>
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<td>Availability of alternative interventions</td>
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<td>Socio-economic inequity</td>
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<td>Gender inequity</td>
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<td>Disease of regional importance</td>
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<tr>
<td>Implementation feasibility</td>
<td>Capacity and supplier base</td>
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<tr>
<td></td>
<td>GAVI market shaping potential</td>
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<tr>
<td></td>
<td>Ease of supply chain integration</td>
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<td></td>
<td>Ease of programmatic integration</td>
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<td>Vaccine efficacy and safety</td>
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<td>Cost and value for money</td>
<td>Vaccine procurement cost</td>
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<td>In-country operational cost</td>
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<td>Procurement cost per event averted</td>
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</tbody>
</table>

- Health impact (mortality and morbidity) most important
- Also consider epidemic diseases and value for money

- Verify additional benefits and implementation feasibility
- In phase II, the full scorecard will be (re-)considered to inform final prioritization
Five vaccines prioritised for further analysis + IPV

<table>
<thead>
<tr>
<th>Landscape: 60+ vaccines</th>
<th>WHO analysis: VIS candidates (15)</th>
<th>VIS phase I: Shortlist (6)</th>
<th>VIS phase II: (?)</th>
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</thead>
</table>

### Health impact | Epidemic potential
--- | ---

| **Malaria** | ✓ |
| **Influenza (maternal)** | ✓ |
| **Cholera** | ✓ |
| **Yellow Fever (mass campaigns)** | ✓ |
| **Rabies (Post-Exposure)** | ✓ |
| **Polio (IPV)** | ✓ |

### Special case: opportunity to contribute to eradication
- Major global public health agenda
- Time-sensitive decision

### Phase I assessment and expert guidance

- **Malaria**
  - High impact on mortality and morbidity
  - Major public health priority

- **Influenza (maternal)**
  - Impact on maternal and child mortality
  - Opportunity to strengthen antenatal contact point

- **Cholera**
  - Mortality impact + prevents epidemics; pro-poor
  - Oral vaccine with strong herd effects

- **Yellow Fever (mass campaigns)**
  - Reduce epidemics; no alternative intervention
  - Regional importance; small overall investment

- **Rabies (Post-Exposure)**
  - Prevents mortality of suspected cases
  - Pro-poor; Asia elimination goal; small overall investment
# Assessment framework for shortlisted vaccine investments

<table>
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<th>Step 1: analysis</th>
<th>Step 2: synthesis</th>
<th>Step 3: recommendation</th>
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<td>Direct health impact</td>
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<tr>
<td>Potential to prevent disruptive epidemics</td>
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<td>Country views</td>
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<td>Global/country implementation requirements</td>
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<tr>
<td>Cost and value for money (relative to current portfolio)</td>
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<td>Market-shaping potential</td>
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Analysis example: deaths averted per 100,000 vaccinated

Future deaths averted per 100k vaccinated

1. Based on deaths averted over 2015-2030; 2. VIS only
Consultation example: country views on vaccine priorities from online survey

Survey respondents:
- malaria ranked as highest priority for country introductions

% of respondents ranking disease as 1 or 2

- Malaria: 75%
- Cholera: 40%
- Rabies: 40%
- Yellow Fever: 24%
- Influenza: 21%

Average priority
- Malaria: 1.9
- Cholera: 2.8
- Rabies: 3.1
- Yellow Fever: 3.8
- Influenza: 3.4

Source: 2013 GAVI country consultation survey, total responses = 182,
Question: Please rank all of the following vaccines in terms of prioritisation for future introduction in your country
Analysis example: cost per future death averted

Total cost\(^1\) per death averted, 2015–2030 ($'000)

1. Includes operational + procurement cost to GAVI and country; 3. Includes deaths averted for Hep B and Hib; VIS only

Source: GAVI Financial Forecast v7.0Fb as of July 2013, VIS analysis
Detailed vaccine assessments

Cumulative demand estimated to be 760M – 1.2B doses through 2030

Country openness to new schedule and awareness that vaccine cannot replace other interventions

Implementation would require managing possible global supply shortage and communication needs

Malaria vaccine may have impact comparable to Hib

Vaccine duration of protection is biggest sensitivity of high impact

Area of focus

Unique implementation requirements

Unique costs

1. Expected date assuming GAVI Vaccine Introduction Grant, MoH, partners

Note: For illustrative purposes, lower death is shown as expected EPI with booster scenario (Imperial College and Swiss TPH model outputs)

1. Based on deaths averted (2010-2030); 2. 1SM only

Note: Model results used to (a) Designated EPI with booster scenario; (b) malaria intervention; (c) vaccine intervention; (d) impact averted

Note: Based on deaths averted over 2015-2030; 2. 1SM only

Note: Model results used to (a) Designated EPI with booster scenario; (b) malaria intervention; (c) vaccine intervention; (d) impact averted

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Note: Question only posed to 136 respondents ranking malaria as first or second priority for introduction

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Assessment framework for shortlisted vaccine investments

**Step 1: analysis**
- Direct health impact
- Potential to prevent disruptive epidemics
- Country views
- Global/country implementation requirements
- Cost and value for money (relative to current portfolio)
- Market-shaping potential

**Step 2: synthesis**
- Key benefits
- Key challenges and risks

**Step 3: recommendation**
- Recommendation and implications

Potential to prevent disruptive epidemics

Cost and value for money (relative to current portfolio)
Next steps

- 8 October: PPC review of Vaccine Investment Strategy
- 21 November: PPC recommendation to GAVI board on vaccine investment decisions
- Implementation of future vaccines depends on
  - vaccine development outcomes
  - WHO normative guidance
  - country demand
- GAVI application process review prior to opening funding window
- 2018: re-evaluate vaccine landscape
www.gavialliance.org