ZERO MALARIA

SECURING BRITAIN'S FUTURE:
HOW INVESTMENTS IN ENDING MALARIA STRENGTHEN THE UK ECONOMY, LIFE SCIENCES SECTOR AND HEALTH SYSTEM

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Acronyms

ALMA	African Leaders Malaria Alliance
CHW	Community Health Workers
DHS	Demographic and Health Survey
GHSI	Global Health Security Index
ITN	Insecticide-Treated Bed Net
LIC	Low Income Country
LMIC	Lower Middle-Income Country
MIS	Malaria Indicator Survey
MNMUK	Malaria No More UK
POC	Point-of-Care test
PPPR	Pandemic Prevention, Preparedness and Response
RBM	RBM Partnership to End Malaria
RDT	Rapid Diagnostic Test
UHC	Universal Health Coverage
USD	United States Dollar
WHO	World Health Organization

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Executive summary

Despite huge progress over the last two decades in halving the death rate, every minute a child still dies from malaria. A critical crossroads awaits the global malaria fight in 2025. Since this report was written, the geopolitical landscape has become even more challenging. Reductions in official development assistance (ODA) from G7 governments threaten upcoming replenishments for key global health institutions, and a worsening current situation for malaria with the future of many programmes uncertain. Recently published modelling data projects that if vital organisations, like the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), fail to raise increased funding for malaria the world will experience a resurgence between now and 2030.[1]

This report demonstrates how a resurgence of malaria threatens not only those countries affected but global health security everywhere. When malaria thrives, it weakens health systems. It impinges on the capacity to test, diagnose and treat a myriad of other diseases and potentially dangerous pathogens. It can mask outbreaks of other illnesses which in turn also strains health systems because of the delay and uncertainty caused by not having a clear diagnosis. Our research has found that a third of fevers still go undiagnosed in sub-Saharan Africa. As malaria symptoms are similar to so many other diseases and account for such a high number of the fevers, these undiagnosed fevers could be masking a deadly new threat with pandemic potential.

The research conducted and expert interviews summarised in this report demonstrate how investments in malaria have supported the building of stronger and more climate-resilient health systems, have built stronger disease surveillance systems which can respond to new threats, increased global research capacity and laid the groundwork for the COVID-19 vaccine development, improved diagnostic capabilities and strengthened supply chains as well supported the drive towards local manufacturing. Malaria is a pathfinder for pandemic prevention, preparedness and response (PPPR) and the lessons learnt from malaria on PPPR are many. Continued investment in malaria control is vital to bolster PPPR and to strengthen global health security.

Our research shows that there is great hope for the malaria fight despite the challenges. The progress made in increasing access to tools and reducing the burden have strengthened the resiliency of many countries. This hope should be coupled with even greater optimism given the strength the malaria innovation pipeline provides to take the world closer to ending one of the world's deadliest diseases and freeing up resources to tackle other crises. Never has there been such a powerful set of tools to fight malaria: from vaccines to next generation mosquito nets and new antimalarial drugs. Scientists in Africa and across the world are working together to develop the game-changing innovations that will wipe out malaria once and for all with trials underway for innovative tools like genetically modified mosquitoes. The need to get these tools to those who need them and prepare for the next wave of scientific breakthroughs goes hand in hand with the need, and indeed creates an opportunity, to strengthen PPPR.

As the world faces a malaria resurgence that threatens us all, 2025 offers an opportunity to take action and get us back on track for elimination and build on the gains of the last two decades. To prevent a possible resurgence, world leaders across Africa, the G7 and beyond who have led the fight to date must increase funding for malaria. Bold commitments are required to support the Global Fund and Gavi, The Vaccine Alliance, alongside efforts unlock climate finance to address the growing risk climate change creates for malaria elimination. In doing so, we can create a safer more prosperous world for all.

Methodology

A mixed method approach was undertaken including analysis of data from 63 malaria indicator surveys (MIS) and Demographic and Health Surveys (DHS) across the years 2001 to 2022. Thirteen malaria-endemic countries were examined: Kenya, Mozambique, Nigeria, Rwanda, Mali, Zambia, Cameroon, Niger, Burkina Faso, Uganda, Republic of Congo, Tanzania and Ghana. Since the surveys are conducted at different times across the countries, two time periods were created (2005-2011 and 2015-2022) to allow combined analysis of the indicators. Specific country analysis was also undertaken comparing the earliest available data and the most recent data for each country. Key indicators analysed included, prevalence of fever, treatment seeking for fever, diagnosis and use of artemisinin-based combination therapies (ACTs), for children under five. As well as intervention coverage, including insecticide-treated nets (ITNs), intermittent preventive treatment of malaria in pregnancy (IPTp), and disease burden. The combined data can be found in the appendix, country-level data is available on request.

By analysing the indicator 'children under 5 with fever in past 2 weeks for whom treatment was sought', the percentage of fevers that go undiagnosed or unresolved was calculated, showing that 33% of fevers in sub-Saharan Africa go undiagnosed.

In addition, eight expert interviews were conducted to examine key areas, including the impact of COVID-19 on malaria control, integration of malaria with pandemic prevention, preparedness, and response (PPPR), funding and resources for malaria, and community health and engagement. The qualitative data collected from these interviews was analysed using thematic analysis, following the approach outlined by Braun & Clarke (2006). This methodology enabled the identification of patterns of meaning across the dataset and the development of themes that highlighted underlying ideas, assumptions, and opportunities related to malaria, PPPR, climate change, and conflict. Experts were from a range of organisations including The Global Fund To Fight AIDS, Tuberculosis and Malaria (Global Fund), Malaria Consortium, African Leaders Malaria Alliance (ALMA), and the World Health Organization (WHO).

A Scientist working at the Ifakara Institute in Bagamoyo, Tanzania. Credit: Abbie Trayler-Smith / Malaria No More UK

Introduction

The world is facing a malaria resurgence

Malaria control efforts face compounded challenges resulting from extreme weather events, funding shortfalls, humanitarian crises and conflict. Malaria is currently facing a perfect storm for resurgence. Recent modelling from the Malaria Atlas Project (MAP) shows that unless funding for malaria increases in the next Global Fund cycle, up to 280,000 additional lives could be lost from now until 2030.[1] This resurgence threatens to undo decades of progress in malaria control and elimination, particularly in sub-Saharan Africa, which remains the hardest-hit region.

Extreme weather events predicted to increase deaths

Research conducted by MAP and Boston Consulting Group (BCG) also found that, extreme weather events, including cyclones and flooding, could contribute to an additional 550,000 malaria deaths annually by 2050.[2] MAP and BCG's recent research highlights how climate change, conflict, and weak health systems exacerbate malaria transmission. For example, flooding in Pakistan in 2022 led to a tenfold increase, from 400,000 in 2021 to over 4.2 million in 2023,[3] undoing years of progress. Similarly, extreme flooding in South Sudan in 2024 displaced thousands of people, leading to outbreaks in makeshift settlements where health services were severely disrupted.[4]

> *"The evolution of the climate situation presents significant threats to the gains made in malaria control."*

Conflict is leading to surges in malaria

Conflict displaces populations and weakens health systems by destroying infrastructure, reducing access to healthcare, and interrupting malaria control interventions, such as indoor residual spraying and distribution of insecticide-treated nets (ITNs). The impact of conflict on malaria control is increasing, as seen in countries like South Sudan and Myanmar, where ongoing violence disrupts healthcare services and has lead to surges in malaria cases. Myanmar saw a surge in malaria cases from 78,000 to 584,000 from 2019 to 2022. Similarly, Ethiopia, in the grip of conflict, saw an increase of 1.3 million cases between 2021 and 2022.[5]

One-third of fevers still go undiagnosed

This new analysis across 13 countries shows that a third (33%) of fevers in sub-Saharan Africa still go undiagnosed. Malaria presents with symptoms similar to other illnesses like dengue, COVID-19, typhoid, and pneumonia, making it critical to improve diagnostic capabilities. With 249 million cases worldwide in 2023, malaria accounts a for a large proportion of fevers circulating, especially in sub-Saharan Africa. Not only does this pose a critical challenge for malaria control, but it also weakens health systems, reducing their ability to detect and respond to new emerging threats. For example, in Nigeria where malaria accounts for approximately 60% of outpatient consultations,[6] undiagnosed fevers contribute to delayed treatment and increased mortality. Similarly, in Mozambique, malaria accounts for up to 45% of all outpatient consultations and 24% of hospital admissions. Where healthcare access is limited in rural areas of the country, the high rate of undiagnosed fevers underscores the need for enhanced diagnostic infrastructure.

The analysis shows that there are differences between countries. For example, in Cameroon, only 55.6% of children with fever received advice or treatment, the lowest among surveyed countries, while Uganda led with 87%, reflecting a median of 71.3% across all surveyed countries (see Table 1).

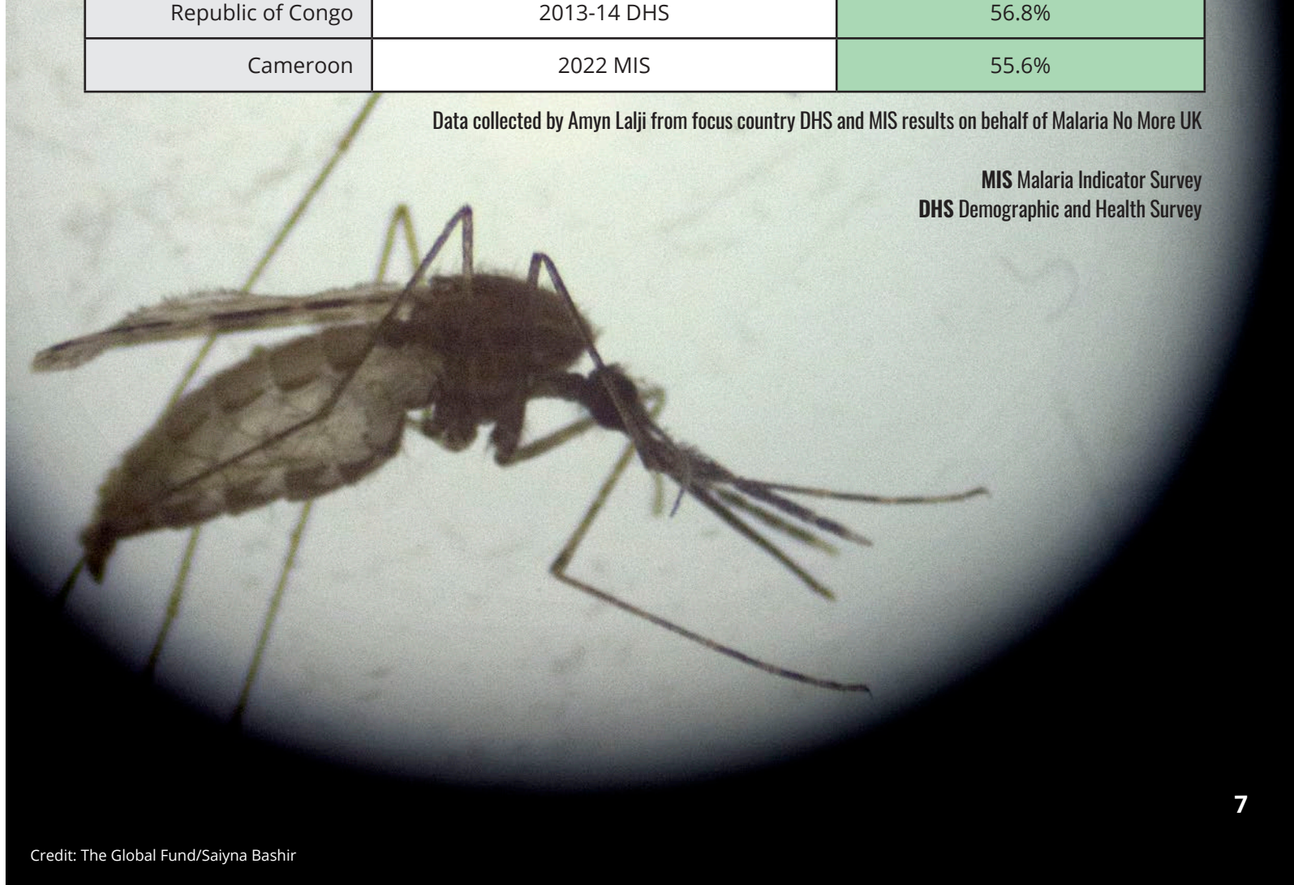
Table 1

Care-seeking for fever among children under five: most recent survey data by country

Country	Year and type of most recent survey	Percentage of children under 5 with fever for whom advice or treatment was sought
Uganda	2018-19 MIS	87%
Tanzania	2022 DHS	77.6%
Zambia	2018 MIS	77.2%
Burkina Faso	2021 DHS	74.9%
Kenya	2022 DHS	69.5%
Niger	2021 DHS	67%
Mozambique	2022-23 DHS	63.6%
Nigeria	2021 MIS	62.8%
Rwanda	2019-20 DHS	62.3%
Mali	2021 MIS	60%
Ghana	2022 DHS	57.1%
Republic of Congo	2013-14 DHS	56.8%
Cameroon	2022 MIS	55.6%

Data collected by Amyn Lalji from focus country DHS and MIS results on behalf of Malaria No More UK

MIS Malaria Indicator Survey
DHS Demographic and Health Survey



Credit: The Global Fund/Saiyna Bashir

A malaria resurgence threatens global health security

Undiagnosed and untreated fevers threaten global health security by allowing emerging diseases to go unnoticed and undetected. Given the huge burden of malaria cases in many low income countries in Africa in particular, the prevalence of malarial illness runs the risk of masking a future threat with pandemic potential. At the same time, a malaria resurgence threatens not only the health systems of affected countries but also global health security. Increasing cases put more strain on already weak health systems, reducing their ability to detect and respond to other threats. If a malaria resurgence continues unchecked, the resulting strain on health systems will have global ramifications. Increased morbidity and mortality could undermine economic stability and further weaken health infrastructure, leaving regions and the world vulnerable to future pandemics. Moreover, the economic burden of treating malaria could divert resources from other critical health initiatives, further compromising health system resilience.

Credit: Asia Pacific Leaders Malaria Alliance

Case Study: Pakistan's 2022 floods and the resurgence of malaria

In 2022, Pakistan faced its worst flooding in history, submerging more than a third of the country and affecting 33 million people. The estimated cost of damages exceeded US$15 billion, with over one million homes destroyed and 500,000 kilometers of roads damaged. Amidst this devastation, malaria cases surged tenfold, from 400,000 in 2021 to over 4.2 million in 2023.[7]

Progress in malaria control before the floods had been steady, with key interventions such as insecticide-treated net distribution, increased access to rapid diagnostic tests, and treatment programs showing promise. However, the floods reversed these gains, particularly in hard-to-reach areas like Balochistan and Sindh, where many communities became inaccessible due to destroyed roads and infrastructure.[8]

An increasing number of cases were caused by the *P. falciparum* parasite, which can quickly become fatal without treatment. The response included distributing foldable bed nets, indoor residual spraying, and deploying mobile health clinics equipped with portable solar panels for power and communication. Despite these efforts, Dr. Mah Talat from the Indus Hospital & Health Network warned that the threat remains, with many health facilities still non-functional and communities vulnerable to another surge in malaria cases during future monsoon seasons.[9]

The situation in Pakistan serves as a stark warning of how climate change can exacerbate vector-borne diseases, highlighting the need for global investment in climate-resilient health systems and ongoing vigilance to prevent future outbreaks.

The impact of malaria control and elimination efforts on health systems and security

The infrastructure, knowledge and skills developed and honed for the malaria response over the past two decades offer valuable insight and a road map for strengthening PPPR. For example, the work done by the Global Fund on reducing malaria has not only built the capacity for countries to enhance their health systems paving the road for universal health coverage (UHC) but has also strengthened health security. This section explains how the malaria response is a powerful example of a global health initiative that has already made valuable and substantial contribution to the PPPR effort and can serve as a roadmap for the future PPPR efforts.

Progress on malaria has supported building stronger health systems

Our research shows that significant progress has been made in malaria control over the past two decades, driven by innovations in diagnostics, treatments, and vector control tools. The expansion of rapid diagnostic tests and artemisinin combination therapies (ACTs) has transformed malaria case management. Our analysis shows that diagnosis for those with fever who sought care has increased from 30% to 54% and the use of ACTs has almost doubled from 13% to 24% (see Table 2). However, sustaining this progress requires continued investment. The introduction of ACTs and insecticide treated nets (ITNs) has drastically reduced malaria incidence and mortality, with the global death rate halving over the last two decades. For example, Nigeria has seen a remarkable 23-fold increase in the number of households with at least one ITN and a sixty-fold rise in women taking multiple doses of antimalarials during pregnancy.

Rwanda also presents a positive case, with over three times the number of children under 5 sleeping under an ITN, increasing from 12.6% in 2005 to 55.6% in 2019-20 (see Table 2). However, ensuring continued momentum in ITN distribution remains crucial to maintain these gains and reach universal coverage. This has led to huge progress for Rwanda in reducing malaria cases from 4.9 million in 2019 to 749,000 in 2023,[10] with improved access to tools and a decreased burden on health systems contributing significantly to malaria control efforts.

Effective primary health care is foundational to resilient health systems, enabling countries to manage both endemic diseases like malaria and emerging health threats. Strong health systems are able to better detect and respond to emerging new diseases through robust surveillance, accessible primary healthcare allowing for early identification and treatment, a trained healthcare workforce and strong supply chains. During the 2021-23 funding cycle, the Global Fund invested $4.9 billion – approximately one-third of its total funding – in strengthening health systems.[11] This reflects the priority placed on enhancing both formal and community health infrastructure.

A key outcome of this investment has been the development of the health workforce, particularly community health workers (CHWs), who are central to malaria control and elimination efforts. CHWs play a vital role in delivering primary healthcare, including malaria prevention, diagnosis, and treatment, in remote and underserved areas.[12] Their importance was underscored during the COVID-19 pandemic, as they continued to provide essential malaria services despite significant challenges. However, persistent issues such as insufficient numbers, inadequate recognition, low pay, and limited access to training undermine their effectiveness.[13] In many regions, CHWs face high patient loads and lack formal integration into health systems, hindering their ability to access the resources and career development opportunities necessary to sustain malaria programme outcomes and strengthen overall health systems. CHWs are the eyes and ears on the ground and are able to help detect and treat emerging new threats.

A scientist at work at the Ifrakara Institute in Tanzania. Credit: Abbie Taylor-Smith / Malaria No More UK

Table 2

Trends in fever prevalence, care-seeking, and malaria treatment among children under five (2005-2022)

Children aged under 5 years	Survey 2005-2011	Recent 2015-2022
Indicator	Median estimate	Median estimate
Prevalence of Fever		
With fever in past 2 weeks	26%	23%
Treatment seeking for fever		
With fever in past 2 weeks for whom treatment was sought	65%	66%
Source of treatment for fever among those who were treated		
Public sector (health facility)	58%	69%
Private sector (formal and informal)	41%	28%
Diagnosis among those with fever and for who care was sought		
Received a finger or heel prick	30%	54%
Use of ACTs among those for whom care was sought		
Received treatment with ACTs	13%	24%
Use of ACTs among those for whom care was sought and who received a finger or heel prick		
Received ACTs	21%	34%
Use of ACTs among those for whom care was sought and who were treated with an antimalarial drug		
Received ACTs	38%	65%

Data collected by Amyn Lalji from focus country DHS and MIS results on behalf of Malaria No More UK

Case Study: Community health workers bridge the gap in Lusaka, Zambia[14]

Community health workers (CHWs) are vital to healthcare delivery in underserved regions, particularly in combating HIV, tuberculosis, and malaria. Since 2020, the Global Fund has invested over US$1.5 billion in CHWs, with an additional US$900 million planned, emphasising their crucial role in strengthening health systems.

Maxwell Mumba, a CHW at the Kamwala clinic in Lusaka, Zambia, faces significant challenges due to inadequate infrastructure, a shortage of skilled peer educators, and cultural barriers. Despite these obstacles, Maxwell's work is instrumental in bridging the gap between healthcare facilities and the community.

The Global Fund plays a pivotal role in supporting the work of community health workers like Maxwell, who are on the frontlines of healthcare delivery in underserved areas. Since 2020, the Global Fund has invested over US$1.5 billion in strengthening the capacity of community health workers, with an additional US$900 million planned over the next three years. This investment has enabled CHWs to receive the training, resources, and support they need to tackle key health challenges including malaria.

The Global Fund's continued support is vital to ensuring that CHWs can bridge the gap between healthcare facilities and the communities they serve, ultimately contributing to more resilient health systems and improved health outcomes for marginalised populations.

The Global Fund's investments in health systems, particularly in the context of malaria, have had a transformative impact on primary care. By addressing critical gaps in workforce capacity, infrastructure, and service delivery, these investments have not only strengthened malaria control but also laid the groundwork for more resilient and responsive health systems capable of meeting a wide range of health challenges. This holistic approach to health system strengthening is essential for PPPR efforts and ensuring global health security.

Malaria control is at the heart of building climate-resilient health systems

Global Fund investments are also supporting climate-resiliency with a commitment to spend 70% of funding in climate-vulnerable countries to strengthen health systems to be more climate-resilient and better prepared for pandemic threats, as well as providing rapid, flexible emergency support to countries on the frontline of climate disasters. Malaria programmes are also well-positioned to integrate climate and other crisis resilience into strengthening health systems. CHWs and climate sensitive disease surveillance are core components of malaria control which can and have been leveraged to respond to other threats. In Malawi, CHWs, community health centres, and data surveillance systems have supported the response to the prolonged cholera epidemic.

Changes to climate not only have direct impacts (such as the impacts felt by extreme weather events) but also threaten the capacity of health systems to respond to both endemic diseases like malaria and potential new threats. Building climate-resilient health systems that incorporate malaria control not only safeguards communities from climate-related health threats but also strengthens global health security. Ultimately, the elements that make up the malaria response are a powerful example of global health interventions that has already made valuable and substantial contribution to PPPR and this legacy often goes overlooked. Looking to the future though they can, if fully supported, serve as both a foundation and roadmap for the future PPPR efforts and building climate resiliency.

Investments in malaria have built stronger disease surveillance systems

The importance of strong surveillance systems for PPPR cannot be overemphasised as they play a vital role in strong health systems – particularly in detecting and responding to potential pandemics.

Malaria surveillance systems can support and adapt to address new health challenges, as evidenced during the COVID-19 pandemic. Facilities and infrastructure originally built for malaria control were rapidly repurposed to incorporate surveillance for COVID-19. This adaptability was due to the design of malaria surveillance systems, which track a broad range of pathogens that cause fever, making them ideal for identifying emerging diseases.

> ***"Integration of malaria surveillance into broader health surveillance systems can enhance the detection of other diseases."***

Since 2000, the global community and multilateral organisations, primarily the Global Fund, have invested a considerable amount of capital in strengthening public health and information systems especially in the sub-Saharan African countries which bear the heavy burden of malaria. These surveillance systems - built largely through investments in identification of fever associated with malaria and often integrated with broader fever and associated symptoms - are seen as crucial for pandemic preparedness. These systems are valuable because they track cases, identify unusual patterns in disease presentation (such as different age groups or symptoms), and provide early warning signs of outbreaks.

In Belize and Kenya, pre-existing surveillance systems enabled the integration of COVID-19 surveillance within one and two months, respectively, after the World Health Organization declared a pandemic.[15] This rapid response was critical in managing early outbreaks and highlights how existing malaria infrastructure can be leveraged for broader health security efforts.

Furthermore, these surveillance systems collect valuable epidemiological and laboratory data that can inform public health responses, such as contact tracing and resource allocation. For instance, in Liberia, this surveillance data was instrumental in tracking and managing COVID-19 cases.[16] Authorities in Belize and Kenya similarly utilised the data for efficient contact tracing and resource distribution during the pandemic.

Another example of malaria surveillance's versatility is the integration of entomological intelligence—the study of disease-transmitting insects—into broader disease control strategies. In Angola and Yemen, local technicians were trained and mentored to collect mosquito specimens, identify species, and test for insecticide resistance.[17] Investments in entomological surveillance not only support malaria control but also enhance preparedness for other vector-borne diseases, such as dengue. This dual benefit underscores the importance of sustained investment in surveillance infrastructure, as it builds long-term capacity for managing both endemic and emerging diseases.

By incorporating surveillance for novel pathogens into existing surveillance systems, countries can strengthen their pandemic preparedness without requiring significant new investments. This approach ensures that low- to middle-income countries, which often bear the brunt of emerging infectious diseases, are better equipped to respond to future health crises.

> ***"Effective surveillance systems for malaria can be leveraged for detecting other diseases, integrating disease surveillance systems are essential for pandemic preparedness."***

Effective surveillance systems are crucial for identifying trends, detecting anomalies, and informing targeted interventions. The data collected through malaria surveillance provides valuable insights that can be applied to other disease control efforts.

Investments in malaria research and development have increased global research capacity

Investments in malaria have driven forward significant advances in biomedical research, and in research capacity.

The development of malaria vaccines, the first ever vaccines which protect humans from a parasitic disease, is but one example of the results of these investments. The journey towards a malaria vaccine exemplifies the power of sustained investment in research and international collaboration. These collaborative research efforts have strengthened local research capacity, particularly in Africa.

> ***"The development of new tools, such as vaccines and diagnostic technologies, is crucial for malaria control and contributes to broader health system resilience."***

The story of RTS,S, the first malaria vaccine to receive WHO approval, illustrates the importance of international research collaborations. The vaccine's development involved partnerships between GSK, the Walter Reed Army Institute of Research (WRAIR), the Bill & Melinda Gates Foundation, and numerous research institutions in Africa. These collaborations were essential for conducting large-scale clinical trials in malaria-endemic regions, evaluating the vaccine's safety and efficacy, and ultimately paving the way for its approval and pilot implementation in several African countries.[18]

These partnerships have not only accelerated vaccine development but have also strengthened research capacity and health systems in malaria-endemic regions. As the scientific community continues to pursue the goal of malaria eradication, international research collaborations will remain crucial for developing, evaluating, and implementing the next generation of malaria vaccines and other life-saving interventions.

The malaria vaccine story provides valuable insights on how research can contribute to PPPR in a broader context. It provides a roadmap for the development and deployment of vaccines in the future for pandemics.

How malaria vaccine development strengthened the COVID-19 response

The development of the R21 malaria vaccine, spearheaded by the University of Oxford, is a prime example of how malaria research efforts have supported the advancement for other disease areas. Lessons learned from the malaria vaccine's development process—such as the use of innovative adjuvants, partnerships with manufacturing entities like the Serum Institute of India, and leveraging advanced production techniques—facilitated the swift scaling and deployment of the Oxford–AstraZeneca COVID-19 vaccine. In fact, work they had done for an experimental malaria vaccine laid the technological groundwork for the COVID-19 vaccine. Furthermore, the partnerships forged during malaria vaccine development laid the groundwork for global production networks, critical in pandemic situations where rapid, large-scale vaccine rollout is essential.[19]

Investments in malaria improved diagnostic capabilities

Investment from the malaria community through malaria control and elimination efforts has also led to the marked improvement in diagnostic capabilities. The expansion of laboratory capacity has enabled more accurate and timely detection of disease.

Enhanced laboratory capacity, driven by malaria programmes, now supports faster and more accurate disease detection. Advanced tools like polymerase chain reaction (PCR) machines, initially deployed for malaria control, have been repurposed to respond to emerging threats such as COVID-19. For instance, Mali's Malaria Research and Training Centre adapted its laboratories for COVID-19 testing and epidemiological studies,[20] highlighting the adaptability of malaria-funded infrastructure.

Moreover, these investments have facilitated the integration and coordination of laboratory networks across regions, which has been crucial for managing endemic diseases and monitoring new threats. The strengthened laboratory capacity has enhanced surveillance systems, enabling more effective tracking of disease outbreaks and the implementation of timely interventions.

By ensuring that countries have the necessary tools and infrastructure to identify and respond to health threats, these investments contribute significantly to the global effort to prevent and manage pandemics. The ability to accurately and quickly diagnose diseases is a fundamental component of health security, and the gains made through investments aimed at malaria control have been instrumental in building this capacity.

Intensive investment in laboratory capacity, driven by malaria programmes, has yielded benefits that extend beyond the immediate goal of controlling malaria. These investments have strengthened health systems, improved disease monitoring, and enhanced global health security, particularly in the face of new and emerging health threats like COVID-19. This comprehensive approach to building resilient laboratory infrastructure is critical to both national and global health strategies.

Investments in malaria are supporting local manufacturing

The strategic development of local pharmaceutical production capacities is vital for ensuring a consistent and timely supply of life-saving medications, which is essential for effective malaria control and broader public health initiatives.

Historically, many LMICs have relied heavily on imported drugs and medical supplies, making them vulnerable to disruptions in global supply chains. The COVID-19 pandemic starkly exposed the risks associated with this dependency, as many countries faced significant delays and shortages in accessing critical medical supplies.

Localisation efforts, supported by organisations like the Global Fund, have aimed to build robust local production capabilities for essential medicines and health products. For example, investments in regional manufacturing have facilitated the production of antimalarial drugs and other critical treatments within malaria-endemic regions. This approach ensures that medicines are available where and when they are needed most, reducing delays in treatment and improving overall health outcomes.

In August 2024, Swiss Pharma Nigeria Limited became the first pharmaceutical company in Nigeria and West Africa to attain WHO prequalification for the anti-malarial medication Sulphadoxine/Pyrimethamine. This decision, hopefully, paves the way for more African pharmaceutical companies to join them, improving access to medicines within Nigeria and the West African region.[21]

Furthermore, regional drug manufacturing plays a crucial role in improving the affordability of medicines.

Case Study: Enhancing malaria vaccine distribution and regional manufacturing capability through Gavi's African Vaccine Manufacturing Acceleratory

The African Vaccine Manufacturing Accelerator (AVMA) is a strategic initiative designed to enhance vaccine distribution and bolster regional manufacturing capabilities across Africa. By providing up to US$1.2 billion over ten years, AVMA aims to establish a sustainable vaccine manufacturing base that contributes to healthy global vaccine markets and improves pandemic and outbreak vaccine supply resilience in Africa.

This investment is set to transform vaccine infrastructure, enabling the continent to produce 60% of its vaccine needs by 2040, a significant increase from the current 1%.

The focus on enhancing vaccine manufacturing has led to significant advancements in regional capabilities. By bolstering local production facilities and supply chains, these investments have strengthened the capacity to produce and distribute vaccines within the region, reducing reliance on external sources and improving response times during health emergencies.

The development of robust regional manufacturing infrastructure ensures that when new pandemics arise, the systems and capabilities established for vaccine distribution can be rapidly adapted and scaled up. This approach not only enhances the immediate response to diseases like malaria but also builds a resilient framework for addressing future global health threats, demonstrating the importance of local drug manufacturing and the benefits of strategic investment in vaccine infrastructure.

By reducing the costs associated with importing pharmaceuticals, countries can make treatments more accessible to their populations, particularly the most vulnerable. This is especially important in the context of malaria, where timely access to effective treatments can mean the difference between life and death.

Investments in malaria can strengthen procurement and supply chains

Strong supply chains are vital for effective health systems, and the COVID-19 pandemic exposed vulnerabilities, especially in LICs, where disruptions hindered procurement and distribution of essential supplies. The malaria community response provides valuable lessons, particularly in digitalising campaigns and health data. For example, Mozambique decentralised case management to community health workers, ensuring essential services during the pandemic. Similarly, Zambia's digitalisation of insecticide-treated net (ITN) and indoor residual spraying (IRS) campaigns supported both malaria control and the COVID-19 response. Real-time data sharing through malaria scorecards in countries like Kenya, Tanzania, and Ghana has helped drive action and accountability.[22]

Lessons from malaria programmes, such as the large-scale ITN distribution efforts, are essential for improving supply chain management across health interventions. ITNs have been critical to malaria control, with 73% of households in sub-Saharan Africa owning at least one in 2023, up from 5% in 2000. The proportion of people sleeping under an ITN also saw an increase between 2000 and 2023: from 2% to 52%

Case Study: Transforming Zimbabwe's health supply chain for malaria and pandemic preparedness with the Global Fund

The Global Fund's strategic investments have dramatically transformed Zimbabwe's health supply chain, bolstering the country's ability to combat malaria and respond to pandemics.

By funding the construction of warehouses, modernising equipment, and implementing advanced data systems at the National Pharmaceutical Company of Zimbabwe, the Global Fund significantly enhanced the efficiency and reliability of health commodity management and distribution.

These investments led to a substantial reduction in stock-outs, wastage, and operational costs, ensuring that essential medicines reach those in need more swiftly and consistently. The Global Fund also strengthened the Medicines Control Authority of Zimbabwe by upgrading laboratories to meet WHO standards, ensuring the highest quality and safety of medicines. The implementation of an electronic logistics management system revolutionised inventory management, enabling more precise forecasting and coordination across the supply chain.

Overall, these initiatives have had a profound impact on Zimbabwe's health system, dramatically improving access to life-saving treatments, increasing population coverage of essential medicines, and advancing the country towards achieving universal health coverage.

for the general population, from 3% to 59% for children under 5, and from 3% to 59% for pregnant women.[23] This success is attributed not only to the supply chain but also to strategies like social behaviour change and pricing. The Global Fund's infrastructure and behaviour change models have been instrumental in scaling up ITN distribution, demonstrating the impact of strong supply chains in addressing endemic diseases.

The lessons learned from malaria-related supply chain management are especially relevant in the context of the growing impact of climate change. Developing robust and adaptable supply chains can mitigate disruptions caused by climate-related events and ensure the timely delivery of essential health commodities.

The systems developed for malaria control are also adaptable to climate-related disruptions, ensuring the timely delivery of essential health commodities. The freight networks used to transport malaria treatments, like artemisinin-based combination therapies,[24] can also be leveraged for other health challenges, making these supply chains a cornerstone for pandemic preparedness.

Photo Credit: Ifrakara Institute, Tanzania, Abbie Trayler-Smith / Malaria No More UK

Conclusion: Investing in malaria programming is an investment in PPPR

The analysis shows that still a third of fevers in Sub-Saharan Africa go unresolved- potentially hiding a new disease threat with pandemic potential. Despite huge progress over the last two decades, the world faces a huge burden from malaria. A perfect storm of challenges threatens the progress made on malaria and the world could be facing a malaria resurgence. If control over malaria is lost, devastating consequences will not only be felt by affected countries, but collective global health security will be threatened. However, the expert interviews that underpin this briefing have demonstrated that by investing in malaria we will not only tackle one of the world's oldest and deadliest diseases but strengthen PPPR efforts globally. Malaria should be seen as a pathfinder for stronger pandemic preparedness.

> ***"It is important to ensure that people understand that malaria is a global problem, not just a tropical disease problem."***

This research has highlighted the valuable lessons and frameworks that the global malaria response can offer in strengthening PPPR. Malaria control infrastructure, expertise, and strategies developed over decades provide a solid foundation for improving global health resilience. Investments in malaria control have led to significant improvements, such as increased access to vital tools and great declines in cases and deaths over the past two decades. Ultimately, reducing the burden of malaria and strengthening health systems.

Through ending the disease, not only are malaria-endemic countries' health systems strengthened but economic growth is stimulated. By getting back on track to the Sustainable Development Goal of cutting malaria by 90% by 2030, there could be a boost the economies of malaria-endemic countries by $142.7 billion. This would uplift the communities affected by malaria and create increased trade prospects for the countries that support them. By investing in the fight against malaria, donor countries are not only supporting malaria control and elimination efforts, they can also enhance their own economic potential.[25]

However, realising this potential hinges on adequate financing and support for malaria programmes. In 2025 the world faces ace a critical juncture, with the Global Fund and Gavi needing full replenishments to adequately tackle malaria. Without this, the world will face a resurgence of malaria, undermining the progress made in strengthening health systems and bolstering global health security. The success of malaria investments in improving community health systems, disease surveillance, diagnostic capabilities, global research capacity and local manufacturing must be supported to avoid reversing hard-won gains.

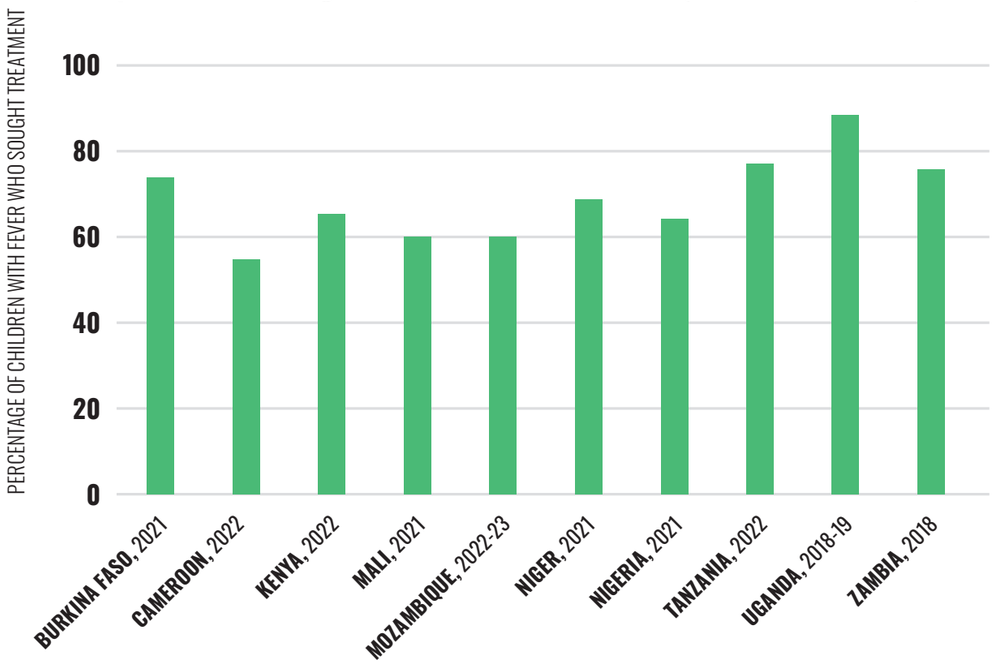
PPPR must remain a priority for governments worldwide. Recognising the value of existing disease responses and ensuring their expansion is equally critical. The following recommendations provide a pathway for governments to enhance their contributions and commitments to this effort.

Recommendations to all governments

1. **Recognise the value and contribution of malaria control and elimination efforts to strengthening PPPR.** Fully recognise malaria control and elimination as a key enabler for strengthening global health security and PPPR efforts in statements and shared documents.
2. **Sustain and expand financing:** Step up financial commitments to malaria control and elimination efforts through fully financing Gavi, the Vaccine Alliance, and the Global Fund to Fight AIDS, TB and Malaria at the upcoming replenishments in 2025 and explore ways to unlock climate financing to support malaria and PPPR efforts.
3. **Promote integration within expanded UHC and strengthen resilience.** Increase support for integrated health systems that simultaneously address malaria, broader infectious disease threats, and routine health needs and thereby enhancing overall resilience.
4. **Adopt climate-resilient health strategies to guide investment.** Lead in developing and funding climate-resilient health strategies, with a particular focus on vector-borne diseases like malaria that are exacerbated by climate change.

Appendix

Graph 1 - Care seeking for fever in selected countries (latest available data)



Graph 2 - Fever prevalence in selected countries (latest available data)

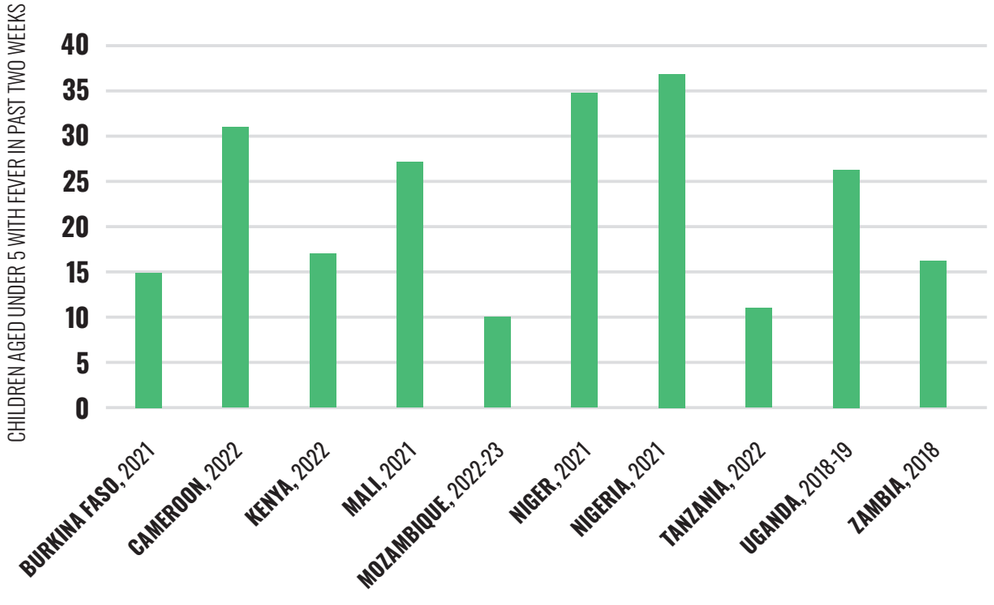


Table 3

Trends in fever prevalence, care-seeking, and malaria treatment among children under five (2005-2022)

Children aged under 5 years	Survey 2005-2011			Recent 2015-2022		
Indicator	Median estimate	Lower bound	Upper bound	Median estimate	Lower bound	Upper bound
Prevalence of Fever						
With fever in past 2 weeks	25.9%	20.1%	34.3%	22.7%	17.3%	29.9%
Treatment seeking for fever						
With fever in past 2 weeks for whom treatment was sought	65.1%	59.2%	71.6%	66.4%	52.9%	74.0%
Source of treatment for fever among those who were treated						
Public sector (health facility)	57.7%	47.2%	78.1%	68.8%	50.3%	80.7%
Private sector (formal and informal)	40.5%	21.6%	53.2%	27.5%	17.5%	49.9%
Diagnosis among those with fever and for who care was sought						
Received a finger or heel prick	29.8%	12.2%	38.4%	53.8%	40.7%	63.8%
Use of ACTs among those for whom care was sought						
Received treatment with ACTs	12.8%	6.9%	30.7%	24.0%	14.2%	42.7%
Use of ACTs among those for whom care was sought and who received a finger or heel prick						
Received ACTs	20.6%	16.3%	41.7%	33.6%	21.3%	53.2%
Use of ACTs among those for whom care was sought and who were treated with an antimalarial drug						
Received ACTs	38.0%	19.7%	67.9%	64.7%	38.7%	87.6%

Data collected by Amyn Lalji from focus country DHS and MIS results on behalf of Malaria No More UK

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