WHO Malaria Policy Advisory Group

Meeting report, 14–16 October 2025

World Health Organization

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ISBN 978-92-4-012006-8 (electronic version)
ISBN 978-92-4-012007-5 (print version)

Suggested citation. WHO Malaria Policy Advisory Group: meeting report, 14-16 October 2025. Geneva: World Health Organization; 2025. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at https://iris.who.int/.

This publication contains the report of the Malaria Policy Advisory Group (MPAG) and does not necessarily represent the decisions or policies of WHO.

Contents

Abbreviations

ACT	artemisinin-based combination therapy
GDG	Guideline Development Group
HBHI	high burden to high impact
MFT	multiple first-line therapies
MPAG	Malaria Policy Advisory Group
PMI	U.S. President's Malaria Initiative
SNT	subnational tailoring
WHO	World Health Organization

1. Background

The World Health Organization (WHO) convened the Malaria Policy Advisory Group (MPAG) for its 28th meeting, held virtually on 14–16 October 2025. MPAG convenes twice annually to provide independent strategic advice to WHO on technical issues related to malaria control and elimination. MPAG advises the WHO Director-General and the Department of Malaria and Neglected Tropical Diseases specifically on:

- appropriate malaria policies and standards based on data from malaria programme implementation by Member States and malaria control partners, as well as reviews of the best available evidence;
- engagement of WHO in malaria-related initiatives;
- major issues and challenges to achieving global malaria goals; and
- identification of priority activities to address challenges.

The two days of open sessions involved participation of 16 MPAG members and 217 observers who joined remotely via a virtual conferencing platform, with the MPAG Chair and WHO staff participating in person. The meeting was chaired by Professor Dyann Wirth.

The following updates and progress were presented in the following work areas:

- Update from the Department of Malaria and Neglected Tropical Diseases
- Epidemics and emergency responses
- Subnational tailoring (SNT) of malaria interventions and strategies
- the development of WHO guidelines for malaria
- Drug resistance activities
- Vector control
- Malaria "Big Push" initiative to 2030

All 16 MPAG members participating in the meeting updated their Declaration of Interest forms in advance of the meeting, which were assessed by the WHO Secretariat; 13 members reported interests. The full report on members' Declarations of Interest was published two weeks before the meeting and is available on the meeting website. No MPAG members reported conflicts of interest specifically related to the agenda topics. It was assessed that all members could fully participate in all sessions (see Annex 1). The agenda is reproduced in Annex 2, and the participants are listed in Annex 3.

2. Overview of the sessions

2.1 Update from the Department of Malaria and Neglected Tropical Diseases WHO background

The acting interim Director of the World Health Organization (WHO) Department of Malaria and Neglected Tropical Diseases presented key updates to the Malaria Policy Advisory Group (MPAG) since the April 2025 MPAG meeting.

Global malaria financing remains critically constrained, with only about 50% of the resources needed to meet the targets set out in the *Global technical strategy for malaria 2016–2030 (1)*. Debt servicing and illicit financial flows continue to erode fiscal space, while official development assistance has fallen by an estimated 40% over the past two years. Despite these financial constraints, some countries have increased their domestic funding for malaria and health, including Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, Nigeria and Togo. The Director also underlined the need for smarter use of limited funding through stronger health systems integration, adherence to prioritization principles, whenever feasible, and coordinated global governance.

As part of WHO's restructuring in 2025, the former Global Malaria Programme and Global Neglected Tropical Diseases Programme have merged. The newly formed Department of Malaria and Neglected Tropical Diseases will enhance departmental efficiency through aligned efforts, shared data platforms and joint capacity-building, supporting countries to embed malaria and neglected tropical diseases activities into national planning, budgeting and implementation processes.

Technical highlights include the following:

- **Vector control:** New insecticide classes (chlorfenapyr and isocycloseram) have been recommended for indoor residual spraying; a new larval source management manual is due for publication in Q4 2025; and an update to the *Global plan for insecticide resistance management in malaria vectors (2)* is under consideration.
- **Vaccines:** Five additional countries have introduced the vaccines (for a total of 23); more than 10 million children have been reached; and evidence has confirmed the additional benefit of the fourth dose in the RTS,S/AS01 schedule.
- **Diagnostics and treatment:** New Guideline Development Groups (GDGs) have been established; systematic reviews have been completed on preventive regimens and primaquine use; and further updates are planned for 2026.
- **"High burden to high impact" (HBHI) and emergencies:** Progress has been made on the Yaoundé Declaration *(3)* with national accountability dialogues; and a field manual on malaria control in emergencies has been published *(4)*.
- **Elimination:** WHO has certified Suriname and Timor-Leste as malaria-free; global guidance on prevention of re-establishment has been issued *(5)*; and Oman, Qatar and Türkiye are next in line for certification.
- **Strategic information:** New guidance has been developed on subnational tailoring (SNT) *(6)*, national malaria data repositories and surveillance; and the *World malaria report 2025* will feature a special chapter on antimalarial drug resistance.

The Department of Malaria and Neglected Tropical Diseases benefited from the guidance provided at the MPAG meeting in April, which helped to finalize the SNT manual *(6)*, activate subregional drug resistance surveillance networks, and promote the continued mainstreaming of equity and gender in departmental work.

MPAG conclusions

MPAG congratulated the Department of Malaria and Neglected Tropical Diseases on its response to the challenging context:

- The publication of SNT guidance *(6)*, incorporating MPAG recommendations, and other recent WHO manuals will facilitate countries' technical response.
- MPAG acknowledged that the Department's work to develop the "Compendium of molecular markers for antimalarial drug resistance" and efforts to implement multiple first-line therapies (MFT) will benefit the response to antimalarial drug resistance in Africa.
- MPAG fully supports the evolution of the guideline development process to ensure both rigour and timeliness.
- With the dissolution of the Vector Control Advisory Group, MPAG and the subgroups are ready to extend their role to cover any appropriate core functions.
- MPAG congratulated the Department of Malaria and Neglected Tropical Diseases and the Immunization, Vaccines and Biologicals Department for reaffirming the vaccine recommendation for the four-dose schedule, based on evidence from case-control studies under the Malaria Vaccine Implementation Programme.
- MPAG noted that the "Malaria multi-model comparison of priority interventions" is in the final stages of preparation. The Group looks forward to reviewing the methods and results in advance of any release of this information.

2.2 Updates on epidemics and emergency responses

WHO background

This section highlights a "gathering storm" in malaria control, especially in high-burden countries, organized around three updates:

1. **Yaoundé Declaration: progress and resourcing needs**
   Progress to accelerate mortality reduction includes embedding an accountability framework and piloting country-level mortality mapping in Ghana and Uganda, with activities planned in the United Republic of Tanzania subject to funding. However, WHO lacks sufficient catalytic resources to drive national dialogues, complete mortality mapping and develop mitigation strategies at scale to meet the Yaoundé Declaration targets across all high-burden countries.

2. **Heightened epidemic risk amid a deteriorating financing environment**
   The sharply constrained funding context (U.S. President's Malaria Initiative [PMI]/United States Government shifts, reprioritization of official development assistance, reduced allocations from the Global Fund to Fight AIDS, Tuberculosis and Malaria, and limited domestic resources) is increasing epidemic risk. WHO has been unable to maintain real-time, country-level measurement of epidemic status in 2025 due to poor weekly epidemic monitoring in countries transitioning from holoendemic to lower transmission; the absence of automatic emergency triggers; political sensitivity and reluctance to declare epidemics; and insufficient community engagement. Media reports indicate that funding cuts have impacted the malaria response in Cameroon, Democratic Republic of the Congo, Sudan (malaria and dengue), Uganda and Zimbabwe. In southern Africa (Botswana, Eswatini, Namibia, Zimbabwe) major surges have been reported; except in Zimbabwe, these have been driven largely by delayed interventions, logistical constraints and programme gaps, rather than by funding shortfalls, as most of these programmes are less reliant on PMI support.

3. **New WHO guidance on malaria control in emergencies**
   WHO has issued updated guidance *(4)*, replacing the 2013 edition. Despite causing 246 million cases and 569 000 deaths in the WHO African Region in 2023 *(7)*, malaria is not consistently treated as an epidemic-prone, notifiable threat under the Integrated Disease Surveillance and Response strategy and in the WHO grading of public health emergencies – unlike cholera, measles, polio, yellow fever, or viral haemorrhagic fevers – which leads to delayed and underfunded responses. Uganda's 2022 surge reveals the cost of operating without a graded, funded emergency preparedness and response plan.

Proposed directions include i) institutionalizing malaria grading within the WHO grading of public health emergencies; ii) preparing contingency plans for a potential national, regional and global appeal should multi-country epidemics emerge; iii) diversifying external financing; and iv) ensuring that endemic countries adopt weekly epidemic monitoring, pre-position life-saving tools and mobilize communities for rapid detection and response.

MPAG conclusions

MPAG congratulated the Department of Malaria and Neglected Tropical Diseases on the recent updates on the HBHI approach in line with the Yaoundé Declaration signed by HBHI countries in March 2024 *(3)*, as well as the comprehensive work to highlight the drivers of malaria mortality in Ghana and Uganda and the strategy for eliminating malaria deaths in Uganda. MPAG members discussed the following key points for additional consideration by WHO:

Clarify communication on HBHI, the "Big Push" and ongoing initiatives with national malaria strategic plans

MPAG emphasized the need to provide clarity on the complementarity between the HBHI approach and the "Big Push", which was launched in September in Nigeria. MPAG further recommended developing communication strategies with clear objectives to make it easier for countries to mobilize, implement, monitor and evaluate the initiatives. MPAG emphasized the need to ensure that planned activities are embedded within countries' national malaria strategic plans so that these priorities can be included in country-led advocacy and resource mobilization efforts.

Need for tailored support to countries experiencing emergencies

MPAG members congratulated the Department of Malaria and Neglected Tropical Diseases on the release of the field manual for malaria control in emergencies *(4)*. MPAG noted its importance, considering that eight out of the 11 HBHI countries are currently facing varying degrees of conflict and extreme climate events leading to heavy flooding, which have caused displacement and service disruptions. These challenges are exacerbated by the current gaps in funding. MPAG emphasized the need for additional technical and other support to countries experiencing emergencies to avoid further disruption to services and potential epidemics. MPAG recommended that WHO use existing communication channels to share examples of best practices from countries and, where relevant, incorporate these examples in future revisions of the manual.

Develop framework for priority actions

MPAG was of the view that the findings on drivers of malaria mortality are consistent with existing knowledge but noted that the relative weight of each contributing factor is likely to vary across countries; knowledge on these differences would help to inform practice. MPAG noted the utility of the Department's proposal to develop

standard operating procedures for implementing mortality mapping in other high-burden countries but emphasized that it is the first step in the process. It will therefore be important for the Department to develop a framework for priority actions that countries can consider in the short, medium and longer term to address severe malaria and deaths in light of their mapping. Moreover, mortality mapping and the case management improvements identified should not be completed in isolation but should be factored in during discussions on SNT – not buried within the "business as usual" case management intervention package. Such a framework should include a clear emphasis on prevention, as most of the malaria burden and mortality can be averted through vector control and other prevention strategies such as seasonal malaria chemoprevention and vaccines. Malaria case management guidelines should ensure that every contact of a malaria patient with the health system becomes an opportunity for both treatment and prevention, enabling health providers to reinforce relevant key messages on preventive measures.

Facilitate exchange of best practices among countries

MPAG endorsed the operational and programmatic recommendations of the Uganda strategy and advised that, rather than considering how these key interventions could be transferred to other countries, WHO and partners should facilitate the sharing of best practices so that countries can learn from proven effective and feasible initiatives. MPAG cited Uganda's Smart Discharges kits as an example worth disseminating to address malaria mortality drivers.

Additional recommendations proposed

MPAG noted that the proposed recommendations are well aligned with HBHI principles and the Yaoundé Declaration. In particular, the call to emphasize community engagement and ensure that malaria is eligible for systematic epidemic grading and response is a potential game-changer for mobilizing the political will and much-needed resources for malaria control and elimination. However, it is necessary to go further and consider how to best transform malaria control from a donor-dependent effort into a nationally led investment. Efforts may include initiatives linking domestic financing to global matching or performance-based funds to enhance countries' political leadership commitment and mobilization of domestic resources.

MPAG proposed additional recommendations as follows:

- **Countries should be capacitated for early detection and response to malaria outbreaks**: MPAG emphasized the importance of countries having the capacity to promptly detect a malaria outbreak and respond based on the local context.
- **Strengthen vector surveillance to effectively serve as an early warning system for malaria outbreaks**: MPAG recommended that the Department support countries to establish systems for detecting increases in mosquito density, changes in species distribution and rising insecticide resistance before human cases surge. Linking entomological, climate and case surveillance data will enable malaria programmes to shift from reactive to predictive and preventive responses – a key element of the HBHI strategy to reduce malaria deaths and outbreaks.
- **Invest in integrated malaria country surveillance systems:** MPAG recommended that countries invest more in integrating and strengthening surveillance platforms, such as national malaria data repositories, and ensuring that malaria is notifiable on a weekly basis through the Integrated Disease Surveillance and Response strategy, among other channels, to make data more predictive. This surveillance will enable health authorities to engage in more proactive, data-driven outbreak responses – a cornerstone of the HBHI strategy and the "zero malaria deaths" goal.

2.3 Update on subnational tailoring

WHO background

This session provided an update on the reference manual *Subnational tailoring of malaria strategies and interventions (6)* and sought advice from MPAG members to ensure its uptake.

With global malaria funding stagnating over the past decade, endemic countries face significant resource constraints and must use limited resources more effectively and equitably throughout their programme planning and implementation cycles – from reviews to national strategic plan execution. Central to this process is using data and analysis to assess progress and ensure evidence-based decision-making. SNT of malaria interventions integrates this evidence-based framework into malaria planning and implementation.

SNT is defined as the use of local data and contextual information to determine the appropriate mix of interventions and strategies for a given area, ensuring maximum impact on disease transmission and burden.

SNT addresses key questions: where to intervene, which interventions are relevant to implement, what is affordable and how to prioritize, when and how to implement, and how to monitor impact. The reference manual guides the use of subnational data and analytical approaches for malaria programme reviews, national strategic plans and operational plans. Its target audience includes national malaria programmes, implementation partners, subnational government entities, technical experts and funders. The manual is designed to evolve as new recommendations, strategies and methodologies emerge.

The manual was shared internally within WHO departments and regional offices and externally through various rounds of review, including with MPAG, donors, implementing partners (Applied Health Analytics for Delivery and Innovation, Clinton Health Access Initiative, Malaria Consortium, PATH, Population Services International, RBM Partnership to End Malaria), academic and research groups (Ifakara Health Institute, Institute for Disease Modeling, Kenya Medical Research Institute, Malaria Atlas Project, Northwestern University, Swiss Tropical and Public Health Institute), and national malaria programmes from Burkina Faso, Cameroon, Ghana, Mozambique, Nigeria and Sierra Leone. All comments from the last MPAG meeting in April 2025 were addressed, namely strengthening feedback from national malaria programmes, simplifying navigation of the document, clarifying complementarity with other WHO guidance, finalizing costing components, and integrating equity considerations into the manual.

The manual has now been published *(6)*. The next steps will focus on ensuring its uptake and monitoring its use, including by disseminating the manual through webinars and various national, regional and international platforms (e.g. RBM Partnership), developing a training curriculum, strengthening routine surveillance systems that generate quality data for use in SNT, and monitoring countries that are applying SNT, especially as part of their national strategic plan formulation and implementation of Global Fund Grant Cycle 8.

MPAG conclusions

Overall, MPAG congratulated the Department of Malaria and Neglected Tropical Diseases for the successful completion and publication of the SNT manual following extensive revisions in the last year. SNT is considered a critical step in optimizing how interventions are targeted and limited resources allocated. To reach its full potential, SNT requires strong country ownership with coordinated stakeholder participation in the decision-making process.

Advice was requested from MPAG on how to improve uptake of SNT in this challenging limited resource landscape that has significantly reduced opportunities to foster local talent and collect the relevant data to inform SNT processes. MPAG made the following comments for consideration:

- **Prioritize building local capacity:** Consider enriching training curriculum for government personnel to foster in-country decision-making and advocacy, and strongly encourage dialogue among local researchers, existing networks and health managers. Promote strong country leadership and ownership of the SNT process, ensuring that local capacity is effective and trusted.
- **SNT is a driver for resource mobilization:** A recent independent evaluation of SNT commissioned by the Global Fund highlighted examples of countries such as Ghana, where SNT has been used successfully to secure the resources to maintain and, in some areas, expand vector control interventions. Although the primary role of SNT is not resource mobilization, it is important that national malaria programmes learn from these success stories and apply similar advocacy efforts to cover the optimal intervention mixes identified through SNT. In addition, SNT can be used to incentivize domestic resource mobilization, including through private–public and private–public–philanthropic partnerships, and this should be actively pursued throughout the SNT life cycle.
- **Donor alignment on SNT is a key enabler:** The Global Fund, PMI and the Gates Foundation have played a key role in SNT uptake and remain critical to ensuring that core interventions are effectively targeted using a single optimized strategic plan. In the short term, a critical donor-supported step should be to support the embedding of long-term technical assistance in national malaria programmes while building in-house capacity and local ownership for planning and implementing SNT in order to ensure the rapid uptake and sustainable implementation of SNT in the medium and longer term.
- **Promote country best practices**: Providing opportunities for country exchanges or forums to share SNT success stories (e.g. SNT use to drive private sector engagement or matching incentives) should be considered. Countries should lead the coordination efforts to ensure that these exchanges and opportunities to share experiences are promoted and lessons learned are documented to facilitate SNT uptake, with support from regional and global partners and stakeholders (e.g. RBM Partnership, WHO).
- **Emphasize the need for continuous improvement as SNT uptake increases**: As SNT uptake increases, the goal should be continuous improvement of the various operational aspects and monitoring and evaluation framework and checklist that were developed as part of the SNT manual. These tools will generate rich information with which to formulate recommendations, identify best practices and address data gaps for future iterations of the SNT manual. Insights from this process should also be shared through the country exchanges encouraged in the previous point.

2.4 Update on development of *WHO guidelines for malaria*

WHO background

Since 2021, WHO has consolidated the guidelines for malaria into a single document *(8)* consisting of four sections: i) prevention, which covers vector control, preventive chemotherapies and vaccines; ii) case management; iii) elimination and prevention of reintroduction; and iv) surveillance. With the exception of the surveillance section, the *WHO guidelines for malaria (8)* are developed following WHO's rigorous, transparent guideline development process, as laid out in the *WHO handbook for guideline development, second edition (9)*. This process is overseen centrally by the WHO Office of Chief Scientist. As new evidence becomes available, the recommendations are reviewed and updated where appropriate.

The consolidated *WHO guidelines for malaria* have been updated 10 times since 2021, with the most recent update released on 13 August 2025 *(8)*. The update includes revised information on WHO's recommendation for indoor residual spraying to prevent malaria; incorporates evidence on two new insecticides (chlorfenapyr and isocycloseram), while maintaining the overall recommendation and emphasizing reduced use of DDT; and adds a new recommendation for spatial emanators (spatial repellents) based on recent evidence.

The next planned updates will cover vector control, malaria vaccines, diagnostics and malaria medicines. For vector control, the next update is planned for publication in late 2026/early 2027, with the GDG meeting planned for April/May 2026. The priorities include consolidating the multiple existing recommendations on insecticide-treated nets to guide the choice of nets in settings characterized by different levels of transmission and insecticide resistance, and developing a new recommendation on endectocides (ivermectin), as warranted by the evidence base. Building on the scoping review of contextual factors performed in 2023, a systematic review of qualitative evidence will be completed, covering a wide range of vector control interventions, to inform the deliberations of future GDGs. In addition, the current good practice statements on malaria vector control will be reviewed and potentially updated, while two new good practice statements are foreseen.

The next guidelines update will include evidence generated by case-control studies recently completed in Ghana, Kenya and Malawi, designed to complement the results of the cluster-randomized evaluations of the Malaria Vaccine Implementation Programme. The RTS,S/AS01 case-control studies were conducted between October 2021 and March 2025, leveraging the surveillance systems (network of sentinel hospitals and community mortality surveillance) established as part of the malaria vaccine pilot evaluation. The study objectives were to: i) measure estimates of safety and effectiveness at the individual level; ii) assess the risk of severe malaria rebound following three doses (without a fourth dose); and iii) establish the additional benefit of the fourth vaccine dose. The new evidence has been used by the Strategic Advisory Group of Experts on Immunization and MPAG to reaffirm the recommendation for the use of the four-dose schedule.

The planned update to the diagnostics section will address the diagnostic challenges posed by *Plasmodium knowlesi, P. malariae* and *P. ovale* spp., which are endemic in various regions. Each species presents unique public health challenges due to transmission dynamics, diagnostic complexity and disease burden. Given the diagnostic challenges and the potential for severe or chronic disease, evidence-based recommendations for testing are essential to ensure accurate detection, appropriate treatment and effective malaria surveillance. To this end, a newly established GDG has developed a set of PICO/PIRT questions with which to formulate recommendations on *P. knowlesi* testing and the use of rapid diagnostic tests to diagnose *P. malariae* and *P. ovale* spp. The publication of these new diagnostic recommendations is planned for June 2026.

In relation to malaria treatment and chemoprevention, specific recommendations will be updated on the use of single low-dose primaquine to reduce antimalarial drug resistance in areas of moderate to high transmission and on intermittent preventive treatment of malaria in pregnancy. In addition, WHO will update recommendations on the treatment of young infants weighing less than 5 kg, in light of the recent registration of a new paediatric formulation of artemether-lumefantrine. The publication of the updated recommendations on malaria treatment and chemoprevention is planned for July 2026.

The Science Division, in close coordination with the Health Promotion Disease Prevention & Control Division is preparing for the introduction and scale-up of living guidelines across the Organization, with possible implementation in early 2026. At

the core of the "living guidelines" concept is ensuring that key recommendations are kept as up to date as required and as feasible. The process involves identifying living recommendations, based on high public health priority for decision-making, conditional recommendations with low to very low certainty of evidence, and expected new emerging evidence that is likely to lead to updated recommendations. The plan is to select specific WHO guidelines as "early adopters" in order to identify the many institutional procedures and requirements that will need to change to enable the transition to the living guidelines. The *WHO guidelines for malaria* has been selected as a candidate for the new approach, with the suggested areas of initial focus being vector control products, diagnostics and medicines.

MPAG conclusions

MPAG congratulated the Department of Malaria and Neglected Tropical Diseases for keeping the WHO guidelines as one of the top priorities of WHO's normative work. In the context of WHO's transformation and consolidation of work areas, continuous investments in timely updates to WHO guidelines are essential to ensure rapid adoption of new products and rapid consideration of new data on subjects such as drug resistance and insecticide resistance for inclusion in national policies, strategic plans and costed action plans.

MPAG agreed that treating the consolidated *WHO guidelines for malaria (8)* as a living guideline should ensure that recommendations are kept up to date. MPAG looks forward to reviewing whether the proposed optimization of the process leads to accelerated release of new and updated recommendations. MPAG welcomed the plan for the Department of Malaria and Neglected Tropical Diseases to be an early adopter of the WHO process in developing the malaria guidelines, which will help to extend the living guidelines approach progressively to all WHO guidelines.

MPAG recommendations

MPAG appreciated the work done in developing the *WHO guidelines for malaria (8),* which has consolidated the Organization's most up-to-date recommendations on malaria in one user-friendly and easy-to-navigate online platform. MPAG recommended that the guidelines and manuals provide clarity on the geographical settings, malaria species and contexts in which the recommendations apply.

- MPAG supported the idea of living guidelines and updates. Guidelines should be linked to implementation strategies:
  - to address gaps in policy and practice where compliance is low or uptake is suboptimal; and
  - to identify approaches for strengthening local systems and training.
- MPAG welcomed the contributions of experts from malaria-endemic regions to the development of the guidelines and recommended that suitable training opportunities be provided to them.
- The section on intermittent preventive treatment of malaria in pregnancy should highlight integrated care for HIV and malaria, including prevention, screening, treatment and community engagement.

2.5 Update on drug resistance activities

WHO background

Antimalarial drug resistance remains a major challenge to malaria control and elimination, threatening the progress achieved over the past two decades. Partial resistance to artemisinin has been confirmed in several African countries, with mutations in the *P. falciparum Kelch 13* (*Pfkelch13*) gene (e.g. R622I, R561H and others) identified across countries and regions, including in the Horn of Africa, Rwanda, southern Africa, Uganda and the United Republic of Tanzania. In some locations, these genetic changes have been associated with delayed parasite clearance. The co-occurrence of *Pfkelch13* mutations and *P. falciparum* histidine-rich protein 2/3 (*pfhrp2/3*) deletions – which can lead to false-negative results when using rapid diagnostic tests that detect histidine-rich protein 2 – presents an additional threat.

To strengthen the use of molecular surveillance, WHO has been developing a "Compendium of molecular markers for antimalarial drug resistance", a consolidated resource that classifies genetic alterations in *P. falciparum* and *P. vivax* based on supporting evidence. The compendium defines validated, candidate and potential markers based on laboratory, clinical and epidemiological data. It is intended to promote the consistent use of molecular markers in routine surveillance and to identify critical gaps for future research. The first iteration of the compendium is being produced through a comprehensive literature review, expert consultation and structured evaluation criteria, with annual updates planned. The results will be made available online through WHO's website.

Artemether-lumefantrine, the most widely used antimalarial treatment, remains the cornerstone of treatment of uncomplicated malaria across much of Africa. Resistance to lumefantrine would have grave consequences. There have been scattered reports of high treatment failure rates in several African countries, and laboratory data from Uganda indicate a moderate reduction of in vitro susceptibility to lumefantrine. The clinical implications of these moderate reductions remain uncertain, and no validated molecular marker for lumefantrine resistance has been identified to date.

Efforts are under way to implement MFT as part of a broader resistance management strategy. A WHO guide to support the adoption and implementation of MFT was published in November 2024 *(10)*. A Unitaid-funded project, "Scaling the optimal use of multiple ACTs to prevent antimalarial drug resistance" (STOP-AMDR; 2025–2029), is being implemented in six countries in sub-Saharan Africa: Burkina Faso, the Democratic Republic of the Congo, Kenya, Nigeria, Rwanda and Uganda. The project was formally launched in July 2025 and includes an embedded research component aimed at assessing the feasibility, acceptability and cost of implementing MFT. WHO is providing guidance on the development of research questions to ensure that the project generates the data needed to update the MFT implementation guidance document.

MPAG conclusions

MPAG congratulated the Malaria and Neglected Tropical Diseases staff members for their excellent work in tracking antimalarial drug resistance and providing guidance to countries for enhancing their monitoring and adopting new treatment modalities (such as MFT). It is of major concern that *Pfkelch13*-mediated artemisinin partial resistance continues to be detected across an increasing number of countries.

The "Compendium of molecular markers for antimalarial drug resistance" is an excellent initiative that will be a great resource for national malaria control programme staff and researchers who track antimalarial drug resistance markers. The Department has engaged a wide array of experts to sift through a vast body of literature and apply standards to qualify markers as potential, candidate or validated.

MPAG noted that there have been relatively few new data on the possibility of lumefantrine resistance emerging in East Africa. A modest decrease in lumefantrine susceptibility has been observed in northern Uganda. Reports of artemether-lumefantrine treatment failure have not been associated with decreased *P. falciparum* susceptibility to lumefantrine.

MPAG looks forward to receiving the review of current methods being used to detect resistance, including a discussion of which are best suited for use in endemic areas.

MPAG members were also keen to know more about data sources: Do data almost always come from clinics? Is there a more empirical way to measure drug pressure, as is done for molecular markers? Department staff replied that they had been working with Population Services International to use the ACTwatch Lite toolkit *(11)* to examine drug distribution and availability, triangulating that information with procurement data to generate a deeper understanding of drug use in both the private and public sectors. Department staff also noted that *Pfkelch13* mutant and wild-type parasite samples are being provided to laboratories, including in the field, to help standardize protocols and improve data quality and rigour.

MPAG recognized the key role played by the Department of Malaria and Neglected Tropical Diseases and partners, including the RBM Partnership, to strengthen and establish subregional networks for antimalarial drug resistance; provide norms and standards for molecular surveillance and therapeutic efficacy trials; and support data-sharing across regions.

The discussion also focused on the need to further communicate the benefit of adopting artesunate-amodiaquine as a low-cost alternative to artemether-lumefantrine to reduce the pressure on lumefantrine. Policy changes affecting procurement and implementation require additional resources. Artemisinin-based combination therapies (ACTs) that are alternatives to the most common combination (artemether-lumefantrine), such as artesunate-amodiaquine, are often not available in sufficient quantities. There is also concern over the lack of funds to enable widespread adoption of MFT.

The Director of the Department of Malaria and Neglected Tropical Diseases emphasized the need to continue market-shaping to reduce the price of ACTs that cost more than artemether-lumefantrine, and to encourage countries to adopt MFT and ACTs other than artemether-lumefantrine.

MPAG noted that it would be important to have a summary of the current status of the triple combination therapy artemether-lumefantrine-amodiaquine and how it could be integrated into therapeutic use policies.

MPAG recommendations

- MPAG supports the use of MFT to reduce the selective pressure on lumefantrine.
- MPAG supports the efforts of the Department of Malaria and Neglected Tropical Diseases to draw on the lessons learned from the STOP-AMDR project and develop scale-up strategies for the increased use of MFT.
- MPAG recommends that WHO and partners synchronize their market-shaping efforts for alternative ACTs to promote MFT.
- MPAG supports the continued use of molecular markers in surveillance, recognizing that for several ACTs no validated markers have been identified to date.
- MPAG recognizes the need to test and validate new methods for assessing in vivo efficacy in different epidemiological settings.

- MPAG supports screening for *pfhrp2/3* deletions as part of therapeutic efficacy studies and molecular surveillance activities.
- MPAG looks forward to the upcoming GDG's review and recommendation on the incorporation of single low-dose primaquine into first-line therapies to reduce transmission of drug-resistant parasites.
- It will be important to ensure that the compendium of molecular markers is updated at least once a year. It is also important to emphasize the difference between resistance and decreased susceptibility, which is particularly relevant to lumefantrine.
- The Department of Malaria and Neglected Tropical Diseases noted that important antimalarial drug resistance data can be published several years after the samples were initially collected. MPAG vigorously encourages teams to accelerate their time to publication and to release data to the Department much earlier.
- Countries are currently grappling with how to change their policies. MPAG emphasizes that additional financial and technical support is required to effect these changes.

2.6 Update on vector control

WHO background

The effectiveness of malaria vector control is facing phenomenal constraints, necessitating innovative, more effective and context-specific interventions. Accordingly, it is imperative to introduce and prioritize operational use of innovative interventions and consolidate pertinent guidelines in order to optimize vector control. The dynamics of contemporary vector control require a paradigm shift, which hinges on the implementation of inventive and transformative approaches. To facilitate implementation, a broad range of methods are needed to demonstrate the public health value of potential vector control tools. In this regard, it is critical to update the pertinent normative guidance underpinning recommendations on specific vector control tools. Moreover, integrated strategies will be key, given the growing burden of vector-borne diseases and the scarcity of human and financial resources. To enhance the effectiveness of malaria vector control, MPAG offers guidance and suggests directions for work to enhance WHO's impact.

Moving forward, the vector control team is prioritizing the update to the document *Norms, standards and processes underpinning development of WHO recommendations on vector control (12)*. The updated document will describe the simplified process underpinning the development of recommendations, while highlighting that the existing framework for assessing evidence and developing recommendations remains fully aligned with WHO guidance and international standards for evidence assessment. While randomized controlled trials remain the gold standard for trial design across the evidence ecosystem, non-randomized studies are often conducted due to the practical and biological complexities of evaluating vector control tools. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach used in WHO guideline development involves appraising the certainty of evidence derived from various study designs (including randomized and non-randomized controlled trials) and considers contextual factors. This ensures the rigour and transparency of WHO's recommendations and their adaptation to and alignment with country public health needs. The focus of the malaria vector control GDG in early 2026 is to consolidate the multiple ITN recommendations and, if warranted, develop a new recommendation for endectocides. The existing good practice statements in the guidelines will be reviewed, further emphasizing the core issues of integrated vector management and insecticide resistance management in line with related guidance.

Finally, larval source management using larval site detection technologies is being operationalized in a project to enhance urban malaria vector control in Maputo, Mozambique. Work is ongoing to update the *Handbook for integrated vector management (13)*, maximizing efficiencies and optimizing integrated vector management/Global Vector Control Response *(14)* at the operational level. Efforts are under way to update the *Global plan for insecticide resistance management in malaria vectors (2)*, first published in 2012. The update will follow a structured and consultative process to ensure that the revised document is relevant, practical and aligned with current priorities and strategies in vector control. The document will be a guidance-oriented tool with strong visuals, clear country-level recommendations and illustrative case studies.

MPAG conclusions

MPAG commended the vector control team for their rationalization and realignment of the documents related to the guidelines for vector control and insecticide resistance management (which is long overdue). Given the dissolution of the Vector Control Advisory Group, MPAG and vector control stakeholders need reassurance that the level of rigour will be maintained in the guidance provided, and these documents indicate that this will be the case. MPAG also acknowledged that the integration of the Global Malaria Programme with the Global Neglected Tropical Diseases Programme will provide opportunities for synergies and improved integration and efficiencies across vector control.

Guideline development

With particular relevance to the guidelines and related to the dissolution of the Vector Control Advisory Group, MPAG noted the importance of clearly outlining the process for initiating guideline development in the updated *Norms, standards and processes underpinning development of WHO recommendations on vector control* and informing manufacturers of vector control tools accordingly.

- MPAG recommended implementing a communication strategy that provides clarity around recommendations and how programmes can use them.
- MPAG recommended that the appropriate MPAG subgroup be consulted in generating the PICO questions to be used in the development of the systematic review.
- MPAG commended the Department of Malaria and Neglected Tropical Diseases on the initiative to update the *Norms, standards and processes* document, which reiterates the use of many different types of trials (randomized controlled trials, non-randomized trials, etc.) in guideline development. Identifying the appropriate trial design will be necessary to enable the assessment of interventions, such as genetically modified mosquitoes.

Global plan for insecticide resistance management in malaria vectors update

- MPAG recommended providing clarity on the evidence base used for insecticide resistance management strategies and, where possible, publishing concrete algorithms for these strategies (rotations, combinations, mixtures, mosaics, etc.) that specify which classes to include, rather than limiting the update to general statements about revising the guidance on resistance management strategies.
- MPAG recommended modelling studies to help clarify the trade-offs between the application of insecticide resistance management strategies and the effectiveness of interventions to demonstrate their potential long-term benefits.

- MPAG highlighted the need to emphasize the judicious use of insecticides through the different insecticide resistance management strategies to prevent the development of resistance, instead of having to take reactive measures once resistance is detected.
- MPAG welcomed the plan to elevate non-insecticidal measures and suggested adding scenario-based guidance that clarifies when these options are operationally and economically preferable as part of insecticide resistance management, and how they can be used synergistically with other insecticidal tools (e.g. insecticide-treated nets and indoor residual spraying) in routine delivery. As vector populations adapt over time, the development of new insecticides with new modes of action should also be encouraged.

2.7 Malaria "Big Push" initiative to 2030

This session, led by RBM Partnership, highlighted the role of the "Big Push" in addressing emerging threats in a rapidly evolving context. These threats include major funding constraints, in addition to drug and insecticide resistance. An important goal of the "Big Push" is to maximize the potential of fairer, more democratic and accountable global health governance.

RBM Partnership is positioning the "Big Push" as a way to mobilize collective action that shifts from a fragmented response to a unified, country-led agenda. The presentation highlighted the complementary roles of RBM Partnership and WHO, recognizing the value of WHO in setting the course and providing normative guidance and technical leadership. RBM Partnership will foster partner alignment, collective delivery and mobilization, and efficient use of resources.

The high-level meeting "Harnessing Africa's central role for the Big Push against malaria (2024–2030)" in Abuja, Nigeria, in September 2025 demonstrated the model in action, resulting in the launch of the Nigeria Malaria Compact, new domestic financing pledges and a replicable framework for regional adoption.

RBM Partnership outlined a 12-month road map emphasizing political commitment, sustainable domestic and regional financing, and greater alignment with the African Union's catalytic frameworks.

MPAG conclusions

MPAG appreciated the update on the "Big Push". This is an initiative led by RBM Partnership to propel the malaria agenda forward and address the current challenges related to decreased funding for malaria control. Major goals include turning challenges into opportunities and increasing endemic countries' contribution to and ownership of malaria control efforts. The "Big Push" is an example of the productive collaboration between RBM Partnership and WHO.

It is important that this initiative's progress be monitored. Without baselines, clear targets and realistic key performance indicators, there is a risk of generating frustration instead of charting a positive way forward. MPAG requested more details on how the key performance indicators were selected, how they will be measured and at what frequency.

The example of Nigeria is well received, but MPAG was interested in knowing how the "Big Push" initiative would be implemented in other countries and what challenges have been encountered.

MPAG also requested an update on the antimalarial drug resistance regional networks. MPAG considers such regional networks to be essential for drug resistance activities.

MPAG recommended that WHO successfully implement the "Big Push" pillars for which it is responsible. These pillars include technical leadership; data-driven decision-making; rapid introduction of new tools; coordinated planning; delivery of interventions; country advocacy; and resource mobilization.

The presence of different initiatives (including HBHI, the Yaoundé Declaration, and the "Big Push") could create confusion. MPAG noted that many of the HBHI approach's original pillars have been incorporated into the "Big Push". MPAG recommended that a single coherent narrative be communicated, pulling together the principles and concepts of the different initiatives, to assist countries in tailoring their response.

References[1]

1. Global technical strategy for malaria 2016–2030, 2021 update. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/342995).

2. Global plan for insecticide resistance management in malaria vectors. Geneva: World Health Organization; 2012 (https://iris.who.int/handle/10665/44846).

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11. ACTwatch Lite toolkit [website]. Population Services International (https://www.psi.org/actwatch-lite/).

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13. Handbook for integrated vector management. Geneva: World Health Organization; 2012 (https://iris.who.int/handle/10665/44768).

14. World Health Organization, UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases. Global vector control response 2017–2030. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/259205).

[1] All references were accessed on 3 November 2025.

Annex 1. Declarations of interest

Declaration of Interests report for MPAG virtual meeting to be held from 14 to 16 October 2025 All sixteen MPAG members participating in the meeting updated their declarations of interest in advance of the meeting, which were assessed by the WHO Secretariat. Thirteen members reported interests, which are summarized on the WHO website *(1)*. No MPAG members reported specific interests regarding relevant October 2025 agenda topics for decision. It was assessed that all members could fully participate in all sessions.

Reference

1. 28th meeting of the Malaria Policy Advisory Group (MPAG) [website]. World Health Organization; 2025 (https://www.who.int/news-room/events/detail/2025/10/14/default-calendar/28th-meeting-of-the-malaria-policy-advisory-group).

Annex 2. Agenda

Tuesday, 14 October 2025			
Session 1			**Open**
13:00 – 13:10	Welcome by the Chairperson, MPAG	Professor Dyann Wirth MPAG Chairperson	**For information**
13:10 – 13:15	Opening remarks	Dr Jeremy Farrar Assistant Director-General, Health Promotion, Disease Prevention & Control	
13:15 – 13:45	Report from the Director	Dr Daniel Ngamije M. Director a.i., Malaria & Neglected Tropical Diseases department	
Session 2			**Open**
13:45 – 14:15	Updates on epidemics and emergency responses Updates and progress on Yaoundé Declaration	MPAG Sub-Committee HBI Dr Nnenna Ogbulafor, Director National Coordinator, Nigeria Dr Maru Aregawi Weldedawit	**For information**
Session 3			**Open**
14:15 – 15:00	Subnational tailoring of malaria interventions and strategies manual *(critical follow up & dissemination gaps/ needs for country uptake)*	Dr Arnaud Le Menach	**For advice**
Session 4			**Open**
15:30 – 16:00	Update on guidelines development (ITNs, vaccines, IPTp for HIV+ pregnant women and SLD primaquine, non-falciparum diagnostics)	Dr Andrea Bosman	**For information & advice**

Wednesday, 9 April 2025			
			Open
13:00 – 13:05	Welcome back by the Chairperson, MPAG	Professor Dyann Wirth MPAG Chairperson	
Session 5			**Open**
13:05 – 14:00	Update on drug resistance activities (including information on the molecular marker compendium and implementation of Multiple First-line treatment)	MPAG Sub-Committee malaria drug resistance Dr Charlotte Rasmussen Dr Peter Olumese	**For advice & information**
Session 6			**Open**
14:00 – 15:00	Vector control (GPIRM and Evidence underpinning guidelines for vector control)	MPAG Sub-Committee Vector Control Dr Emmanuel Chanda Dr Lauren Carrington	**For advice**
Session 7			**Open**
15:45 – 16:15	Malaria Big Push initiative to 2030 (updates and how can we lead to the changes needed in current context?)	Dr Michael Charles, Chief Executive Officer, RBM Partnership	**For information**

Session 8			**Closed**
16:15 – 17:15	Finalization of conclusions	Professor Dyann Wirth MPAG Chairperson	**For advice**

Thursday, 16 October 2025			
Session 9			**Closed *(MPAG members & WHO secretariat)***
13:00 – 16:30	Finalization of conclusions	Professor Dyann Wirth MPAG Chairperson	**For advice**

Annex 3. List of participants

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