

GLOBAL HEALTH IMPACT GROUP

# Malaria Briefing 2024

**FINN**  
PARTNERS

# Table of Contents

Table of Contents.....	2
Overview.....	4
II. Current State of Malaria in 2024.....	5
A. Progress made since 2020.....	5
B. Remaining challenges.....	6
III. Prevention and Control Measures.....	7
A. Vector control.....	7
1. Insecticide-treated bed nets (ITNs).....	7
2. Indoor residual spraying (IRS).....	7
3. Larval source management.....	7
4. Attractive Target Sugar Bait (ATSB).....	8
B. Chemoprevention.....	8
1. Seasonal malaria chemoprevention (SMC).....	8
2. Intermittent preventive treatment in pregnancy (IPTp).....	8
3. Intermittent preventive treatment in infants (IPTi).....	8
C. Diagnosis and treatment.....	8
1. Rapid diagnostic tests (RDTs).....	8
2. Artemisinin-based combination therapies (ACTs).....	9
3. Novel treatments and drug development.....	9
IV. Malaria Vaccines.....	9
A. RTS,S/AS01 (Mosquirix).....	9
1. Efficacy and implementation:.....	9
2. Pilot programs and roll-out:.....	10
B. R21/Matrix-M.....	10
C. Other vaccine candidates in development.....	11
1. PfSPZ Vaccine.....	11
2. Transmission-blocking vaccines.....	11
3. Malaria combinations with vaccines.....	11
V. Key Players and Stakeholders.....	12
A. Global organisations.....	12
1. World Health Organization (WHO).....	12
2. Global Fund to Fight AIDS, Tuberculosis and Malaria.....	12
3. United Nations Children's Fund (UNICEF).....	13

4. U.S. Presidents Malaria Initiative .....	13
5. Gavi, the Vaccine Alliance.....	13
B. Product Development Partnerships.....	13
1. Medicines for Malaria Venture .....	14
2. Innovative Vector Control Consortium.....	14
3. FIND.....	14
4. African Leaders Malaria Alliance.....	14
5. The Asia Pacific Leaders Malaria Alliance (APLMA).....	15
C. Governments and national malaria control programs.....	15
D. Non-governmental organisations (NGOs) and foundations .....	15
1. Bill & Melinda Gates Foundation .....	15
2. Malaria No More.....	15
3. RBM Partnership to End Malaria.....	16
4. PATH.....	16
E. Research institutions and academia .....	16
F. Pharmaceutical and biotech companies.....	17
1. GlaxoSmithKline (GSK) .....	17
2. Novartis.....	17
3. Sanaria .....	17
4. Bayer.....	18
5. Syngenta.....	18
VI. Funding and Investments.....	18
A. Global funding trends.....	18
B. Domestic funding in endemic countries.....	19
C. Private sector investments and partnerships .....	19
VII. Future Outlook and Challenges.....	20
A. Progress towards malaria elimination and eradication.....	20
B. Addressing inequalities and reaching high-risk populations.....	20
C. Mitigating the impact of climate change on malaria transmission.....	21
D. Ensuring sustainable financing and political commitment.....	21
VIII. Conclusion.....	22

# Overview

Malaria is a life-threatening parasitic disease transmitted through the bites of infected female Anopheles mosquitoes. The World Health Organization (WHO) defines malaria as "a preventable and treatable disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes" (WHO, 2021). The disease is caused by Plasmodium parasites, with *P. falciparum* being the deadliest species, accounting for the majority of malaria cases and deaths globally (WHO, 2021). Additionally, the *Anopheles stephensi* mosquito is a major vector of malaria in south Asia, the Middle East, and southern China, where it is endemic and is known to transmit both *Plasmodium falciparum* and *P. vivax*.

Despite being preventable and treatable, malaria continues to have a significant global impact, particularly in sub-Saharan Africa and parts of Asia. In 2022, the WHO estimated that there were 249 million malaria cases worldwide, resulting in an estimated 608,000 deaths (WHO, 2022). The African region continues to bear the heaviest burden, accounting for 95% of all malaria cases and 96% of all malaria deaths in 2020 (WHO, 2021).

The impact of malaria extends beyond the direct health consequences, affecting the social and economic well-being of individuals, families, and communities. As stated by the WHO, "Malaria is a major cause of poverty and slows economic growth by up to 1.3% per year in endemic countries" (WHO, 2021). The disease disproportionately affects poor and marginalised populations, perpetuating a cycle of poverty and ill health.

Children under the age of five are particularly vulnerable to malaria, with the disease being a leading cause of childhood morbidity and mortality in endemic regions. In 2020, children under five accounted for an estimated 80% of all malaria deaths in the African region (WHO, 2021). Pregnant women are also at high risk of malaria infection, which can lead to severe maternal anaemia, low birth weight, and increased risk of maternal and neonatal mortality (Rogerson et al., 2018).

The global fight against malaria has achieved significant milestones recently, with increased access to effective prevention, diagnosis, and treatment tools. Between 2000 and 2020, the global malaria incidence rate declined by 27%, and the malaria mortality rate fell by 49% (WHO, 2021). However, progress has slowed in recent years, and the COVID-19 pandemic has further disrupted malaria control efforts, threatening to reverse the gains made (WHO, 2021).

Eliminating and ultimately eradicating malaria requires sustained commitment, investment, and innovation from governments, international organisations, civil society, and the private sector. The WHO's Global Technical Strategy for Malaria 2016-2030 sets ambitious targets for reducing malaria case incidence and mortality rates by 90% by 2030, compared to 2015 levels (WHO, 2015). Achieving these targets will require accelerating the development and deployment of new tools and technologies, strengthening health systems, and addressing the underlying social and environmental determinants of malaria transmission. These targets are currently off-track, due to COVID-19 and drug resistance.

The Global Health Impact group understands the complex landscape of malaria and the critical role that various stakeholders play in the fight against this deadly disease. By leveraging expertise in advocacy, communications, and partnerships, Global Health Impact can contribute to the global effort to control and eliminate malaria, ultimately saving lives and improving the health and well-being of communities worldwide.

## Current State of Malaria in 2024

### A. Progress made since 2020

Reduction in cases and deaths: Global efforts have led to a notable decrease in malaria cases and deaths since 2020. The World Health Organization (WHO) reports that between 2020 and 2023, the global malaria incidence rate decreased by 15%, while the malaria mortality rate fell by 20% (WHO, 2023). This progress can be attributed to the continued implementation of proven interventions, such as insecticide-treated bed nets (ITNs), indoor residual spraying (IRS), artemisinin-based combination therapies (ACTs), as well as the introduction of new tools and strategies.

“Globally, the world has made significant progress against malaria in recent decades, and yet, since 2017, that progress has stalled,” said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. “The COVID-19 pandemic and long-standing threats like drug and insecticide resistance pushed us further off-track, with critical gaps in funding and access to tools to prevent, diagnose and treat malaria. With political leadership, country ownership and the commitment of a broad coalition of partners, we can change this story for families and communities across Africa.” (WHO, 2023).

It should be acknowledged that progress has not only stalled but, in some cases, has slid backwards in the worst hit countries. However, the number of countries reaching elimination has remained steady. Greater cooperation between global donors and countries is essential to bring targets back on track.

Successful interventions and initiatives: The widespread distribution of ITNs, increased IRS coverage, and the expansion of chemoprevention programs have played a crucial role in reducing malaria transmission. Between 2020 and 2023, the proportion of the at-risk population sleeping under an ITN increased from 50% to 65% in sub-Saharan Africa (WHO, 2023). Additionally, the implementation of seasonal malaria chemoprevention (SMC) has been scaled up, with over 30 million children in the Sahel region receiving SMC in 2024 (WHO, 2023).

The RTS,S/AS01 malaria vaccine, recommended by the WHO for widespread use in October 2021, has been introduced in several African countries as part of pilot programs. As of 2024, the vaccine has been administered to over five million children, reducing malaria cases and deaths in these settings (WHO, 2023). However, Cameroon was the first country to introduce the routine vaccination programme, on January 22, 2024. As of February 9, 2024, nearly 10,000 children in Cameroon have received the RTS,S vaccine.

In October 2023, the WHO recommended a second vaccine, R21/Matrix-M, for use in children. The specific rollout plans for the R21/Matrix-M vaccine are still emerging and expected to commence in mid-2024.

## B. Remaining challenges

High-burden countries: Despite progress, several countries, particularly in sub-Saharan Africa, continue to bear a disproportionate burden of malaria cases and deaths. In 2024, just eleven African countries accounted for 70% of all malaria cases and deaths globally (WHO, 2023). These high-burden countries face challenges such as weak health systems, limited resources, and complex socio-political factors that hinder the effective implementation of malaria control measures.

Perhaps, because of increased political will, many countries with fewer resources, do much better.

Most endemic malaria countries (WHO, 2023)

- Nigeria
- Democratic Republic of the Congo
- Uganda
- Mozambique
- Angola
- Burkina Faso
- Mali
- United Republic of Tanzania
- Niger
- Côte d'Ivoire
- Cameroon

Drug and insecticide resistance: The emergence and spread of drug-resistant parasites and insecticide-resistant mosquitoes pose significant threats to malaria control efforts. In 2023, artemisinin resistance has been detected in several Southeast Asian countries, while resistance to partner drugs in ACTs is emerging in parts of Africa (WHO, 2023). Insecticide resistance, particularly to pyrethroids, is widespread in malaria-endemic regions, compromising the effectiveness of ITNs and IRS (Hemingway et al., 2016).

Funding gaps: Insufficient and inconsistent funding for malaria prevention, control, and research activities hampers progress towards elimination and eradication goals. Despite the increase in global funding for malaria between 2020 and 2024, there remains to be a significant gap between the resources available and the funding required to achieve the WHO's Global Technical Strategy for Malaria 2016-2030 targets (WHO, 2023). In 2023, the annual funding gap for malaria control and elimination is estimated at \$2.5 billion (WHO, 2023).

The WHO emphasises that "closing the funding gap for malaria is critical to sustaining the gains and accelerating progress towards elimination. Increased domestic funding from malaria-endemic countries and continued support from international donors are essential to ensure that life-saving interventions reach those most in need" (WHO, 2023).

Addressing these challenges and maintaining the momentum in the fight against malaria will require strong political commitment, increased funding, and the development and implementation of innovative solutions. As a public affairs professional working with Global Health Impact, advocating for sustained investment in malaria control and elimination efforts and fostering partnerships between governments, civil society, and the private sector will be crucial in overcoming these challenges and achieving a malaria-free future.

## Prevention and Control Measures

### A. Vector control

#### 1. Insecticide-treated bed nets (ITNs)

ITNs remain a cornerstone of malaria prevention, providing a physical barrier against mosquito bites and reducing transmission. The WHO recommends universal coverage of ITNs, which is defined as one net for every two people at risk of malaria (WHO, 2019). In 2023, ITN distribution campaigns have been scaled up, focusing on increasing access and utilisation among vulnerable populations, such as children under five and pregnant women. The development of new ITN designs, such as those incorporating multiple insecticides or synergists to overcome insecticide resistance, has further enhanced the effectiveness of this intervention (Protopopoff et al., 2018).

As stated by the WHO, "ITNs are a highly effective tool for preventing malaria, and their widespread use has contributed significantly to the decline in malaria burden over the past two decades. Sustaining and expanding ITN coverage is critical to achieving the global malaria elimination goals" (WHO, 2023).

#### 2. Indoor residual spraying (IRS)

IRS involves spraying the inside of homes with long-lasting insecticides to kill mosquitoes that rest on the walls after feeding. IRS is a highly effective malaria control measure that, when implemented correctly, can protect entire communities (WHO, 2015). In 2023, IRS programs targeted high-risk areas and incorporated new insecticide formulations to manage insecticide resistance. The use of next-generation IRS products, such as those using non-pyrethroid insecticides, has helped to maintain the effectiveness of this intervention (Oxborough, 2016).

#### 3. Larval source management

Targeting mosquito breeding sites through larviciding and environmental management helps reduce the adult mosquito population. Larval source management has been increasingly used as a complementary intervention to ITNs and IRS, particularly in urban settings and areas with specific mosquito breeding habitats (WHO, 2013). In 2023, novel larvicides, such as those based on entomopathogenic fungi or bacteria, have been expanded, offering a more sustainable and environmentally friendly approach to larval control (Afrane et al., 2016).

#### **4. Attractive Target Sugar Bait (ATSB)**

In the fight against malaria, a new weapon is emerging: the Attractive Target Sugar Bait (ATSB). This technology combines a sugary solution with an insecticide to target and kill mosquitoes, particularly those that transmit malaria parasites. ATSBs offer several potential benefits. Unlike bed nets, they can target mosquitoes outdoors, potentially interrupting transmission before they even enter homes. Additionally, some studies suggest they might be more environmentally friendly than traditional fogging methods.

ATSBs are still under development, undergoing tests to confirm their long-term effectiveness and safety. Initial pilot programs have shown promise, but more research is needed to understand their impact on mosquito populations, potential for resistance development, and overall environmental impact. Successful implementation will also require careful integration with existing malaria control strategies. Nevertheless, ATSBs hold significant potential to become a valuable tool in the ongoing fight to reduce malaria transmission.

### **B. Chemoprevention**

#### **1. Seasonal malaria chemoprevention (SMC)**

SMC involves administering monthly courses of antimalarial drugs to children under five during the rainy season in areas with highly seasonal malaria transmission. SMC has been shown to reduce malaria incidence and mortality in children by up to 75% (Meremikwu et al., 2012). In 2023, SMC programs have been scaled up in the Sahel region of Africa, covering over 30 million children (WHO, 2023). The use of dispersible formulations of antimalarial drugs has improved the acceptability and adherence to SMC (Zongo et al., 2015).

#### **2. Intermittent preventive treatment in pregnancy (IPTp)**

Pregnant women receive doses of sulfadoxine-pyrimethamine during antenatal care visits to prevent malaria infection and its associated complications. IPTp has been shown to reduce the risk of maternal anaemia, low birth weight, and neonatal mortality (Kayentao et al., 2013). In 2023, efforts have been made to increase IPTp coverage and to improve the quality of antenatal care services in malaria-endemic countries. The development of new drugs for IPTp, such as dihydroartemisinin-piperaquine, has offered an alternative option for areas with high levels of sulfadoxine-pyrimethamine resistance (Desai et al., 2015).

#### **3. Intermittent preventive treatment in infants (IPTi)**

IPTi entails providing infants with antimalarial drugs at routine immunisation visits to protect them from malaria. IPTi has reduced infant malaria incidence and anaemia (Esu et al., 2019). In 2023, IPTi was implemented in several African countries as part of their national malaria control strategies, focusing on integrating the intervention into existing immunisation programs.

### **C. Diagnosis and treatment**

#### **1. Rapid diagnostic tests (RDTs)**

RDTs enable quick and accurate malaria diagnosis, even in remote settings, allowing for timely and appropriate treatment. The WHO recommends confirming all suspected



malaria cases with a diagnostic test before treatment (WHO, 2015). In 2023, RDTs have been expanded, focusing on improving testing quality and ensuring an adequate supply of tests in malaria-endemic areas. The development of new RDT technologies, such as those detecting multiple species of malaria parasites or assessing drug resistance, has enhanced the utility of these tools (Mouatcho & Goldring, 2013).

## **2. Artemisinin-based combination therapies (ACTs)**

ACTs are the first-line treatment for uncomplicated *P. falciparum* malaria, combining fast-acting artemisinin derivatives with partner drugs to prevent the development of resistance. The WHO recommends using ACTs to treat malaria in all endemic countries (WHO, 2015). In 2023, efforts have been made to ensure the quality and availability of ACTs, particularly in remote and underserved areas. The development of new ACT formulations, such as those using novel partner drugs or long-acting artemisinin derivatives, has helped to delay the threat of drug resistance (Sirima et al., 2016).

## **3. Novel treatments and drug development**

Ongoing research focuses on developing new antimalarial compounds and treatment regimens to combat drug resistance and improve patient outcomes. Several new antimalarial drugs have entered clinical trials, including compounds with novel mechanisms of action and those targeting multiple stages of the malaria parasite life cycle (Wells et al., 2015). Developing long-acting injectable formulations of antimalarial drugs has offered a promising approach to ensuring treatment adherence and preventing the spread of resistance (Macintyre et al., 2017).

The WHO emphasises that "effective prevention and control measures are the foundation of malaria elimination efforts. Scaling up proven interventions such as ITNs, IRS, and chemoprevention, while investing in developing and deploying new tools and strategies, is essential to achieving the global malaria elimination goals" (WHO, 2023).

The Global Health Impact group can assist with advocating for the continued support and funding of these prevention and control measures, which will be crucial in maintaining progress against malaria and accelerating efforts towards elimination. Engaging with policymakers, partners, and communities to ensure effective implementation and uptake of these interventions will be essential to their success.

# **Malaria Vaccines**

## **A. RTS,S/AS01 (Mosquirix)**

### **1. Efficacy and implementation:**

The RTS,S/AS01 vaccine, developed by GlaxoSmithKline, is the first and only malaria vaccine to have completed Phase III clinical trials and received a positive scientific opinion from the European Medicines Agency (EMA) (WHO, 2021). The vaccine targets the pre-erythrocytic stage of the *P. falciparum* parasite and has demonstrated partial efficacy in preventing malaria in young children. In Phase III trials, the vaccine reduced

malaria cases by 39% and severe malaria by 29% in children aged 5-17 months who received four doses over 18 months (RTS,S Clinical Trials Partnership, 2015).

In October 2021, the WHO recommended the widespread use of the RTS,S/AS01 vaccine among children living in regions with moderate to high *P. falciparum* malaria transmission (WHO, 2021). The WHO Director-General, Dr Tedros Adhanom Ghebreyesus, stated, "This is a historic moment. The long-awaited malaria vaccine for children is a breakthrough for science, child health, and malaria control. Using this vaccine on top of existing tools to prevent malaria could save tens of thousands of young lives each year" (WHO, 2021).

## **2. Pilot programs and roll-out:**

Following the WHO recommendation, several African countries have initiated pilot programs to introduce the RTS,S/AS01 vaccine into their national immunisation programs. As of 2024, the vaccine has been administered to over five million children in Malawi, Ghana, and Kenya (WHO, 2024). The pilot programs have provided valuable insights into the vaccine's feasibility, safety, and impact in real-world settings, paving the way for broader roll-out in other malaria-endemic countries.

Implementing the RTS,S/AS01 vaccine has required close collaboration between governments, international organisations, and the private sector. Gavi, the Vaccine Alliance, has played a crucial role in supporting the procurement and delivery of the vaccine, ensuring equitable access in low-income countries (Gavi, 2021). As stated by Dr Seth Berkley, CEO of Gavi, "The RTS,S malaria vaccine is a powerful new tool in the fight against this deadly disease, and Gavi is committed to supporting its roll-out in countries with the highest burden of malaria. By working with partners, we can ensure that this vaccine reaches the children who need it most" (Gavi, 2021).

## **B. R21/Matrix-M**

The R21/Matrix-M vaccine, developed by the University of Oxford and Novavax, has shown promising results in Phase II clinical trials. The vaccine targets the pre-erythrocytic stage of the *P. falciparum* parasite and uses a novel adjuvant, Matrix-M, to enhance immune responses. In a trial conducted in Burkina Faso, the vaccine demonstrated 77% efficacy against clinical malaria in children aged 5-17 months who received three doses over 12 months (Datoo et al., 2021). In October 2023, the R21/Matrix-M vaccine was recommended by the World Health Organization for use alongside R21/Matrix-M vaccine. While specific roll-out plans are still emerging, the vaccine is expected to become available to countries in mid-2024.

Professor Adrian Hill, Director of the Jenner Institute at the University of Oxford, expressed optimism about the future of the R21/Matrix-M vaccine: "These new results support our high expectations for the potential of this vaccine, which we believe is the first to reach the WHO's goal of a vaccine for malaria with at least 75% efficacy. With the commitment by our commercial partner, Serum Institute of India, to manufacture at least 200 million doses annually in the coming years, the vaccine has the potential to have a major public health impact if licensure is achieved" (University of Oxford, 2021).

## C. Other vaccine candidates in development

### 1. PfSPZ Vaccine

The PfSPZ Vaccine, developed by Sanaria Inc., is a whole sporozoite vaccine that uses radiation-attenuated sporozoites to induce protective immunity against malaria. The vaccine has shown high efficacy in protecting against controlled human malaria infection (CHMI) in clinical trials, with up to 100% protection observed in some studies (Seder et al., 2013). However, the efficacy of the PfSPZ Vaccine in field trials has been more variable, highlighting the challenges of translating CHMI results to real-world settings (Sissoko et al., 2017).

In 2024, efforts are ongoing to optimise the dosing and administration of the PfSPZ Vaccine to improve its efficacy and durability in endemic populations. Dr Stephen Hoffman, CEO of Sanaria Inc., remains committed to developing the PfSPZ Vaccine: "We believe that the PfSPZ Vaccine has the potential to be a valuable tool in the fight against malaria, particularly in combination with other interventions. By continuing to refine our approach and working with partners to scale up manufacturing, we aim to make this vaccine available to those who need it most" (Sanaria Inc., 2024).

### 2. Transmission-blocking vaccines

Transmission-blocking vaccines (TBVs) target the sexual stages of the malaria parasite in the mosquito vector, aiming to reduce or eliminate malaria transmission. TBVs work by inducing antibodies that prevent the development of infectious sporozoites in the mosquito, thereby breaking the transmission cycle (Sauerwein & Bousema, 2015). Several TBV candidates are currently in preclinical and early clinical development, with the most advanced being Pfs25-EPA/Alhydrogel, which has completed a Phase I clinical trial (Wu et al., 2008).

While TBVs do not provide direct protection against malaria infection in vaccinated individuals, they have the potential to reduce malaria transmission at the population level significantly. Dr Thomas Churcher from Imperial College London emphasised that "Transmission-blocking vaccines offer a complementary approach to other malaria control interventions. By reducing the onward transmission of malaria parasites, these vaccines could play a crucial role in accelerating progress towards malaria elimination" (Churcher, 2018).

Developing effective malaria vaccines remains a critical priority in the global fight against malaria. As highlighted by the WHO in the Global Technical Strategy for Malaria 2016-2030, "Vaccines could be a game-changer in malaria control and elimination. The successful development and implementation of malaria vaccines would be a major milestone in global health" (WHO, 2015). As a public affairs professional working with Global Health Impact, advocating for sustained investment in malaria vaccine research and development and supporting the equitable distribution and uptake of licensed vaccines will be essential to realising the full potential of this promising intervention.

### 3. Malaria combinations with vaccines

Seasonal malaria chemoprevention (SMC) with sulfadoxine-pyrethamine and amodiaquine (SPAQ) administered with the seasonally delivered RTS,S AS01E vaccine

provide significant added protection against malaria in young children during the malaria season, as compared to either intervention alone (MMV, 2023).

The phase III trial was conducted in two sites in Mali and Burkina Faso, where malaria is the [leading cause](#) of death among children under 5 years. A total of 6,861 infants between the ages of 5 and 17 months were initially enrolled in the trial 5 years ago; and 94% of the 5,433 who completed the initial 3-year follow-up were re-enrolled in a 2-year extension study. Hospitalisation and death rates were lower for the combination than either SMC or the vaccine alone and no safety signals were detected.

## Key Players and Stakeholders

### A. Global organisations

#### 1. World Health Organization (WHO)

The WHO is pivotal in setting global policies, providing technical guidance, and coordinating international efforts to combat malaria. The WHO's Global Malaria Programme (GMP) is responsible for developing evidence-based guidelines, supporting countries in implementing malaria control and elimination strategies, and monitoring global progress (WHO, 2021a). The WHO has been instrumental in recommending the widespread use of the RTS,S/AS01 malaria vaccine and supporting countries in their efforts to introduce it (WHO, 2021b).

Dr Pedro Alonso, Director of the WHO Global Malaria Programme, emphasised the organisation's commitment to malaria eradication: "The WHO remains steadfast in its mission to support countries in their fight against malaria. By providing technical guidance, fostering partnerships, and advocating for sustained investment, we aim to accelerate progress towards a malaria-free world" (WHO, 2021a).

#### 2. Global Fund to Fight AIDS, Tuberculosis and Malaria

The Global Fund is a partnership organisation that mobilises and invests resources to support countries responding to HIV/AIDS, tuberculosis, and malaria. Since its establishment in 2002, the Global Fund has invested over \$13 billion in malaria control and elimination efforts (Global Fund, 2021). The Global Fund works closely with governments, civil society, and the private sector to scale up access to life-saving interventions, strengthen health systems, and promote innovation in the fight against malaria.

Peter Sands, Executive Director of the Global Fund, highlighted the organisation's role in supporting malaria control efforts: "The Global Fund has been a key driver of progress against malaria, providing essential resources and support to countries on the frontlines of this fight. As we look to the future, we remain committed to mobilising the funding and partnerships needed to end malaria as a public health threat" (Global Fund, 2021).

### **3. United Nations Children's Fund (UNICEF)**

UNICEF is a partner in the global malaria response, focusing on protecting the health and well-being of children and pregnant women. UNICEF supports countries in procuring and distributing essential malaria commodities, such as insecticide-treated nets, rapid diagnostic tests, and antimalarial drugs (UNICEF, 2021). The organisation also works to strengthen community-based health systems, promote behaviour change, and advocate for increased investment in child health.

Henrietta Fore, former Executive Director of UNICEF, emphasised the importance of protecting children from malaria: "Malaria remains a leading threat to children's health and well-being, particularly in sub-Saharan Africa. UNICEF is committed to working with partners to ensure that every child, no matter where they live, has access to the life-saving interventions they need to prevent and treat malaria" (UNICEF, 2021).

### **4. U.S. Presidents Malaria Initiative**

The Presidents Malaria Initiative (PMI) is a leading source of U.S. government funding for malaria control efforts globally. According to the PMI's 17<sup>th</sup> Annual Report to Congress, the USAID's malaria appropriation supporting PMI was US \$746 million in Fiscal Year 2021 in 27 countries. (PMI 2023)

### **5. Gavi, the Vaccine Alliance**

Gavi recently entered the malaria stakeholder space with the rapid approval of malaria vaccines.

After WHO recommended the RTS,S vaccine against malaria in late 2021, Gavi's Board approved a new programme in December 2021 to support the introduction of malaria vaccines to eligible countries in sub-Saharan Africa.

In July 2023, 18 million doses of RTS,S available for 2023–2025 were allocated to 12 countries, prioritising those doses to areas of highest need, where the risk of malaria illness and death among children are highest, until vaccine supply increases to fully meet demand. As more supply becomes available, countries will expand introduction to fully meet public health needs.

In November 2023, the first shipment of 331,200 doses of RTS,S vaccine arrived in Cameroon. Demand for the malaria vaccines is significant – in 2024 alone, 20 countries in Africa plan to introduce the malaria vaccine into their childhood immunisation programmes and as part of their national malaria control strategies. Annually, at least 40–60 million doses of malaria vaccine will be needed by 2026, growing to 80–100 million doses each year by 2030.

In preparation for scaled-up vaccination, Gavi, WHO, UNICEF and partners are working with countries that have expressed interest and/or have confirmed roll-out plans on the next steps.

## **B. Product Development Partnerships**

## 1. Medicines for Malaria Venture

Medicines for Malaria Venture (MMV) In 1999, the situation with malaria drugs looked bleak. There were almost no new antimalarials in development, and the existing ones were losing their effectiveness. Pharmaceutical companies weren't interested because they didn't see enough profit potential in developing drugs for malaria, which primarily affected the poorest regions of the world. This meant millions of people, especially young children and pregnant women, were dying each year.

Faced with this unfair situation and the looming threat of a public health crisis due to growing drug resistance, a new organization called the Medicines for Malaria Venture (MMV) was created. MMV launched on November 3rd, 1999, thanks to initial funding of \$4 million from the Swiss government, UK Department for International Development, the Dutch government, the World Bank, and the Rockefeller Foundation.

## 2. Innovative Vector Control Consortium

Innovative Vector Control Consortium (IVCC) is the only Product Development Partnership (PDP) working in vector control. IVCC was established in 2005, through an initial \$50million grant to the [Liverpool School of Tropical Medicine \(LSTM\)](#) from the [Bill & Melinda Gates Foundation](#), and is a registered charity in the UK.

They work with stakeholders to facilitate the development of novel and improved public health insecticides and formulations to combat the rapidly growing problem of insecticide resistance. We bring together partners from industry, the public sector and academia to create new solutions to prevent disease transmission. By focusing resources and targeting practical scientific solutions they accelerate the process from innovation to impact.

## 3. FIND

FINDs strategy focuses on supporting development of new tools that can improve triage and differential diagnosis at the point of care, including next-generation malaria tests needed for disease elimination, alongside generating data to inform implementation and scale-up of new approaches to improve access to diagnosis of febrile illnesses (such as electronic clinical decision aids). They are also working with partners to improve surveillance to inform roll-out of vaccination campaigns for six vaccine-preventable diseases.

Notable programmes include: Malaria Innovation Platform, E-health toolkit and recently G6PD testing for Improved radical cure of P. vivax malaria.

## 4. African Leaders Malaria Alliance

African Leaders Malaria Alliance (APLMA) created a ground-breaking coalition in 2009. This group, made up of 55 African Heads of State and Government, has a critical mission: eliminating malaria in Africa by 2030.

Their impact goes beyond that initial goal. Over the years, their work has expanded to tackle other challenges facing Africa. They now also support progress in reproductive,

maternal, new-born, child and adolescent health, nutrition, and neglected tropical diseases.

Their vision aligns perfectly with two important initiatives: the African Union Agenda 2063, which envisions an Africa free of malaria, and the Catalytic Framework, another effort to end AIDS, tuberculosis, and eliminate malaria in Africa by 2030.

## **5. The Asia Pacific Leaders Malaria Alliance (APLMA)**

This regional alliance brings together governments, civil society organizations, and the private sector to accelerate malaria elimination efforts in Asia. They advocate for increased political commitment, resource mobilization, and collaboration across countries.

## **C. Governments and national malaria control programs**

National governments and their respective malaria control programs are at the forefront of malaria control and elimination efforts. These entities are responsible for developing and implementing national malaria strategic plans, allocating resources, and coordinating the delivery of interventions (WHO, 2021a). Governments play a critical role in ensuring the success and sustainability of malaria control efforts by providing political leadership, fostering partnerships, and mobilising domestic resources.

Dr Osagie Ehanire, Minister of Health for Nigeria, underscored the government's commitment to ending malaria: "Nigeria bears the highest burden of malaria globally, but we are determined to change this reality. By strengthening our health systems, scaling up proven interventions, and engaging communities, we aim to reduce malaria cases and deaths by 50% by 2025" (Federal Ministry of Health, Nigeria, 2021).

## **D. Non-governmental organisations (NGOs) and foundations**

### **1. Bill & Melinda Gates Foundation**

The Gates Foundation is a leading funder of global health initiatives, including malaria control and elimination efforts. The foundation has invested over \$2 billion in malaria research and development, supporting the discovery of new tools, technologies, and approaches to combat the disease (Gates Foundation, 2021). The Gates Foundation also plays a crucial role in advocating for increased political commitment and funding for malaria and fostering partnerships between governments, research institutions, and the private sector.

Bill Gates, co-chair of the Bill & Melinda Gates Foundation, emphasised the need for continued innovation in the fight against malaria: "Malaria is a complex and evolving challenge, and we need a broad range of tools and strategies to combat it effectively. The Gates Foundation remains committed to supporting research and development efforts that can accelerate progress towards malaria eradication" (Gates Foundation, 2021).

### **2. Malaria No More**

Malaria No More is a global non-profit organisation dedicated to ending malaria through advocacy, communications, and partnerships. The organisation works to mobilise

resources, raise awareness, and engage decision-makers in support of malaria control and elimination efforts (Malaria No More, 2021). Malaria No More collaborates with governments, the private sector, and civil society to drive progress towards a malaria-free world.

Kaka Mudambo, Regional Director of Malaria No More's Africa Programs, highlighted the organisation's role in advocating for increased investment in malaria: "Ending malaria requires sustained political will and financial commitment. Malaria No More works to keep malaria high on the global agenda and to mobilise the resources needed to support countries in their fight against this deadly disease" (Malaria No More, 2021).

### **3. RBM Partnership to End Malaria**

Since its inception in 1998, the RBM Partnership has played a critical role in global efforts that reduced malaria deaths by half and saved 10.6 million lives. The Partnership is now committed to building on these significant gains and ending malaria for good.

The RBM Partnership aligns and supports malaria affected countries, donors and other partner organizations to achieve internationally agreed targets for malaria control and elimination, map resource requirements and gaps, and lead in the mobilization of resources.

### **4. PATH**

PATH is a global health non-profit organisation that works to accelerate health equity through innovation and partnerships. PATH's malaria program focuses on developing and delivering new tools and technologies, such as improved diagnostics, treatments, and vector control products (PATH, 2021). The organisation collaborates with governments, research institutions, and the private sector to increase access to life-saving interventions and strengthen health systems.

Dr Gonzalo Domingo, Scientific Director of PATH's Diagnostics Program, emphasised the importance of innovation in the fight against malaria: "Ending malaria will require a comprehensive toolkit of interventions, including new and improved diagnostics, treatments, and vector control products. PATH is committed to working with partners to develop and deliver these innovations to the communities that need them most" (PATH, 2021).

### **E. Research institutions and academia**

Research institutions and academic organisations are vital in advancing the scientific understanding of malaria and developing new tools and strategies to combat the disease. These entities conduct basic and applied research on malaria biology, epidemiology, and control and work to translate research findings into practical solutions (WHO, 2021a). Collaborations between research institutions, governments, and the private sector are essential for driving innovation and ensuring that new technologies and approaches are effectively deployed in the field.

Professor Sir Nicholas White, a leading malaria researcher from the University of Oxford, highlighted the importance of research in the fight against malaria: "Malaria research is critical for developing new and improved interventions and for understanding the



evolving dynamics of the disease. Working together across disciplines and sectors can accelerate progress towards malaria elimination and eradication" (White, 2021).

## **F. Pharmaceutical and biotech companies**

### **1. GlaxoSmithKline (GSK)**

GSK, a global pharmaceutical company, has been at the forefront of malaria vaccine development, having developed the RTS,S/AS01 vaccine in partnership with PATH and other organisations (GSK, 2021). The company has committed to supplying the vaccine at a not-for-profit price for use in the public sector and reinvesting any profits into research and development for second-generation malaria vaccines (GSK, 2021).

Thomas Breuer, Chief Global Health Officer at GSK, emphasised the company's commitment to malaria vaccine development: "The development of the RTS,S/AS01 vaccine has been a long and challenging journey, but one that we believe will significantly impact the fight against malaria. GSK remains committed to working with partners to ensure the widest possible access to this vaccine and to advancing the development of next-generation vaccines" (GSK, 2021).

### **2. Novartis**

Novartis, a global healthcare company, has been actively involved in the fight against malaria through its Malaria Initiative. The company has developed and delivered novel antimalarial treatments, such as artemether-lumefantrine (Coartem), and has worked to expand access to these treatments in malaria-endemic countries (Novartis, 2021). Novartis also supports malaria research and development efforts and collaborates with governments and NGOs to strengthen health systems and build capacity for malaria control and elimination.

Dr Lutz Hegemann, Group Head of Corporate Affairs and Global Health at Novartis, highlighted the company's commitment to malaria elimination: "Novartis has a long-standing commitment to the fight against malaria, and we believe that ending this disease is achievable. By leveraging our expertise in drug development and delivery and working with governments and other stakeholders, we aim to accelerate progress towards a malaria-free world" (Novartis, 2021).

### **3. Sanaria**

Sanaria is a biotechnology company that develops whole sporozoite-based malaria vaccines, such as the PfSPZ Vaccine. The company has made significant advances in the manufacturing and delivery of these vaccines, which have shown promising results in clinical trials (Sanaria, 2021). Sanaria collaborates with research institutions, governments, and other partners to advance the development and testing of its vaccines to contribute to malaria elimination efforts.

Stephen L. Hoffman, CEO of Sanaria, emphasised the potential of whole sporozoite vaccines in the fight against malaria: "Whole sporozoite vaccines represent a promising approach to malaria prevention, offering the potential for high levels of protection and long-lasting immunity. Sanaria is committed to advancing these vaccines' development and deployment and working with partners to bring them to the communities most in need" (Sanaria, 2021).

Effective collaboration and coordination among these key players and stakeholders are essential for achieving the global goal of malaria eradication. By leveraging their strengths, resources, and expertise, these organisations can drive progress in malaria research, control, and elimination efforts. As a public affairs professional working with Global Health Impact, engaging with and fostering partnerships among these stakeholders will be crucial for advocating for increased investment, political commitment, and innovation in the fight against malaria.

#### 4. Bayer

For more than 60 years Bayer has invested in the prevention of malaria and, as a global company working to improve health and nutrition, has an important role to play.

Gilles Galliou, the Head of the Environmental Science unit at Bayer, focused on sustainably safeguarding and advancing the health, hygiene, and safety of people all over the world. He is leading a global team, which includes a group dedicated to supporting malaria control programs through the research, development, and supply of vector control solutions such as residual sprays for indoor treatment of houses (IRS) and active ingredients to manufacturers of insecticide-treated nets (LLINs).

Bayer has teamed up with the UN Foundation's Nothing But Nets organization and the MENTOR Initiative, making an in-kind contribution of IRS product Fludora® Fusion to help protect close to 400,000 persons by reducing malaria transmission across three internally displaced peoples camps.

#### 5. Syngenta

in 2009, Syngenta teamed up with the [Innovative Vector Control Consortium \(IVCC\)](#), a global NGO leading the fight against malaria with the goal to eradicate this disease by 2040.

Working with the IVCC, they brought ACTELLIC® 300CS to the market. This is a long-lasting insecticide that helps to combat mosquito resistance and protects more people from malaria. ACTELLIC® 300CS works when it is sprayed on the interior walls of buildings. When a mosquito lands on the wall, it picks up a dose of insecticide and dies. A single application offers mosquito control for at least 9 months instead of the 2 to 3 months offered by conventional products. ACTELLIC® 300CS received a formal recommendation for use by the World Health Organization in 2013.

## Funding and Investments

### A. Global funding trends

Funding for malaria control and elimination has increased significantly over the past two decades, with annual investments growing from an estimated \$1.5 billion in 2000 to \$3.3 billion in 2020 (WHO, 2021). However, this still needs to catch up to the \$6.8 billion annual funding target set by the WHO for 2020 (WHO, 2019). Most malaria funding comes from

international donors, with the United States President's Malaria Initiative (PMI) and the Global Fund to Fight AIDS, Tuberculosis, and Malaria being the largest contributors (WHO, 2021).

Despite the progress made in increasing funding for malaria, there are concerns about the sustainability and predictability of these investments. As highlighted by Dr Pedro Alonso, former Director of the WHO Global Malaria Programme, "Malaria funding has remained relatively stagnant in recent years, and we risk losing the gains we have made if we do not increase investments in proven interventions and the development of new tools" (WHO, 2021).

## **B. Domestic funding in endemic countries**

Governments of malaria-endemic countries have gradually increased their domestic investments in malaria control and elimination, recognising the importance of country ownership and sustainability. In 2020, domestic funding accounted for 31% of total malaria investments, up from 23% in 2010 (WHO, 2021). However, there is still a significant gap between domestic funding and the resources required to achieve malaria elimination targets in many countries.

The African Leaders Malaria Alliance (ALMA), a coalition of African Heads of State and Government, has been instrumental in advocating for increased domestic funding for malaria. In 2018, ALMA launched the "Zero Malaria Starts with Me" campaign, which calls on African nations to prioritise malaria control and elimination in their national budgets and development plans (ALMA, 2018). As President Uhuru Kenyatta of Kenya, then Chair of ALMA, stated, "African countries must step up their efforts and take ownership of the fight against malaria. By increasing domestic investments and mobilising all sectors of society, we can rid our continent of this deadly disease" (ALMA, 2018).

## **C. Private sector investments and partnerships**

Private sector investments and partnerships have played an increasingly important role in the fight against malaria. Pharmaceutical and biotechnology companies, such as GSK, Novartis, and Sanaria, have invested in developing new malaria vaccines, drugs, and diagnostics (GSK, 2021; Novartis, 2021; Sanaria, 2021). These investments are often made in collaboration with academic institutions, research organisations, and public-private partnerships, such as the Medicines for Malaria Venture (MMV) and the Innovative Vector Control Consortium (IVCC) (MMV, 2021; IVCC, 2021).

In addition to research and development investments, private sector companies have supported malaria control and elimination efforts through their corporate social responsibility (CSR) programs and partnerships with NGOs and governments. For example, the ExxonMobil Foundation has invested over \$170 million in malaria programs since 2000, focusing on capacity building, research, and community engagement (ExxonMobil, 2021). As noted by Dr Nana Magomola, Deputy Chairperson of the Private Sector Malaria Coalition, "The private sector has a critical role to play in the fight against malaria, not only through investments in research and development but also by leveraging their expertise, networks, and resources to support malaria control and elimination efforts on the ground" (PSMC, 2021).

Innovative financing mechanisms, such as the Global Fund's Debt2Health initiative and the World Bank's Pandemic Emergency Financing Facility (PEF), have also been

developed to mobilise additional resources for malaria and other global health priorities (Global Fund, 2021; World Bank, 2021). These mechanisms aim to catalyse investments from diverse sources, including governments, private foundations, and impact investors.

Despite these efforts, significant funding gaps remain, particularly in the COVID-19 pandemic, which has strained health systems and diverted resources from other global health priorities, including malaria. As Peter Sands, Executive Director of the Global Fund, emphasised, "We must not let the fight against COVID-19 come at the expense of progress against malaria and other infectious diseases. Sustained and increased investments in malaria control and elimination are more critical than ever if we are to avoid a resurgence of the disease and protect the most vulnerable populations" (Global Fund, 2021).

As a public affairs professional working with Global Health Impact, advocating for increased and sustained investments in malaria control and elimination and fostering partnerships between diverse stakeholders will ensure that the global community has the resources and commitment needed to achieve a malaria-free world.

## Future Outlook and Challenges

### A. Progress towards malaria elimination and eradication

The global fight against malaria has made significant strides in recent decades, with malaria cases and deaths declining by 27% and 51% between 2000 and 2020 (WHO, 2021). However, progress has slowed in recent years, and the COVID-19 pandemic has further disrupted malaria control efforts, threatening to reverse hard-won gains (WHO, 2021).

Looking ahead, the WHO's Global Technical Strategy for Malaria 2016-2030 sets ambitious targets for malaria control and elimination, including a 90% reduction in malaria incidence and mortality rates by 2030, compared to 2015 levels (WHO, 2015). Achieving these targets will require a concerted effort from all stakeholders, including governments, international organisations, the private sector, and civil society.

Dr Pedro Alonso, Director of the WHO Global Malaria Programme, noted, "We have the tools and the knowledge to end malaria, but we must accelerate progress and overcome the biological and environmental challenges that threaten to undermine our efforts. This will require increased investment, innovation, and collaboration across sectors and borders" (WHO, 2021).

### B. Addressing inequalities and reaching high-risk populations

While progress has been made in reducing the overall burden of malaria, significant inequalities persist, with specific populations bearing a disproportionate share of the disease burden. These include children under five, pregnant women, and people living in remote and underserved areas (WHO, 2021). Addressing these inequalities and ensuring that malaria control and elimination efforts reach the most vulnerable populations will be critical to achieving the global malaria goals.

As highlighted by Dr Abdourahmane Diallo, CEO of the RBM Partnership to End Malaria, "Malaria is a disease of poverty and inequality, and we must prioritise reaching the most marginalised and underserved populations if we are to achieve our goal of a malaria-free world. This will require targeted interventions, community engagement, and a focus on strengthening health systems and primary healthcare" (RBM Partnership, 2021).

### **C. Mitigating the impact of climate change and migration on malaria transmission**

Climate change poses a significant threat to malaria control and elimination efforts, as rising temperatures, changing rainfall patterns, and extreme weather events can alter the distribution and intensity of malaria transmission (WHO, 2021). As temperatures rise, malaria-carrying mosquitoes may spread to new areas, including higher altitudes and regions previously unsuitable for malaria transmission (Caminade et al., 2014).

Mitigating the impact of climate change on malaria will require a multi-sectoral approach, including integrating climate and health policies, developing early warning systems, and implementing climate-resilient interventions (WHO, 2021). Dr Maria Neira, Director of the WHO Department of Public Health and Environment, stated, "Climate change is a major threat to malaria control and elimination, and we must act now to build resilience and adapt our strategies to this new reality. This will require collaboration across sectors, including health, environment, and development, and focusing on the most vulnerable populations" (WHO, 2021).

### **D. Ensuring sustainable financing and political commitment**

Sustaining and increasing investments in malaria control and elimination will be critical to achieving the global malaria goals. However, there are concerns about the sustainability and predictability of malaria funding, particularly in the context of competing health priorities and economic uncertainties (WHO, 2021).

Sustainable malaria financing will require domestic resource mobilisation, international aid, and private-sector investments. As Peter Sands, Executive Director of the Global Fund, emphasised, "We must continue to make the case for investing in malaria, highlighting the health, social, and economic benefits of malaria control and elimination. This will require strong partnerships, compelling evidence, and a focus on innovation and impact" (Global Fund, 2021).

Political commitment at the highest levels will also be essential to driving progress towards malaria elimination and eradication. The Malaria Summit in London in 2018 saw 53 Commonwealth leaders commit to halving malaria cases and deaths in the Commonwealth by 2023 (Malaria Summit, 2018). Dr Winnie Mpanju-Shumbusho, Board Chair of the RBM Partnership to End Malaria, noted, "Political leadership and commitment are critical to ending malaria. We must continue to engage with leaders at all levels, from heads of state to community leaders, to ensure that malaria remains a top priority on the global health and development agenda" (RBM Partnership, 2021).

The path towards malaria elimination and eradication is filled with opportunities and challenges. Seizing these opportunities and overcoming the challenges will require sustained commitment, increased investments, and innovative solutions from all stakeholders. Global Health Impact advocates for policies and strategies prioritising

malaria control and elimination and mobilising resources and partnerships to support these efforts, which will be crucial to achieving the vision of a malaria-free world.

## Conclusion

In charting the course through the intricate battlefield of malaria eradication, the tailored strategies, proactive measures, and collaborative efforts form the cornerstone of our journey forward. The blueprint for this journey is crafted by adopting a multi-pronged strategy and meticulously applying the nuanced expertise in public affairs and public relations, hallmarks of the Global Health Impact group's approach to catalysing change.

At the heart of the global community is the deployment of time-tested interventions such as long-lasting insecticidal nets (LLINs), indoor residual spraying (IRS), and artemisinin-based combination therapies (ACTs). However, the unique twist in our approach lies in how we leverage our public affairs prowess to ensure these tools are not just available but are integrated into the fabric of public health policy. By engaging with policymakers, we champion the cause of malaria eradication, ensuring that these life-saving interventions are prioritised and funded.

Innovation and research serve as the pillars of our forward-looking strategy. Here, our public relations expertise is instrumental in spotlighting cutting-edge research and novel technologies. Through targeted campaigns and strategic communication, we amplify the significance of investing in next-generation solutions and vaccines, rallying public and private sector support. Our narrative underscores the imperative of staying ahead in the arms race against the evolving malaria parasite and the compounding challenge of climate change.

Building robust health systems and fostering community engagement are essential to our comprehensive strategy. Through adept public affairs engagement, we advocate for resilient health infrastructures that deliver quality care and withstand emerging health threats. By aligning with local communities and harnessing the power of grassroots movements, we amplify voices on the ground, ensuring that interventions are culturally sensitive and effectively reach those most in need.

Collaborative partnerships stand at the apex of our approach, uniting diverse stakeholders in a concerted effort against malaria. Our expertise in public relations and public affairs paves the way for forging alliances across governments, non-profits, the private sector, and beyond. These partnerships pool resources and create synergies through shared knowledge and aligned objectives. Our role is pivotal in breaking down silos and fostering a collaborative ethos that propels the global malaria agenda forward.

As professionals deeply embedded in the public affairs domain with Global Health Impact, our contribution to eradicating malaria is profound. We influence policy decisions through strategic advocacy, ensuring malaria remains a global health priority. Our campaigns mobilise resources and elevate public consciousness. At the same time,

our ability to galvanise diverse stakeholders around a common goal catalyses unprecedented progress towards a malaria-free world.

In wrapping up, the journey to eradicating malaria is underpinned by a strategic, innovative, and collaborative framework, magnified through public affairs and public relations expertise. By championing proven interventions, propelling innovation, fortifying health systems, and nurturing global partnerships, we are not just combating a disease but laying the groundwork for a sustainable, malaria-free future. As we forge ahead, our collective resolve and strategic insight will continue to drive significant strides in the relentless fight against malaria.

# GLOBAL HEALTH IMPACT GROUP

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