NVI-PST: Application & Lessons Learned

Webinar 4, 10-11th November 2025

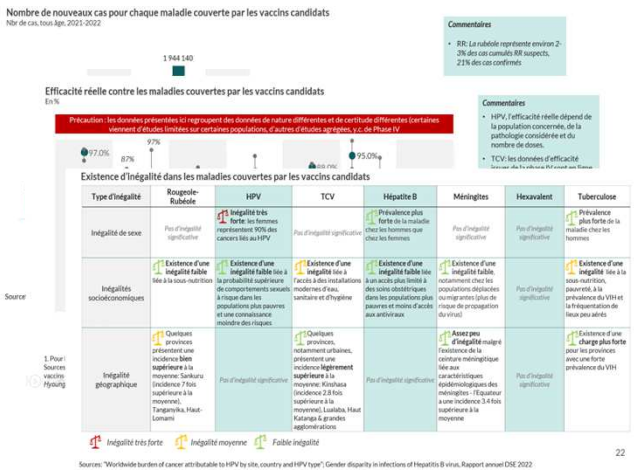
Agenda

1. **Reminder: key outputs of workshop 2**
2. NVI-PST: importance and feasibility
3. NVI-PST: sequencing scenarios incorporating EPI constraints & uncertainties

The second workshop aims at prioritizing between candidate vaccines and producing sequencing scenarios

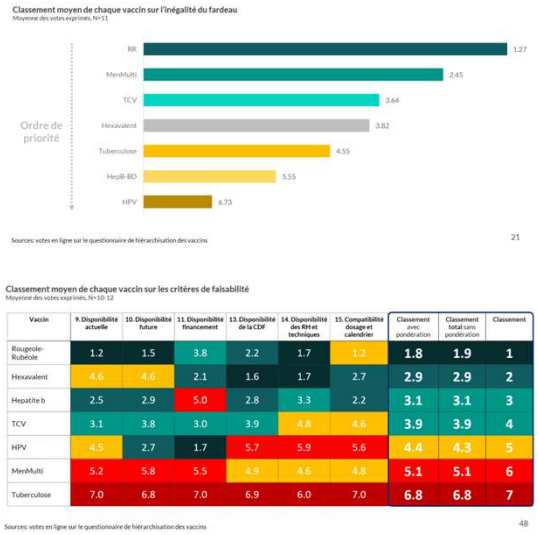
Reviewing evidence

Reviewing evidence for each criteria and vaccine



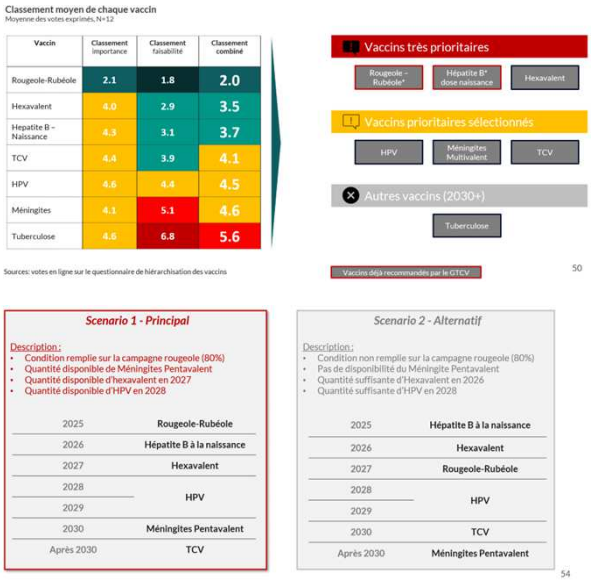
Ranking vaccines

Ranking between candidate vaccines for each criteria



Prioritizing and sequencing

Drafting 'High priority' and 'Medium priority' and 'Low priority' vaccine lists and preparing several scenarios



Example charts from the DRC workshop

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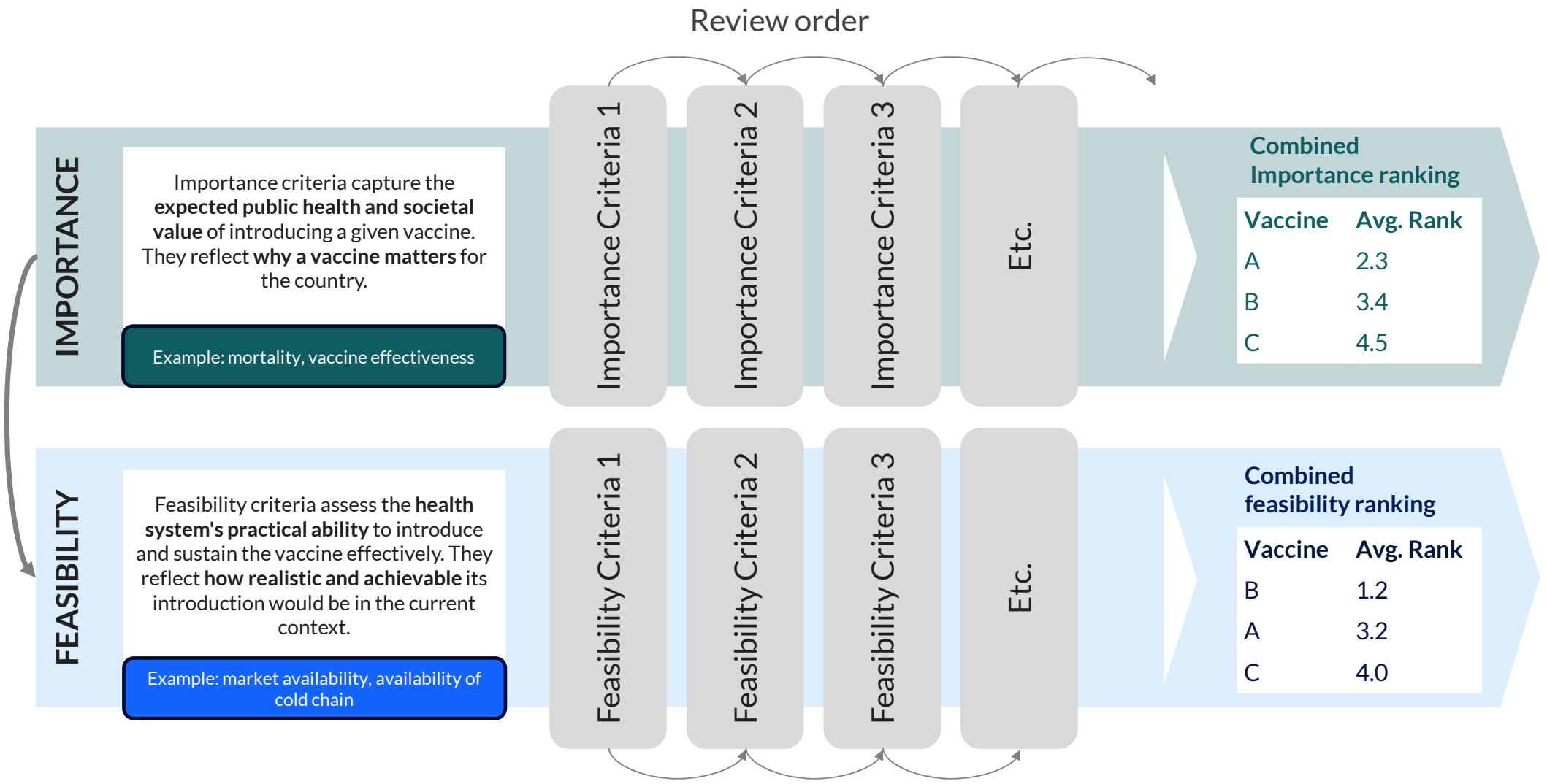
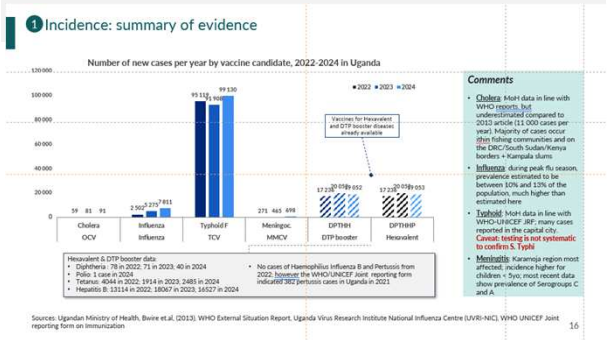
The ranking of vaccines is done stage by stage and criteria by criteria



For each criteria, NITAG members review the evidence, discuss and then rank vaccines

1 Secretariat or NITAG WG presents summarized evidence for one criteria

- The person who consolidated data for this criteria presents the evidence, highlighting sources, assumptions and potential modelling

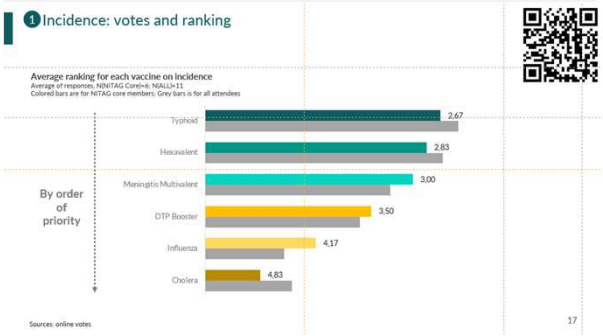


2 NITAG discusses evidence, sources and evidence quality

- NITAG members discusses the evidence (sometimes new evidence is brought to light at this point)
- NITAG is reminded on how to vote (what does 1st and last mean for this criteria)
- *In some cases, the NITAG can decide to decrease weighting or remove criteria if evidence is not compelling enough*

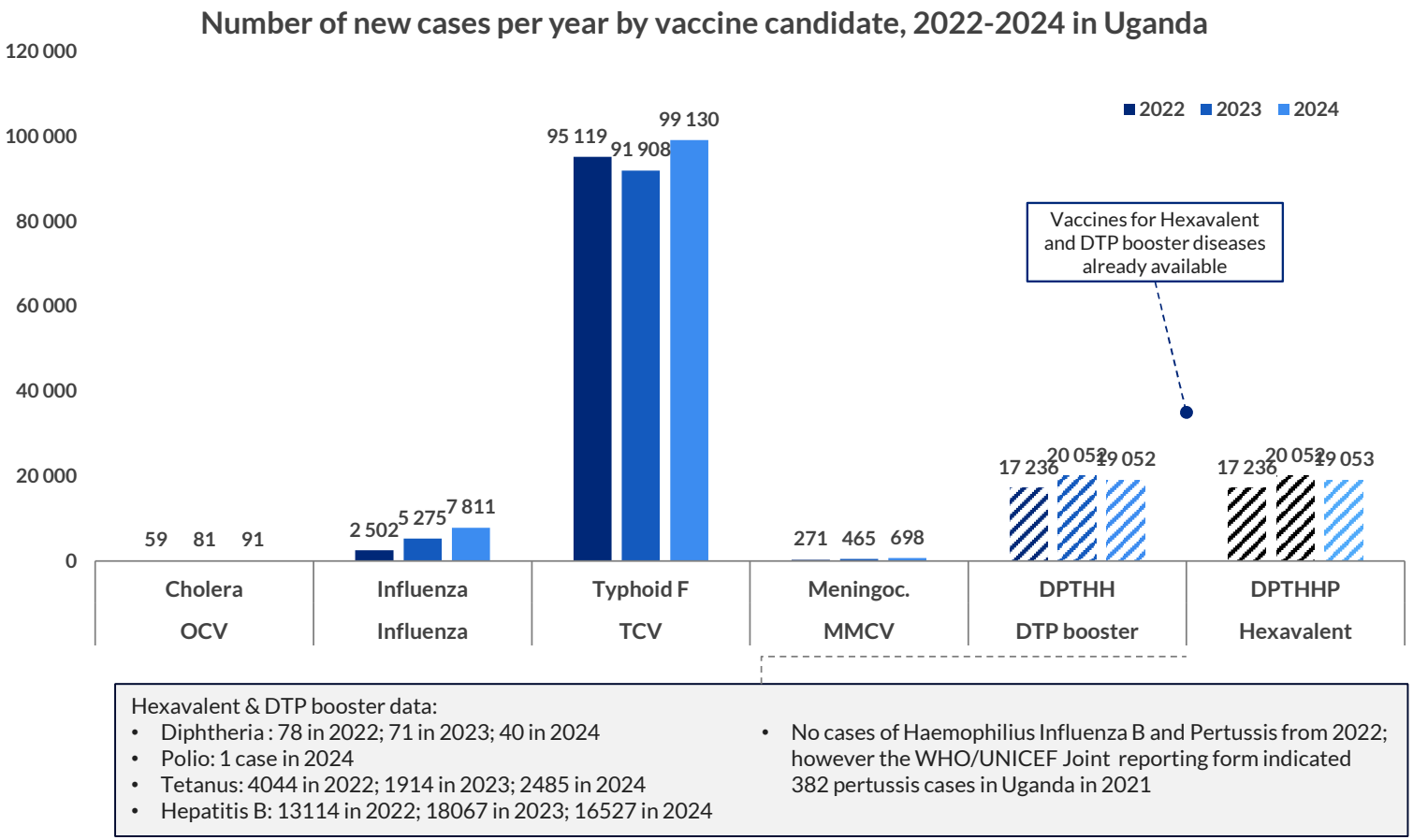
3 NITAG members vote to rank vaccines then discuss ranking

- Using on online voting tool, pre-defined voters rank vaccines
- Average rankings for all voters are displayed and rapidly discussed



Example / Incidence: summary of evidence

EXAMPLE



Hexavalent & DTP booster data:

- Diphtheria : 78 in 2022; 71 in 2023; 40 in 2024
- Polio: 1 case in 2024
- Tetanus: 4044 in 2022; 1914 in 2023; 2485 in 2024
- Hepatitis B: 13114 in 2022; 18067 in 2023; 16527 in 2024
- No cases of Haemophilius Influenza B and Pertussis from 2022; however the WHO/UNICEF Joint reporting form indicated 382 pertussis cases in Uganda in 2021

Comments

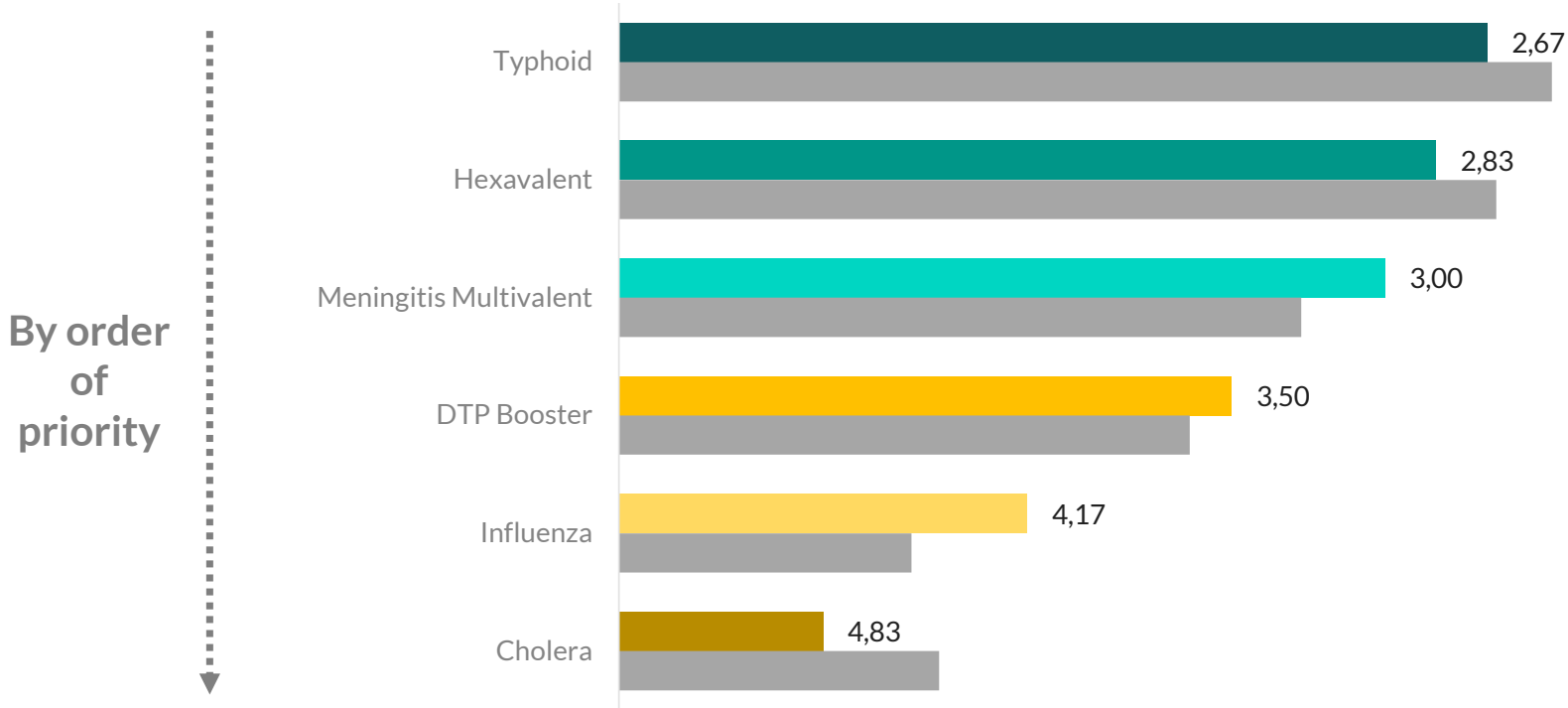
- **Cholera**: MoH data in line with WHO reports, but underestimated compared to 2013 article (11 000 cases per year). Majority of cases occur ithin fishing communities and on the DRC/South Sudan/Kenya borders + Kampala slums
- **Influenza**: during peak flu season, prevalence estimated to be between 10% and 13% of the population, much higher than estimated here
- **Typhoid**: MoH data in line with WHO-UNICEF JRF; many cases reported in the capital city. **Caveat: testing is not systematic to confirm S. Typhi**
- **Meningitis**: Karamoja region most affected; incidence higher for children < 5yo; most recent data show prevalence of Serogroups C and A

Sources: Ugandan Ministry of Health, Bwire et.al, (2013), WHO External Situation Report, Uganda Virus Research Institute National Influenza Centre (UVRI-NIC), WHO UNICEF Joint reporting form on Immunization

Example / Incidence: votes and ranking

EXAMPLE

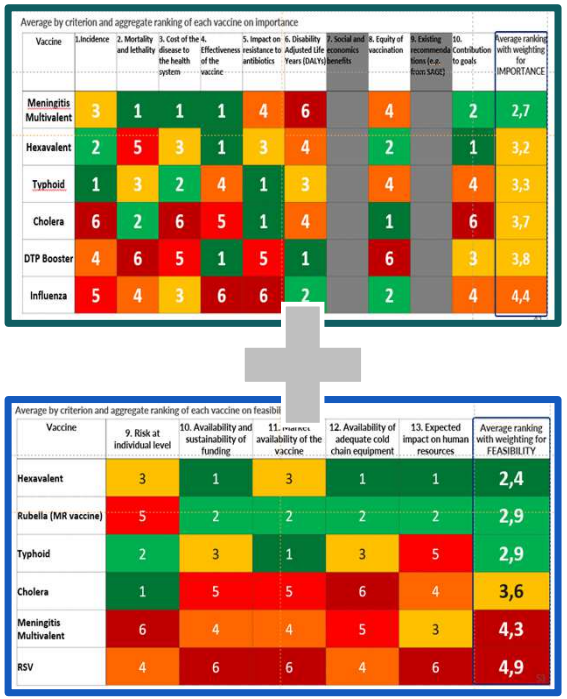
Average ranking for each vaccine on incidence
Average of responses, N(NITAG Core)=6; N(ALL)=11
Colored bars are for NITAG core members; Grey bars is for all attendees



Sources: online votes

Overall rankings are computed for importance criteria and feasibility and vaccines are placed on a matrix to allow for prioritization

Importance and feasibility overall rankings are computed using criteria weighting



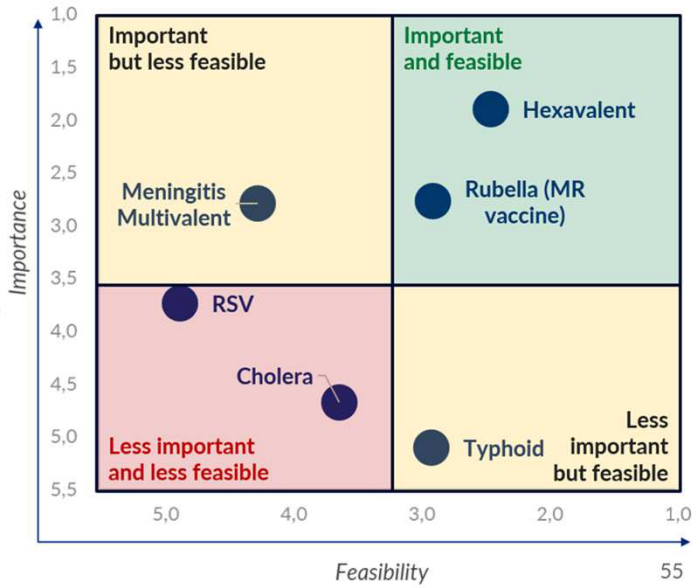
Average by criterion and aggregate ranking of each vaccine on importance

Vaccine	1.Incidence	2. Mortality and lethality	3. Cost of the disease to the health system	4. Effectiveness of the vaccine	5. Impact on resistance to antibiotics	6. Disability Adjusted Life Years (DALYs)	7. Social and economics benefits	8. Equity of vaccination	9. Existing recommendations (e.g. from SAGE)	10. Contribution to goals	Average ranking with weighting for IMPORTANCE
Meningitis Multivalent	3	1	1	1	4	6		4		2	2,7
Hexavalent	2	5	3	1	3	4		2		1	3,2
Typhoid	1	3	2	4	1	3		4		4	3,3
Cholera	6	2	6	5	1	4		1		6	3,7
DTP Booster	4	6	5	1	5	1		6		3	3,8
Influenza	5	4	3	6	6	2		2		4	4,4

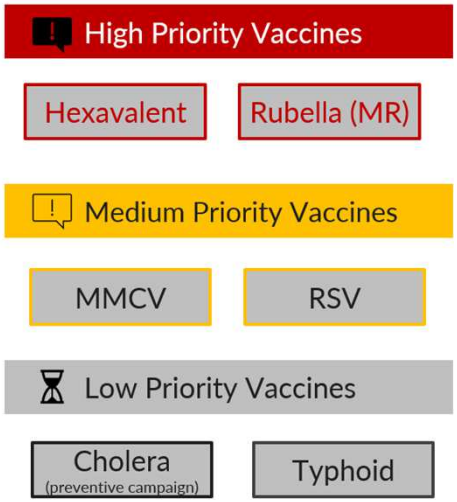
Average by criterion and aggregate ranking of each vaccine on feasibil

Vaccine	9. Risk at individual level	10. Availability and sustainability of funding	11. availability of the vaccine	12. Availability of adequate cold chain equipment	13. Expected impact on human resources	Average ranking with weighting for FEASIBILITY
Hexavalent	3	1	3	1	1	2,4
Rubella (MR vaccine)	5	2	2	2	2	2,9
Typhoid	2	3	1	3	5	2,9
Cholera	1	5	5	6	4	3,6
Meningitis Multivalent	6	4	4	5	3	4,3
RSV	4	6	6	4	6	4,9

Vaccines are placed on a 4-quadrant feasibility x importance chart



NITAG allocate priority levels based on vaccine rankings and discussions



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3. **NVI-PST: sequencing scenarios incorporating EPI constraints & uncertainties**

Before drafting scenarios, a discussion needs to happen between the NITAG and the EPI to better understand program and vaccine constraints impacting capacity for NVI

Program constraints

Programmatic constraints
- Planned introductions for the coming years impacting workload
- Planned optimizations impacting workload
- Planned campaigns, outbreak responses, catch-up impacting workload
- Implementation of grant or grant submission impacting workload
- Insufficient cold chain availability

Political constraints
- Existence of a political agenda prioritizing one vaccine over the others
- Contribution of one vaccine to other political priorities

Uncertainty constraints
- Introduction subject to condition on serotype coverage
- Risk of outbreak requiring response
- Elections impacting political agenda

Vaccine constraints

Production constraints
- Condition on local production of the vaccine
- Constraints on product selection

Funding constraints
- Availability of governmental funds / approval of the MoF
- Access to grant from donors
- Potential conditions impacting external funding (e.g. MR condition from GAVI)

Availability constraints
- Availability of doses for the country (e.g. overall availability, priority given to certain countries)
- Availability of ancillary supplies
- Logistics constraints impacting procurement

Example - Constraints and Uncertainties **for the immunization program**

EXAMPLE

Programmatic constraints and uncertainties

- **Funding constraints**
  - Risk of funding decrease, especially from GAVI and to partners who are supporting EPI program
  - Upcoming shifts in the GAVI co-financing policy, with impact on Ethiopia (increase)
- **Vaccine introductions/optimizations**
  - NVI planned between 2025 and 2029: **HepB Birth dose, Malaria and Yellow Fever** campaign planned for 2029 (targeting 9 – 59 yrs – more than XM people)
  - Measles 5 dose switch
  - Recent IPV2 introduction / Recent Rotasiil switch
- **Campaigns**
  - Vaccination campaigns Measles (at least 2 or 3 Campaign in the next 5 years)
  - Polio (under five)
  - Yellow fever preventive campaign each year from end of 2025 for five years
- **Grants / central level work**
  - Zero-dose agenda (4M ZD in the country)
  - Structural capacity (staffs) of the EPI is limited, despite the scope of vaccines growing
  - Operational capacity also limited (current scope challenging)
  - NIS 2026-2030 currently being developed
- **Other**
  - Priority activities including, potential outbreak response for Cholera and Measles
  - Transfer of foreign supply for some vaccines to local production

Recommendation timeline for introduction

- « Easy » introductions (Hexa, MR): **X years**
- « Complex » introductions (MMCV, RSV): **Y years**

Recommended number of vaccines for introduction over 5 years:

X VACCINES

Example : Constraints and Uncertainties **by vaccine**

EXAMPLE

	High priority vaccines		Medium priority vaccines	
	Hexavalent	**Rubella (MR)**	**MMCV**	**RSV**
Constraints / Requirements		• *80% criteria is met through the recent MCV campaign*	• Condition: introduction of MenACV first • Conduct risk assessment before introduction	• No GAVI funding for now
Uncertainties	• Availability of vaccines for big countries like Ethiopia (but ETH is a priority country)	• Schedule (MCV/MR or MR/MR or MR/MCV) • CRS burden of disease (esp. mortality)	• Timeline of MenACV > MMCV introduction • Availability of MMCV vaccines	• Availability of vaccines (not before 2028) • Further studies confirming burden of disease
Uncertainty regarding continuous funding by GAVI / donors				
Earliest year of introduction (NITAG reco)	**2027**	**2027**	**2028**	**2029**
Latest year of introduction (NITAG reco)	**2028**	**2028**	**2030**	**2030+**

Drafting scenarios follow straightforward principles

Key principles

1. NITAG should draft at least 2 scenarios based on outcome of uncertainties
2. Assumptions should always be clearly laid out
3. Scenarios must be consistent with the order of priority recommended during the first part of the workshop
4. Scenarios must be consistent with program and vaccines constraints
5. Less is more: too many vaccines (e.g. > 1 per year) is not realistic

Tips

- Defining the "earliest year of introduction" for each vaccine enables the NITAG to ensure that vaccine conditions are met
- Involving the EPI in drafting scenarios is key to ensuring that program constraints are considered
- Segmenting the introduction between "easy" (e.g., fits the current schedule, easy storage, same target population) and "complex" ones (e.g., new target population) should translate into "short" and "long" introduction periods
- Not all candidate vaccines need to be included in the final scenarios
- Starting with a first draft (even if imperfect), prepared by the secretariat before the NITAG scenario discussion, rather than starting from a blank page, facilitates the elaboration process

Example: Sequencing scenarios: primary and alternative

EXAMPLE

Scenario 1 - Primary

Assumptions :
- MMCV doses available for introduction
- Ability to introduce MMCV directly (instead of MenA first)
- Confirmed burden of disease of TCV

Order	Vaccine
1	**MR**
2	**MMCV**
3	**Cholera** (preventive)
4	**TCV**

Scenario 2 - Alternative

Assumptions :
- MMCV not available for direct introduction
- MMCV doses available for switch at the time

Order	Vaccine
1	**MR**
2	**Men A**
3	**Cholera** (preventive)
4	**MMCV** (switch)