Six Global NITAG Network (GNN) meeting

25-27 November 2025, Marrakech, Morocco

Meeting report

GLOBAL - NITAG - NETWORK

Executive summary

National immunization technical advisory groups (NITAGs) provide independent, evidence-based advice on vaccine use to ministries of health. Held every two years, the **Global NITAG Network (GNN) Meeting** provides an opportunity for members of NITAGs and their secretariats, as well as other key stakeholders, to network, share experiences and discuss emerging issues of common interest. The Sixth GNN Meeting, held in Marrakech, Morocco, on 25–27 November 2025, had a particular focus on the role of NITAGs in an uncertain global funding environment.

The number of countries with NITAGs continues to grow. By the end of 2024, 178 countries had established NITAGs, with 156 meeting six functionality criteria. Recent years have seen an emphasis on **NITAG capacity building**, with increasing use of the **NITAG Maturity Assessment Tool (NMAT)** to benchmark capabilities and generate improvement plans.

Alongside global support efforts and continuing expansion of the **GNN Resource Centre**, multiple regional capacity-building activities have been organized. In the Region of the Americas, for example, the **Regional Network of NITAGs of the Americas (RNA)** has supported community-building and exchange, including twinning of NITAGs with differing maturity levels (such as Haiti and Canada, and Ecuador and Argentina). The regional immunization technical advisory group (RITAG) in the WHO Western Pacific Region is reorienting its activities in order to provide a forum for exchange and interactions across NITAGs in the region. And the WHO Eastern Mediterranean Region has used the NMAT approach to underpin a systematic assessment of NITAG functionalities and creation of improvement plans for each NITAG.

In a world of increasingly constrained resourcing, the role of NITAGs is becoming ever more important. The **vaccine portfolio optimization and prioritization (VPOP) approach** is now central to vaccine decision-making. **Optimization** considers how vaccine schedules and product choice can be adapted to maximize public health impact. As illustrated by work in Iraq, systematic and evidence-based assessments can deliver major cost savings, which can be reinvested in immunization systems. Portfolio optimization will also be essential for Gavi-supported countries, as funding allocations to countries in Gavi 6.0 will assume that use of existing vaccines has been optimized.

The need for **prioritization** reflects the greatly increased number of WHO-recommended vaccines now available. With programme capacity challenges, countries need to decide which vaccines are of highest local priority, whether vaccines should be introduced, and the sequencing of introduction of those that are prioritized.

The drive towards greater **country ownership** of immunization programmes will require strengthened country evidence-based decision-making capacity. Global partners are developing a range of resources to support NITAGs and national programme managers, including a vaccine evidence compendium and tools for decision-making support. Building NITAG skills in areas such as **modelling** and **economic evaluation** will also be important.

More generally, **innovations in AI** may create new opportunities to enhance the work of NITAGs, for example by automating aspects of evidence appraisals or supporting more frequent updating of evaluations and development of 'living reviews'.

A survey of **NITAG secretariat support** has found wide variation in staffing levels, with almost half of all NITAGs being supported by one FTE or fewer. Data on secretariat staffing is due to be collected from countries through a new question being added to the eJRF form.

The meeting generated a list of potential areas for future GNN work, including:

- Strengthening NITAG capacities in **health economics and modelling** to better support EPI managers in VPOP exercises and to enable timely, evidence-informed implementation of NITAG recommendations.
- Enhancing the advisory role of NITAGs during **emergency situations**, including facilitating rapid evidence sharing and synthesis to accelerate the development of recommendations.
- Documenting and disseminating **NITAG best practices in communication** with national authorities, health care workers, and the general public – including on off-label use of vaccines – to prevent misinformation and misinterpretation of recommendations.
- Pooling resources to **test, monitor and roll-out AI tools** that could support the work of NITAGs.

Introduction

The Global NITAG Network (GNN) promotes interactions between members of national immunization technical advisory committees (NITAGs) and their associated secretariats and supports activities to strengthen NITAG capacities and their impact on national immunization decision-making. GNN meetings, held every two years, provide opportunities for face-to-face discussions, exchange of experiences and networking.

The GNN continues to expand, from 83 members in June 2023 to 120 members in November 2025. As well as biannual meetings, it also organizes around five webinars a year and publishes a digest of WHO Strategic Advisory Group of Experts on Immunization (SAGE) discussions shortly after each of its meetings.

Other recent activities have included surveys on:

- NITAG secretariat resourcing: This led to a SAGE recommendation[1] and informed a new eJRF question ('Does the advisory group have a dedicated secretariat?' (i.e. at least 50% of staff time dedicated to both administrative and technical duties directly supporting the NITAG).
- NITAG recommendations on off-label vaccine use[2] (see below).

Basic-level training resources have been developed on health economics, with more advanced materials in preparation. Guidance has also been developed on NITAG twinning.

All support materials are available through the NITAG Resource Centre. This now includes a pilot of the WHO Vaccine Evidence Compendium, which provides access to curated vaccine-specific evidence (as of December 2025, for HPV, RSV, PCV and hexavalent vaccines). A plan is being developed to establish a longer-term system for expanding and updating the Compendium.

By the end of 2024, 178 countries had established NITAGs and 156 of these meet six functionality criteria. Good progress has been seen over the past decade, particularly in the WHO African Region. NITAG numbers are lagging in the WHO Western Pacific Region, but improved markedly in 2024; moreover, ten countries lacking a NITAG in this region are small Pacific Island states.

In all regions, ministries of health acted on NITAG recommendations in at least 75% of countries with NITAGs. However, this indicator needs careful monitoring, as this represented a small drop compared with 2023.

Regional developments

Vaccine course for NITAGs

Tony Hawkridge, University of Cape Town, South Africa

[1] https://www.who.int/publications/i/item/who-wer10023-219-238

[2] Roberts C, Top KA, Henaff L et al. Exploring off-label vaccine use: a survey of the global national immunization technical advisory group network. Vaccine. 2025;62:127581. doi: 10.1016/j.vaccine.2025.127581.

The **Annual Vaccinology Course for NITAGs (AVCN)** is hosted by the **NITAG Support Hub (NISH)** at the University of Cape Town (UCT), South Africa. It provides training to NITAG members across nine broad themes. Since launching in 2022, it has trained 188 participants from 30 countries, with four to eight members of individual NITAGs attending each course.

Key lessons learned[3] have included:

- **The value of shared experience**: Each NITAG provides a brief introduction to its work and key challenges at each training session.
- **The importance of partnerships**: Courses are run in close collaboration with WHO Regional Offices for the African and Eastern Mediterranean Regions, which identify NITAGs to invite.
- **The benefits of relatable case studies:** Training focuses on specific examples of vaccine policy decisions relevant to countries**.**

Other training opportunities include **short thematic sessions** delivered at the request of WHO and the **Annual African Vaccinology Course (AAVC)**, a flagship five-day training programme open to NITAG members[4].

Use of NMAT in the WHO Eastern Mediterranean Region

Gerald Sume, WHO EMRO, and Adel Salman Alsayyad, Bahrain NITAG

The WHO Eastern Mediterranean Region has used the **NITAG Maturity Assessment Tool (NMAT)** to underpin a regional NITAG-strengthening initiative. NMAT includes seven indicators and 23 sub-indicators covering different aspects of NITAG functionality, which can be collated to provide an overall maturity level on a five-point scale from 'basic' to 'leading edge'. It can be used in either external or self-assessments.

The WHO Eastern Mediterranean Region includes 22 Members States and territories. By 2013, all had established NITAGs meeting six functionality criteria. Following some declines in performance, in 2022 a regional NITAG revitalization initiative was initiated.

Following a training event, all countries completed NMAT assessments in 2023, and attended a debriefing and experience-sharing event. Assessments were used to develop country-tailored development plans, including training for NITAG members. A refresher NMAT event was held in 2025, after which 19 countries repeated the NMAT assessment.

This second exercise revealed significant improvements in all indicators across the region and in all countries. Bahrain, for example, achieved the highest level 5 for all but one indicator and for all but one of 23 sub-indicators in 2025, a major improvement over its initial assessment.

Regional updates

Africa Region

[3] Amponsah-Dacosta E, Hussey GD, Le Fleur-Bellerose C et al. Transforming evidence-informed vaccine decision-making across Africa: Insights from three years of the annual vaccinology course for national immunisation technical advisory groups (AVCN) [version 1; peer review: 1 approved with reservations]. Wellcome Open Res 2025, 10:125 (https://doi.org/10.12688/wellcomeopenres.23605.1) https://wellcomeopenresearch.org/articles/10-125

[4] https://health.uct.ac.za/vacfa/annual-african-vaccinology-course

- All but two countries in the region have established NITAGs.
- Multiple NITAG training events have been held, in collaboration with NISH.
- Multiple countries have undertaken NMAT assessments and established NITAG development plans.

Region of the Americas

- Additional tools are being developed to support NITAG decision-making, focusing on decision support and use of the evidence-to-recommendations framework.
- Haiti and Canada have developed a successful NITAG twinning programme.
- A regional NITAG resource centre is being developed to facilitate interactions between NITAG members.

Eastern Mediterranean Region

- NMAT has provided a tool to support region-wide NITAG strengthening (see above).
- Specific NITAG-strengthening activities have been carried out in Somalia.
- All NITAGs have been trained on the prioritization of new vaccine introductions and sensitized on optimization.

European Region

- Joint evidence appraisals are being undertaken in an EU-wide initiative coordinated by the European Centre for Disease Control and Prevention (ECDC).
- Efforts are being made in collaboration with the WHO to strengthen NITAGs in middle-income countries in the region, with the support of the Robert Koch Institute.

South-East Asian Region

- The region has a relatively small number of countries, with its RITAG providing individualized advice to countries.
- Capacity-building is particularly important for some NITAGs in smaller countries in the region.
- Displaced populations present a particular challenge in some countries.

Western Pacific Region

- The RITAG chair aims to revamp its work, repositioning it as part of an NITAG community of practice in the region.
- The aim is to make RITAG meetings more of a forum for peer exchange and mutual support.

Potential next steps:

- *Investigating NISH-like models in other regions.*
- *Embedding regular NMAT appraisals in routine practice to track maturity status and monitor NITAG development needs.*
- *Exploring RITAG–NITAG relationships and identifying potential roles for RITAGs in supporting NITAG development.*

Prioritization and optimization

Global support for prioritization and optimization

Johanna Fihman, WHO, Geneva

At its March 2025 meeting, SAGE stressed the importance of **prioritization** and **optimization**, recommending a country-led and systematic process involving NITAGs, integrated with National Immunization Strategy (NIS) development[5]. 'Prioritization' focuses on decision-making relating to new vaccine introductions, while 'optimization' considers issues such as choice of schedule, product and target population to ensure greatest health impact for a given investment. These activities are critical to new global fiscal environment, and align with wider WHO guidance on coping with these new financial realities[6].

Global guidance on vaccine prioritization and optimization (VPOP) is in development. Evidence-to-recommendations guidance and a facilitator's toolkit already exist, and a new tool (**NVI-PST**) has been developed to support use of a systematic process (based on multicriteria decision analysis, MCDA) for evidence-based prioritization[7]. This involves a three-step process, beginning with stakeholder engagement and agreement of scope, collection of evidence, and development of recommendations. Online training materials are due to be published shortly on the NITAG Resource Centre.

Optimization will be a critical aspect of Gavi 6.0 funding applications, as allocations of country funding will be based on assumptions that existing programmes have been optimized. Countries will therefore need to begin addressing these issues in 2026. A training module on optimization to support country activities is in development and will also be made available on the NITAG Resource Centre.

Gavi and country vaccine budgets

Marta Tufet, Gavi

Although largely successful, Gavi replenishment fundraising in 2025 ended with a US$3bn shortfall. Savings have been identified across programmes while maintaining the overall integrity of the Gavi portfolio.

The latest Gavi strategy, Gavi 6.0, begins in 2026. A stronger **country focus** is central to the updated strategy. An important innovation is the creation of **country budget envelopes**, which will consolidate multiple streams of funding and provide countries with greater flexibility in their use of Gavi support. Currently being finalized, this approach will come with 'caps' – maximum support that countries can apply for – as well as minimum 'floors'.

Funding for certain vaccine programmes will be ringfenced, to safeguard critical programmes; this will reduce the amount of discretionary funding available to countries. Which programmes will be protected in this way is currently being discussed.

This new approach will require countries to prioritize their introductions to support integrated applications for Gavi funding. Optimization will also be essential, as country

[5] https://www.who.int/publications/i/item/who-wer10023-219-238

[6] https://www.who.int/news/item/03-11-2025-who-issues-guidance-to-address-drastic-global-health-financing-cuts

[7] https://www.nitag-resource.org/resources/new-vaccine-introduction-prioritization-and-sequencing-toolkit-nvi-pst

envelopes will be calculated on the assumption that individual programmes have been optimized.

Gavi plans to communicate country budget envelopes during the first half of 2026, with country applications for support starting in the second half of the year. Technical assistance will be available from Gavi and partners to support country planning and decision-making.

Optimization in practice: Iraq

Kamal A Kadhim, national immunization programme, Iraq

Despite a recent history of conflict and other challenges, Iraq has maintained strong political commitment to immunization. Transitioning away from a reliance on donor support, it recognized that vaccines accounted for a large proportion of the health budget. The Iraq Ministry of Health therefore organized a project to examine vaccination schedules and programmes to identify opportunities for cost savings.

With the support of WHO, UNICEF and the Iraq NITAG, the Ministry explored schedule options and pricing information, with the overall objective of maintaining current breadth of protection. In addition, a nationwide programme costing survey was organized in selected geographic areas, supported by WHO and UNICEF tools[8].

The NITAG provided scientific oversight and made recommendations based on evidence. Through schedule changes and new procurement mechanisms, primarily via UNICEF, the country was able to achieve a 54% reduction in expenditure on vaccines without compromising breadth of protection[9].

The most significant shift was from hexavalent to pentavalent plus separate inactivated poliovirus vaccine (IPV). This added an extra injection into the childhood schedule, but the rationale for the change was carefully explained to caregivers.

The savings achieved by the changes have been reinvested in the immunization system, to improve cold chain infrastructure, to strengthen targeting of zero-dose communities, and to enhance data quality and monitoring systems.

Malaria vaccine introductions

Alex Adjagba, UNICEF

A UNICEF project has examined the extent to which **economic analyses** informed national decision-making on malaria vaccine introductions. Economic evidence comes in a range of forms. The most commonly considered aspects are total costs, cost-effectiveness, and budget impact/affordability. The UNICEF project was based on a desk review to determine how countries used economic analyses in malaria decision-making and to summarize current knowledge on the economics of malaria vaccines.

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[8] Garcia C, Hossain SM, Lami F et al. Costs of childhood vaccine delivery in Iraq: a cross-sectional study. BMJ Open. 2022;12(9):e059566. doi: 10.1136/bmjopen-2021-059566.

[9] Hossain SMM, Hilfi RA, Rahi A et al. Annual cost savings of US$70 million with similar outcomes: vaccine procurement experience from Iraq. BMJ Glob Health. 2022;7(2):e008005. doi: 10.1136/bmjgh-2021-008005.

As of April 2025, 20 countries had introduced malaria vaccination. NITAG recommendations were in the public domain for just four countries. Reports from four other countries were obtained from WHO. Gavi submissions were obtained for 13 countries.

Across these documents, the report from Tanzania was the only one that included a comprehensive economic assessment including cost-effectiveness and a broader social and economic analysis. It considered costs per fully vaccinated child, budget impact across different scenarios, and used local data to estimate programme costs. In addition, the NITAG recommended that the Ministry of Health develop a financial sustainability plan.

In other countries, reports included economic considerations to a variable degree, with some calculations of costs per fully vaccinated child or generic mentions of cost-effectiveness (without local contextualization), and some mention of broader social and economic impacts.

Complementing this work, a scoping review was undertaken to collate information of malaria vaccine economics, including costs of programme delivery and cost-effectiveness. These were often based on outdated assumptions (e.g. on vaccine costs) and costs are likely to vary between settings.

Overall, limited use has therefore been made of economic evidence in malaria vaccine decision-making. Financial planning is typically weak in national strategy documents, and few country-specific analyses have been undertaken. Potential ways forward include developing new tools and strengthening the capacity for economic analysis in LMICs, and supporting greater use of economic evidence in NITAGs to build country ownership. For malaria, more economic evidence is needed, including comparisons with other malaria-prevention strategies

UNICEF and partners are following up this work by:

- Modelling the impact of the two licensed malaria vaccines in the context of existing prevention measures.
- Developing budget impact simulations based on up-to-date prices.
- Working with NITAGs to disseminate findings.

Prioritization: The Iran experience

Susan Mahmoody, Iran NITAG Secretariat

In 2024, Iran began a new vaccine introduction prioritization exercise, using the New Vaccine Introduction Prioritization and Sequencing Tool (NVI-PST), based on a three-step process:

- An online survey of NITAG members to identify possible new introductions, followed by a workshop to draw up a short list and to agree assessment criteria.
- Collation of evidence on seven potential new vaccines across 17 criteria agreed at the workshop.
- Discussion of evidence at a second workshop to produce an overall ranking.

The NITAG recommendations were presented to and approved by the Ministry of Health. Scenarios will be updated every two to three years and a full prioritization exercise is due to take place after five years.

Ethiopia

Solomon Memirie, Chair, Ethiopia NITAG

The key objective of the prioritization exercise was to advise on the sequencing of new vaccine introductions. Six vaccines were assessed according to implementation and feasibility; an average score across these two areas was calculated for each, to generate a recommended sequencing of introductions.

The actual timing of introductions will depend on factors such as the availability of funding and the need to organize campaigns, which can delay implementation of new vaccines. It was noted that decision-making was hindered by some important missing data, for example on wastage rates, demand, and disease burden.

Lessons learned included the importance of strong links between the NITAG and the national immunization programme's strategy development, the need to strengthen the NITAG secretariat to support such activities, and the importance of repeating the exercise regularly[10].

Canada

Matthew Tunis, NACI Secretariat, Canada

Canada has a devolved health system, with 13 provinces making independent decisions on the provision of health services, including vaccination. The Canadian NITAG, the National Advisory Committee on Immunization (NACI), makes national recommendations, which are interpreted at the provincial level, in some cases with input from NITAG-like advisory bodies.

Canada recently published its national immunization strategy for 2025–2030[11]. NACI work planning is organized in two-year cycles, with extensive consultation with provinces to identify priority areas. A list of possible topics is shared with provincial stakeholders, who are asked to rank them according to local interest. Recently, this stage has been strengthened through the circulation of additional background information on each potential topic.

Multiple triggers may stimulate NACI assessments. Typically, its activities focus on portfolio optimization rather than new vaccine introductions.

Potential next steps

- *Encouraging use of WHO global guidance on vaccine prioritization and optimization.*
- *Documenting and sharing of country experiences in vaccine prioritization and optimization.*

[10] Memirie ST, Teka T, Mekasha A et al. Prioritization of future new vaccines introduction: The experience of the Ethiopian National Immunization Technical Advisory Group. Vaccine. 2025;68:127932. doi: 10.1016/j.vaccine.2025.127932.

[11] https://www.canada.ca/en/public-health/services/publications/vaccines-immunization/2025-2030-interim-national-immunization-strategy.html

- *Building capacity of NITAG members and secretariat staff on health economics.*

Global context of immunization

Current status and future prospects for immunization

Kate O'Brien, WHO, Geneva

Immunization is likely to be profoundly affected by the decline in official development assistance (ODA) from high-income countries. A recent WHO Pulse survey suggested that the disruption in 2025 is of a similar scale to that experienced during the COVID-19 pandemic[12]. INFORMATION DISORDER

By the end of 2024, coverage of key antigens had almost returned to pre-pandemic levels but the world remains off-track to achieve most Immunization Agenda 20230 (IA2030) targets. With the number of diseases preventable by vaccination continuing to grow, national immunization programmes face capacity challenges, making **prioritization** increasingly important. As outlined in the WHO Global Health Strategy[13], the WHO's normative role is ever-more critical in this challenging environment.

The Lusaka Agenda emphasizes the critical importance of **country ownership**. Supporting country decision-making will therefore be a major future focus for global partners. This will include NITAG-strengthening activities, expanding the WHO vaccine evidence compendium, and coordinated technical support for prioritization and optimization activities.

Opportunities include the development and implementation of **National Immunization Strategies (NIS)**, leveraging of **AI technologies**, and **regional manufacturing** and **market-shaping** activities to enhance regional vaccine security and affordability.

SAGE

Anthony Scott, SAGE Chair, Annelise Wilder-Smith, SAGE Secretariat

SAGE make global recommendations, often with caveats due to differing implementation realities across settings. Despite current uncertainty, WHO remains committed to SAGE and to NITAGs. SAGE has a key normative role, underpinned by its commitment to transparency, independence, evidence-based policymaking and evidence-to-recommendations methodology.

Prioritization of topics follows a well-defined process. Following consultations, a long list of possible topics is compiled, which the SAGE Chair, SAGE Secretariat and IVB Director whittle down to a final list. Topics to be covered in 2026 include meningococcal vaccination, pertussis, Japanese encephalitis, mpox, typhoid, HPV, pain mitigation and COVID-19, followed in 2027 by cholera, yellow fever, dengue, Ebola and tick-borne encephalitis.

Discussions included questions about SAGE's role in addressing safety concerns. Once SAGE recommendations have been made, these are generally left to the WHO Global Advisory Committee on Vaccine Safety (GACVS). For HPV, several delegates expressed a

[12] https://www.who.int/news/item/10-04-2025-countries-are-already-experiencing-significant-health-system-disruptions---who

[13] https://www.who.int/publications/i/item/9789240101012

hope that SAGE would strengthen its recommendation for a single-dose schedule, as some country decision-makers have been cautious about shifting from a two-dose schedule.

RSV: Approaches to decision-making

Respiratory syncytial virus (RSV) can cause severe pneumonia, with young infants and older adults at highest risk of serious disease. Most infant deaths from RSV occur in low- and middle-income countries. Recently, two preventive interventions have been approved – a vaccine designed to be given to pregnant women to protect young infants (**Abrysvo**) and a monoclonal antibody (mAb) for protection of newborns (**nirsevimab**/Beyfortus; a second mAb, **clesrovimab**/Enflonsia, has also been licensed in the USA). Multiple countries have been introducing these products during 2025.

Brazil: A focus on vaccination

Renato Kfouri, NITAG member, Brazil

In 2024, SAGE made positive recommendations regarding RSV vaccination and mAb use[14]. Abrysvo has been licensed in multiple countries and data have confirmed its high effectiveness in real-world settings. In South America, Argentina was an early adopter and studies have shown high effectiveness against a range of outcomes. The Brazilian NITAG (Câmara Técnica Assessora do Programa Nacional de Imunizações) recommended introduction of Abrysvo from 28 weeks of pregnancy.

Real-world evidence has also been published on nirsevimab, including from Chile, demonstrating high levels of protection in newborns. However, in Brazil, nirsevimab is almost ten times as expensive as Abrysvo. The vaccine has been introduced into the routine vaccination schedule. Nirsevimab has been licensed in Brazil and has been recommended for premature babies only.

Germany: Monoclonal antibody

Ole Wichmann, Chair, European Regional Immunization Technical Advisory Group

The German NITAG, the Standing Committee on Vaccination (STIKO), made a recommendation to include nirsevimab in the immunization schedule to protect infants under 1 year of age during the RSV season. It is administered on discharge during the RSV season or through 'catch-up' activities for those born earlier in the year.

The recommendation was based on an evidence review that drew heavily on a US Advisory Committee on Immunization Practices (ACIP) review as well as modelling using local data. Pertussis vaccine coverage during pregnancy informed estimates of likely uptake and local epidemiological data were used to estimate clinical impacts.

Various scenarios were modelled, including vaccine and mAb introductions. Modelling suggested that mAb use would have most impact on hospitalization. Economic analyses were based on a societal perspective (i.e. beyond just healthcare costs). Although the mAb is more expensive than the vaccine, supply volume has a major impact on unit

[14] https://www.who.int/publications/i/item/who-wer-10022-193-218

costs – the mAb manufacturer was willing to supply its product at a lower price (roughly double that of the vaccine) for quantities sufficient for whole-population use.

Modelling suggested that nirsevimab use just in high-risk babies would be cost-saving. Population use would incur a slight additional total cost, but was considered highly cost-effective. Although vaccination would have been a lower-cost option, the marginally higher protection offered by the mAb was felt to justify its use.

Australia: Combining the two

Katherine Gibney, Australian Technical Advisory Group on Immunization
Australia has decided to introduce both products, with maternal vaccination the first line of defence and the mAb reserved for high-risk babies (including babies whose mothers have not been vaccinated).

Decision-making was complex because, according to its legal remit, the Australian NITAG (Australian Technical Advisory Group on Immunization, ATAGI) was unable to make a national recommendation on a mAb product. In addition, ATAGI does not conduct health economic analyses, which are the remit of a separate body (Pharmaceutical Benefits Advisory Committee, PBAC). However, as states in Australia have devolved health functions, nirsevimab has been made available through state-level funding mechanisms.

By November 2025, take up of maternal vaccination has been about 50%, in line with expectations. Nirsevimab use is running at about a third of RSV vaccine volumes, with use mostly in unvaccinated mothers. A test-negative case-control study (REVIVE) is being used to assess the effectiveness of both interventions. A preliminary analysis of data from sentinel surveillance hospitals suggests that both products are highly effective at reducing hospitalization in young infants[15].

Potential next steps

- *Working with Gavi-eligible countries to ensure they are prepared for timely consideration of RSV vaccine introduction.*
- *Encouraging sharing of impact and cost-effectiveness data on both vaccine and monoclonal antibody products.*

Secretariat survey

Yuanfei (Anny) Huang, National Centre for Immunization Research and Surveillance, Australia
Responses to the NITAG secretariat survey were received from 84 countries. The median size of NITAG secretariats is around one FTE, but the distribution of staffing is highly skewed: almost half of all NITAGs have a secretariat of less than one FTE. Small secretariats were the norm in LMICs and in the WHO Region of the Americas.

Most secretariats (82%) provide technical as well as administrative support. Again, this figure is lower in LMICs and in the WHO Region of the Americas. A minority of NITAGs (38%) spend their own funds on training secretariat staff.

[15] https://www.thekids.org.au/our-research/impact/2025/translation/rsv-hospitalisation-admissions-slashed/

In response to these findings, a set of seven recommendations have been developed:

1. Ensure institutional recognition and sustainable domestic financing for NITAG secretariats.
2. Expand the technical role of NITAG secretariats and support their continuing learning and development.
3. Support NITAG secretariats in middle-income countries through tailored engagement and resources.
4. Establish global standards and indicators for a well-functioning NITAG secretariat.
5. Expand NMAT or other NITAG evaluation tools used in countries to include sub-indicators for NITAG secretariats.
6. Strengthen engagement of NITAG secretariats in global and regional networks.
7. Undertake further data collection and research on NITAG secretariats.

In discussion, it was noted that determining secretariat staffing levels can be difficult as staff tend to work in other areas as well as on NITAG support. It was also stressed that low levels of staffing often reflect the limited human resources available within many national immunization programmes.

NITAGs and Public Health Emergencies of International Concern

Public Health Emergencies of International Concern (**PHEICs**) typically require rapid decision-making in situations of significant uncertainty. NITAGs can play a critical role in assembling relevant evidence quickly and making provisional recommendations based on the best available evidence.

A **global mpox PHEIC** was declared closed in May 2023 but a second PHEIC (and an Africa CDC Public Health Emergency of Continental Security, PHECS) was announced in August 2024 following a surge of cases in Africa, particularly in the Democratic Republic of the Congo (DRC). By November 2025, mpox cases had been detected in 17 countries in sub-Saharan Africa.

The African mpox outbreak shows complex epidemiology, with several different variants (clades) in circulation, affecting different groups and of differing severity. Two vaccines originally developed for smallpox are active against mpox – **MVA-BN**, which is not licensed for children, and **LC16m8**, a live attenuated vaccine approved in Japan, including for use in children. Developing optimal vaccine use strategies is therefore complex, further complicated by supply challenges during the outbreak.

Mpox vaccine decision-making in Uganda

David Meya, Chair, Uganda NITAG mpox Working Group

Uganda has recorded more than 8000 mpox cases, although case numbers have been in gradual decline since March 2025. The Uganda Ministry of Health requested wide-ranging advice from the Ugandan NITAG on vaccine use to control the outbreak. The NITAG made four recommendations relating to use of the two vaccines in high-risk groups. This included a recommendation of off-label use (a single dose of MVA-BN).

The efficient response to the outbreak was facilitated by several factors, including the ministry's confidence in the NITAG, lessons learned from the COVID-19 pandemic, technical support from WHO and NISH, and the scientific networks of NITAG members.

Challenges included the difficulty of forecasting the trajectory of the outbreak, delays in the availability of clinical trial data, and limited exchange with other NITAGs. By contrast, the Ministry of Health did engage with counterparts in other affected countries.

Mpox vaccine decision-making in the DRC

Abdon Mukalay, University of Lubumbashi, DRC

The outbreak in the DRC has been ongoing for more than a year. The number of cases has been in slow decline during 2025 but remains high. Clusters of cases have detected in different parts of the country, with different age groups affected depending on the local clade in circulation.

In February 2024, the DRC NITAG made a recommendation for vaccination targeted at high-risk groups (alongside other disease-control activities). Following a Ministry of Health request in October 2025, it issued further recommendations related to children, pregnant and lactating women, and single-dose vaccination.

Vaccination policy in DRC has evolved over time, shifting from a risk-based approach to geographic targeting and then a combination of the two. Key challenges have included mobilizing funds for implementation, limited follow up of vaccination activities, and some shortcomings in NITAG functionality.

Mpox evidence brief

Lisandro Torre, Task Force for Global Health, USA

The Task Force for Global Health, an independent non-profit organization, has been working with the US CDC to create tools and mechanisms to support mpox vaccine decision-making. An mpox **evidence brief** is in development, structured around population, intervention, comparison, outcome (PICO) and evidence-to-recommendations frameworks.

An emergency response survey is due to be launched in 2026, to gather information on NITAG experiences during emergency situations, preparedness and development needs.

Breakout discussions

Breakout discussions identified key issues relating to the role of NITAGs during public health emergencies.

- NITAGs' roles in public health emergencies remain primarily advisory, focusing on evidence-based recommendations for immunization. Their involvement and influence can vary significantly between countries and situations. Some are bypassed by parallel emergency committees, while others are directly engaged.
- The ability to make effective contributions during emergencies is most often attributed to strong secretariat support, committed and experienced members, established procedures, and collaborative relationships with ministries and partners. Access to reliable data and prior training also play a crucial role.

- The most common challenges include limited or unreliable data, time constraints, resource shortages, coordination difficulties, and political or public pressures. There is a recurring need for improved data sharing, emergency-specific training, and better communication strategies to strengthen NITAGs' future responses.

Potential next steps

- *Collating NITAG experiences of activities during PHEICs/large regional outbreaks, to extract key lessons learned and to generate recommendations for future emergency situations.*
- *Developing training materials to guide NITAG activities during PHEICs and other emergency situations.*

NITAG recommendations on off-label use of vaccines

SAGE and NITAGs frequently make recommendations that are 'off-label' (uses not included on the formal product labelling approved by regulators). This allows for flexibility in scheduling, dosage and for extension of vaccination to additional populations. Decisions are typically based on additional evidence (clinical trials, immunogenicity studies, and/or observational data) from studies not carried out by manufacturers.

The UK experience

Jenna Gritzfeld, JCVI Secretariat, UK

Pneumococcal conjugate vaccine (PCV) is usually delivered via a three-dose schedule. Good control of invasive pneumococcal disease (IPD) in the UK led the UK NITAG, the Joint Committee on Vaccines and Immunization (JCVI), to discuss a possible shift to a 1+1 schedule. The UK had comprehensive surveillance data on IPD and circulating serotypes, while immunogenicity and modelling data suggested that a 1+1 schedule should continue to provide good population protection.

A provisional recommendation generated much interest, with charities and industry opposing the change. Key issues raised included the possibility of reduced protection in year 1, additional levels of carriage, and concern about a rise in IPD. Unusually, a stakeholder consultation was held in advance of the JCVI meeting to discuss these and other issues.

After the JCVI confirmed its initial recommendation, it received a letter from a PCV manufacturer challenging the its decision, threatening a range of actions, and pointing out that the JCVI was proposing off-label use of the vaccine – the first time this issue had been raised.

Off-label use is actually common in the UK. Since 2014, guidance for healthcare workers and the public has been published explaining why off-label use is considered appropriate. The UK Health Security Agency supports vaccine studies to inform policymaking, although these data do not necessarily affect labelling.

The impact of the PCV schedule change is being tracked, although the COVID-19 pandemic has complicated interpretation of surveillance data. Nevertheless, post-pandemic, there has been no evidence that IPD cases in children are increasing, and breakthrough infections were not significantly different between children who received the 1+1 or 2+1 schedules[16].

Key enablers of the innovative policy recommendation included the wealth of data available to support decision-making and assess impacts, the willingness of the JCVI to consider innovations in practice, engagement with regulators and manufacturers, and the existence of public guidance on off-label use. Reverting to the original schedule has also been an option if disease control appears to be under threat.

There has been little pushback against the piloting of innovations in vaccine use through off-label recommendations in the UK. Industry is often not supportive, but has a vested interest in maximizing use of its products. It also argues that companies have no input into supplementary studies and cannot guarantee their quality, yet off-label use generates reputational risk in the event of unanticipated consequences.

NITAG survey on off-label recommendations

Shalina Desai, Public Health Agency of Canada

A survey of NITAG chairs and EPI managers found that NITAGs frequently make off-label recommendations, with an increasing number made during the COVID-19 pandemic[17]. WHO/SAGE guidance was the most important factor behind such recommendations.

However, in most countries, there is little systematic consideration of off-label recommendations, specific policies or standard operating procedures. Post-implementation studies following off-label recommendations are carried out in only around one in five countries.

Discussions highlighted that concerns about personal liability need to be addressed through formal legal protection of NITAG members. Individual physicians may also have concerns about liability, but in general they are protected if they follow national guidance.

In the UK, court cases have arisen over off-label recommendations but rulings have been in the JCVI's favour. Critical factors have included the demonstration by the JCVI Secretariat of a rigorous and systematic review process and the fact that decisions are always kept under review.

Potential next steps

- *Countries could consider developing public and professional stakeholder communication materials to explain the rationale for off-label use of vaccines and associated safety-assurance mechanisms.*

[16] Bertran M, D'Aeth JC, Abdullahi F et al. Invasive pneumococcal disease 3 years after introduction of a reduced 1 + 1 infant 13-valent pneumococcal conjugate vaccine immunisation schedule in England: a prospective national observational surveillance study. Lancet Infect Dis. 2024;24(5):546-556. doi: 10.1016/S1473-3099(23)00706-5.

[17] Roberts C, Top KA, Henaff L et al. Exploring off-label vaccine use: a survey of the global national immunization technical advisory group network. Vaccine. 2025;62:127581. doi: 10.1016/j.vaccine.2025.127581.

- *Countries should ensure that all NITAG members are fully covered by legal protections.*
- *Countries should consider developing or revising standard operating procedures to guide discussions of off-label recommendations and use.*
- *Countries should strengthen mechanisms for conducting post-recommendation studies to assess the impact of off-label recommendations.*

Vaccines: The next five years

Pathogen prioritisation

Erin Grace-Sparrow, WHO, Geneva

Staff at WHO HQ conducted a consultative **pathogen prioritization exercise**, to identify regional and global priority endemic pathogens for new or improved vaccine development. This exercise identified 17 priority pathogens and 34 vaccine use-cases (use of vaccines in particular populations or for particular indications)[18].

Among notable late-stage trials, Pfizer has begun recruiting to a phase III trial (BEATRIX) of its **GBS6 vaccine** for prevention of **group B streptococcal (GBS) disease** in neonates through maternal vaccination. Because GBS disease is relatively rare, phase III trials with a clinical efficacy endpoint would need to be impractically large. Licensing of a GBS vaccine will therefore be based on **immunological correlates of protection** (and safety data), with post-licensing phase IV studies to confirm vaccine effectiveness.

Notable progress has also been made for **seasonal flu** protection, with two mRNA vaccines demonstrating good protection and entering phase III studies.

TB vaccine development

Saskia Den Boon, WHO, Geneva

The TB vaccine pipeline is currently unusually skewed towards later stages of development, with **M72/AS01E** the most advanced candidate. Post-hoc analyses of phase IIb trial data based on a more stringent case definition have led to an increased estimate of its efficacy (to 68%) for TB disease prevention in adolescents and adults, which modelling suggests would be the TB vaccine use-case with greatest health impact.

A phase III trial has completed recruitment, with results expected in 2028. The trial is focusing on individuals who test '**IGRA positive**' (i.e. are likely to have a mycobacterial infection but not TB disease). The trial is also recruiting 1000 '**IGRA-negatives'** (i.e. likely uninfected), to generate safety and immunogenicity data in this group. This has considerable practical importance, since most people in populations targeted for vaccination will be IGRA-negative, but routinely testing for IGRA status before vaccination would not be programmatically feasible. Safety and immunogenicity data are

[18] Hasso-Agopsowicz M, Hwang A, Hollm-Delgado MG et al. Identifying WHO global priority endemic pathogens for vaccine research and development (R&D) using multi-criteria decision analysis (MCDA): an objective of the Immunization Agenda 2030. EBioMedicine. 2024;110:105424. doi: 10.1016/j.ebiom.2024.105424.

also being collected on **people living with HIV**, to support vaccine use in this important group.

Given the potential for a new vaccine to become available, much attention is being focused on preparedness. There are multiple issues to consider, including financing (several high-burden countries are not Gavi-eligible), programmatic delivery to unusual age groups, and integration with preventive TB treatment. Work is ongoing to understand decision-makers' evidence needs.

The **TB Vaccine Accelerator** was launched by the WHO Director-General in 2023. Working groups have been established in key areas, including product development, manufacturing and policy, financing and access, and country readiness, access and community partnerships. Country workshops have been organized in high-burden countries and country roadmaps for introduction are being developed.

Combination vaccines

Mateusz Hasso-Agopsowicz, WHO, Geneva

The number of vaccines in immunization schedules continues to increase, stretching programme capacity and the willingness of caregivers to accept multiple injections. To address these challenges, there is growing interest in **combination vaccines**. These would have other advantages, for example simplifying logistics and potentially enabling the introduction of antigens that might not be viable as separate products.

However, as well as technical challenges in combination vaccine development, the regulatory pathway to licensing is unclear. In addition, combination products are likely to be more expensive, and quantifying their benefits is not straightforward.

To identify potential priorities for new combination product development, WHO and PATH are undertaking an analysis of options for children's vaccines. Possible pair-wise combinations of existing products and those in late-stage development are being assessed for **programmatic compatibility** and **technical feasibility**, with viable pairs then going through a **value assessment**. The first two stages have been completed, while the third step is challenging as current value-assessment frameworks miss several benefits of combinations.

The most promising potential vaccine combinations fall into three clusters – products for use in early infancy, live vaccines, and products for late infancy. Some combinations would be of mostly regional interest.

Potential next steps

- *Arranging national discussions on combination vaccines with NITAGs, including on preferred combinations and key criteria for assessment.*
- *In countries with a significant TB burden, organizing discussions on the likely issues relevant to decision-making and NITAG recommendation development for new TB vaccines.*
- *For GBS, discussing the implications for national decision-making of the novel regulatory pathway for GBS vaccines and identifying key evidence needs.*

Collaboration

CITAG/Pacific Island states

Tracey Evans-Gilbert, Caribbean Immunization Technical Advisory Group

Small countries may find it difficult to establish a NITAG with the necessary breadth of expertise. A collaborative approach can enable **sub-regional NITAGs** to provide advice to multiple countries.

A good example is the **Caribbean Immunization Technical Advisory Group (CITAG),** established in 2017, which provides collective advice to 20 countries and territories in the Caribbean region. CITAG falls under the umbrella of the Caribbean Community (CARICOM). CITAG adapts SAGE recommendations and advises CARICOM, with individual countries continuing to make their own vaccination decisions.

Similar challenges are faced by **Pacific Island States**. In 2024, CARICOM and representatives of Pacific Island States, through the Pacific Heads of Health, began a collaboration. Meetings have been held to share experiences and discuss priority issues such as measles.

NACI collaborations

Matthew Tunis, NACI Secretariat, Canada

NACI maintains a mix of formal and informal relationships with other NITAGs. It has a formal twinning relationship with Haiti and liaises with the US ACIP, having observer status at ACIP committee meetings.

NACI also maintains multiple informal relationships, sharing experiences and discussing approaches to evidence appraisals. These informal contacts led to a project with STIKO in Germany on a joint appraisal of vaccination for post-exposure prophylaxis against rabies. However, this partnership was shelved when STIKO was redirected to work on other priority issues.

The facilitators of such partnerships include good ongoing relationships, trust and secretariat capacity to network and organize joint projects. Challenges include coordinating activities across different countries and establishing timelines that work for all parties.

Ecuador/Argentina

Greta Munoz-Lopez, Chair, CAPI Ecuador

Twinning between the NITAGs of **Argentina** (CoNaln) and **Ecuador** (CAPI) was facilitated by the Regional NITAG Network of the Americas (RNA), set up in 2022 to promote regional exchange and mutual support. Twinning was adopted at an RNA Executive Board Meeting, which identified potential partner countries.

The **NMAT tool** was used in both countries to benchmark capabilities and establish an overall maturity level, with Argentina classified as 'intermediate' and Ecuador as 'developing'. Twinning has enabled the Ecuador NITAG to benefit from Argentina's additional experience in technical and operational issues. Being involved in each other's NMAT assessments was helpful to both countries.

Lessons learned include the potential of twinning to accelerate learning and to facilitate collaborative problem-solving. Collaboration has helped to establish good mutual understanding and established the foundation for a continuing partnership.

Joint systematic reviews

Kate Olsson, ECDC

Systematic reviews are central to evidence-based decision-making. As they are expensive and time-consuming to produce, collaborative development offers important opportunities to reduce duplication of efforts.

Within the European Union, in 2022 a four-year contract was awarded to the international VESRA consortium through the EU4Health initiative to produce 16 systematic reviews or rapid evidence appraisals. Four priority topics are identified each year, with the PICO framework used to establish their scope. Priority topics are selected through a consultative prioritization process, culminating in a final vote by country representatives.

The systematic review development process takes about 12 months in total, with results published in academic journals or by the ECDC. Topics being examined in 2025 included monoclonal antibodies for RSV prevention, an RSV update, tick-borne encephalitis and maternal vaccination.

The initiative is felt to be a good example of international collaboration, with outputs informing national policies. One key issue is deciding whether the time is right for a systematic review on a particular topic, or whether new evidence generation is required first.

Potential next steps

- *Exploring opportunities for regional collaboration on systematic review development and/or allocation of review development to different countries to minimize duplication of efforts.*
- *Establishing regional collaborations on piloting of AI use in systematic review development.*
- *Encouraging greater use of twinning and use of twinning guidance.*
- *Documenting lessons learned from twinning projects to update guidance on effective approaches for twinning.*

Vaccine confidence

Lisa Menning, WHO, Geneva

Vaccination is (mostly) a voluntary act, and requires caregivers' consent and, ideally, active support. However, public acceptance and support for vaccination is being undermined by an unprecedented set of challenges, including the politicization of public health, generalized loss of trust in traditional authorities, a complex and confusing information environment, and organized anti-vaccination activities.

However, such issues are not the only ones affecting vaccine uptake. Many other factors can influence immunization behaviours, as outlined in the '**behavioural and social drivers (BeSD)**' of immunization framework[19].

Within this context, what is the role of NITAGs? The primary focus of NITAGs is on technical evidence, but their independence, objectivity and commitment to evidence-based approaches give them a special position of authority. Yet they generally have limited experience of communicating with general audiences and may not have the bandwidth to adopt an advocacy role.

Other stakeholders have a more obvious mandate to encourage take up, including ministries of health, CSOs at a national or community level, and WHO globally. On the ground, **healthcare workers** are typically a trusted source of information and can influence individual decision-making. It is therefore important that they are trained and equipped to address caregivers' concerns.

Uptake is critical to the success of vaccination programmes, so evidence relating to behavioural and social drivers needs to part of NITAG deliberations. It is therefore important that NITAGs have multidisciplinary expertise, including in the social sciences.

However, the role of NITAGs in communication remains an open question. Engaging with key stakeholders such as policymakers, politicians and professional societies is clearly central to the work of NITAGs. NITAGs could leverage their status to communicate more widely, but it is unclear whether they have the mandate or time to devote to such activities. Members of a NITAG Secretariat could also contribute to vaccine-related communication, but do not usually have the academic credentials or independence of NITAG members.

Potential next steps

- *Undertaking a survey to identify current NITAG communications activities, members' views on the role of NITAGs, and potential challenges and opportunities.*
- *Developing a consensus position on the role of NITAGs in public communication relating to immunization.*
- *Developing training materials and other resources to support work of NITAGs and their secretariats in this area.*

Infectious diseases modelling

So Yoon (Yoonie) Sim, WHO, Geneva

Modelling can provide additional input into vaccination decision-making, enabling countries to estimate health and economic impacts, compare the potential impact of different policy options, and explore trade-offs. WHO is developing guidance to support the development of country capacity in modelling to support vaccine decision-making as well as a strategy to build national modelling capacity.

[19] https://www.who.int/publications/i/item/9789240049680

Models can be developed to simulate **transmission dynamics** and to **synthesize evidence** from multiple sources. They can then be used to explore different vaccine-use scenarios or counterfactuals (what might happen without vaccination).

Modelling is integral to SAGE deliberations, and following consultations to explore decision-makers' needs[20], global guidance has been developed and is due to be disseminated early in 2026. Follow on work will focus on implementation of the guidance, training and developing a community of practice.

Modelling can be a powerful tool to support decision-making, but its **limitations** always need to be borne in mind. It is not a substitute for empirical data, although it can help to identify key data gaps. Modelling projects require a close relationship between modellers and subject matter experts, and high levels of trust to underpin co-creation of reliable and useful models.

Discussions highlighted the need for capacity-building in modelling in both NITAGs and NITAG Secretariats. NISH offers introductory training in modelling, which can help to overcome initial 'fear of modelling' and support effective engagement with modellers.

Invasive meningococcal disease in France

Roland Andrianosolo, Public Health and Vaccines Assessment Department, France

The French NITAG, the Technical Committee for Vaccines (CTV), used modelling to refine national strategy for **meningococcal vaccination** and prevention of **invasive meningococcal disease (IMD)**. The CTV responded to a ministry of health request in 2023 triggered by a rise in circulating meningococcal W and Y serotypes, especially in infants, adolescents and young children.

A traditional assessment of the evidence suggested that there was a strong case for introduction **MenACWY** vaccine in infants and adolescents. The case for introduction of **MenB** vaccination in adolescents was less compelling. In collaboration with a team from the Pasteur Institute, modelling was used to explore the impact of different scenarios of vaccine introduction[21].

The modelling results suggested there was little difference between MenACWY vaccination at ages 11 or 14 years, allowing the programme to be integrated with existing HPV vaccination schedules. MenB vaccination in adolescents provided minimal health benefits, so focusing on infants represented a more efficient use of resources. Vaccination was recommended for infants and is available but optional for adolescents.

This French experience illustrates the value of conducting a standard evidence assessment first and then using modelling to explore more nuanced policy options.

Gonococcal vaccination in the UK

[20] Leask J, Christou-Ergos M, Abdi I et al. Informing the development of transmission modelling guidance for global immunization decision-making: A qualitative needs assessment. Vaccine. 2025;49:126800. doi: 10.1016/j.vaccine.2025.126800.

[21] Bosetti P, Peckeu-Abboud L, Andrianasolo RM et al. Modelling the impact of a quadrivalent ACWY meningococcal vaccination and vaccination targeting serogroup B in France. Vaccine. 2025;67:127871. doi: 10.1016/j.vaccine.2025.127871.

Helena Bird, JCV Secretariat, UK
Gonorrhoea is the second most common sexually transmitted infection (STI) in the UK, with cases on the rise. Around half of all cases are in a high-risk population, gay, bisexual and other men who have sex with men (GBMSM).

A range of observational studies have shown that **meningococcal vaccination** offers a degree of cross-protection against gonorrhoea (vaccine efficacy of around 30–40%). The UK's NITAG, the JCVI, worked with a team of modellers from Imperial College London to explore the potential impact of 4CMenB vaccine introduction on gonorrhoea transmission. A high degree of uncertainty surrounded key parameters, including vaccine efficacy and the duration of protection.

The modelling study examined four introduction strategies, with different target groups and points of vaccination. Vaccination based on risk or following attendance at a sexual and reproductive health clinic showed similar health impact, but the latter represented a more efficient use of resources. This led to a recommendation for 4CMenB to be offered to GBMSM attending sexual health clinics, a policy that was implemented in 2025.

Due to the high degree of uncertainty and assumptions built into the model, the recommendation is being kept under review. The UK Health Security Agency is monitoring the impact of 4CMenB introduction.

In discussion, it was noted that the UK's excellent **surveillance data** provided a solid basis for decision-making and will enable the impact of vaccine introduction to be assessed. Not all countries have such data to draw upon. It was also stressed that vaccination is communicated to recipients as providing community rather than personal benefits, given the limited protective efficacy of 4CMenB against gonorrhoea.

Other modelling shortcomings include a **limited consideration of benefits** – only health system costs were incorporated into modelling and no allowance was made for other benefits, such as reduced antibiotic use and reduced AMR pressures. It was also stressed that **cost-effectiveness is only one consideration in decision-making** – factors such as equity may also be an important issue. In addition, models do not capture well impacts of gonorrhoea prevention in women, with infections often asymptomatic but with long-term reproductive health consequences. Possible extension of vaccination to additional populations could be considered at a later date.

Potential next steps

- *Continuing to strengthen modelling awareness and capabilities in NITAGs and their secretariats.*
- *Conducting a survey to benchmark use of modelling in current NITAG decision-making, current NITAG modelling capacity, and capacity-development priorities.*
- *Sharing additional case studies of modelling use in vaccine decision-making.*

Health technology assessment (HTA)

Edwine Barasa, KEMRI–Wellcome Research Programme, Kenya

In a world of constrained resources, prioritization is critical. To ensure best use of resources, it is important that prioritization is systematically done, informed by evidence, based on explicit criteria, and uses an inclusive and transparent process. A multidisciplinary approach is required with well-defined methods.

HTA assessments can have several purposes:

- In **product development** (for example, to inform drafting of target product profiles, TPPs).
- In **resource allocation** (prioritization and optimization of health service portfolios).
- In **pricing and reimbursement** (setting threshold prices for cost-effectiveness).

For each of these use cases, it is essential that a clear process is set out, with clearly defined roles and responsibilities for those involved, agreed assessment criteria and rigorous methods.

HTA assessments typically focus on **cost-effectiveness** and **budget impact** (affordability). In Thailand, the approach was used to determine whether interventions should be included on the country's essential medicines list. By identifying a price threshold for cost-effectiveness, the country was able to negotiate with suppliers, leading to major cost savings. HTA is a relatively low-cost activity with the potential to achieve substantial savings – in Thailand, the return on investment was estimated to be around 8:1.

Dr Barasa suggested that HTA-like activities were already being carried out by NITAGs. There are opportunities to make economic analyses more systematic and rigorous, and integrated with national HTA systems.

In discussions, it was noted that economic arguments were not the only factor influencing decision-making. **Equity goals**, for example, may require additional investments. **Political choices** are also made, not necessarily on economic grounds. HTA methods can build in flexibility, incorporating different criteria into decision-making processes.

It was noted that mechanisms for economic evaluation in immunization varied between countries. In the UK, the JCVI undertakes economic analyses, coordinating with the UK's main HTA body (the National Institute for Health and Care Excellence, NICE) and applying the same assessment criteria and metrics. In many other countries, bodies other than NITAGs conduct economic assessments.

Other complexities include which bodies should have responsibility for appraisal of alternative preventive interventions such as monoclonal antibodies. In addition, vaccines have population-level benefits (such as risk mitigation and AMR prevention) that can be difficult to factor into economic assessments.

Potential next steps

- *Surveying NITAGs to assess current practices and relationships with national HTA structures.*
- *Developing best practices for NITAG and HTA engagement.*

Horizon scanning

AI and NITAGs

Matthew Tunis, NACI, Canada

AI is likely to have multiple applications in the work of NITAGs, both general (e.g. enhancing operational efficiency) and specific (e.g. accelerating evidence appraisals). Systematic reviews are among the most time-consuming and costly aspects of NITAGs' work and developers are exploring the use of AI at multiple stages of systematic review development. The **OTTO-SR system** looks particularly promising[22] and its capabilities are being investigated by NACI. Groups working with traditional methods of systematic review development have published guidance on reporting of AI use[23].

Dr Tunis suggested that 'pro' versions of consumer large language models were very much more powerful. Open-source versions are more adaptable but require significant technical expertise. His suggestions to NITAGs were:

- To pilot AI use, scale and continuously learn.
- To keep human experts at the centre of activities.
- To build the capacity of secretarial staff in AI applications.
- To build quality and consistency through coordination.
- To continue monitoring the ecosystem, which remains highly dynamic.

Other challenges include journal paywalls, which may limit access of AI tools to key content, and the constant updating of AI models. Replication, evaluation and validation are still live issues as different tools may give inconsistent results. Most AI applications are 'black boxes' and how they arrive at their conclusions may not be explainable. Current AI tools are generally not specifically designed for public health applications.

Possible future implications include the growth of **living systematic reviews** and advice that is continuously updated as new information becomes available. The ability of NITAG members to meet for discussion may become the limiting step in generation of evidence-based recommendations.

Looking forward, Dr Tunis made several recommendations, including:

- Experimenting with new tools and sharing experiences with others.
- Partnering with companies to create tools tailored to public health or immunization.
- Collaborating to pool resources and facilitate development of shared tools.

Discussions highlighted the great potential of AI but also the risks, particularly the trustworthiness of outputs. It was emphasized that human oversight remained essential. Some steps of evidence appraisal are less critical than others and may be more

[22] Cao C, Arora R, Cento P. Automation of Systematic Reviews with Large Language Models. medRxiv. 2025; https://doi.org/10.1101/2025.06.13.25329541

[23] Holst D, Moenck K, Koch J, Schmedemann O, Schüppstuhl T. Transparent Reporting of AI in Systematic Literature Reviews: Development of the PRISMA-trAIce Checklist. JMIR AI. 2025;4:e80247. doi: 10.2196/80247.

amenable to automation by AI. Even if AI processes are flawed, they may still provide an initial starting point that reduces overall production time.

Potential next steps

- *Using regional mechanisms to explore the application of AI tools in multiple aspects of the work of NITAGs and RITAGs (see above).*

Outline GNN workplan for 2026

Discussions in Marrakech focused on the development of an action agenda for 2026.

Webinars	• PCV • How AI can be used to support policy-making • Infectious disease modelling • RSV in LMIC • H5 and pandemic flu
Surveys and case studies	• Financing of NITAG secretariat (case studies) • Linkages between NITAGs and HTA • Policymakers' perceptions of NITAGs
Tools	• NMAT revision • Optimization (currently ongoing) • Monitoring of AI tools for policy development
Training	• Vaccine prioritization and optimization (currently ongoing) • Use of AI for decision-making • Mathematical modelling • Communication and vaccine hesitancy • Vaccinology training • Leadership and soft skills • Online learning journey
Publications	• Examples of product/schedule switches (cost-effectiveness) • Use of mathematical modelling by NITAGs • NITAG secretariat survey • NITAGs experiences in prioritization and optimization

Conclusion

The 2025 GNN meeting in Marrakech again illustrated the **value of connecting members of NITAGs and their secretariats**. Such meetings offer an opportunity for experience sharing, cross-fertilization of ideas, and discussion on the key issues common to NITAGs globally.

In a rapidly changing landscape, **the role of NITAGs is becoming ever more important**. Resources are increasingly constrained, calling for careful assessment of the evidence to ensure that funds achieve maximal public health impact. At the same time, the amount of information available is growing, yet its reliability may be questionable as AI technologies make it increasingly easy to generate and share material. The expertise of NITAGs is essential in this polluted information environment.

Multiple tools are being developed to support the work of NITAGs, and more are on their way. The GNN ensures that the development of new tools is guided by the needs of NITAGs. Emerging technologies such as **AI and modelling** hold great promise, but also potential pitfalls, and the community needs to work together to ensure that new opportunities are leveraged and risks are minimized.

This increasingly important role also highlights the importance of **secretariat support**. Appropriate levels of support to NITAGs are essential for expert knowledge to be leveraged most effectively. However, resourcing of secretariats currently varies widely. Monitoring of secretariat support through the eJRF will help to shine a spotlight on this key issue.