ZERO MALARIA | BRITAIN

Britain. Fighting to win.

Britain and Beyond:

Achieving a stronger, safer world through malaria eradication


TEDDY
TEDDY

Contents

Foreword

Malaria is one of the world's oldest and most deadly diseases - it kills around 620,000 people a year globally, devastates economies and takes up valuable resources. The African region carries a disproportionately high share of the global malaria burden. In 2021, it saw 95% of all malaria cases and 96% of malaria deaths, with children under 5 making up about 80% of those deaths[1]. Every minute a child dies from malaria. But it is not just those directly affected that suffer; malaria threatens global health security and prosperity too.

However, we have a unique opportunity with malaria - it can be defeated. The role of scientific research and development conducted up and down the country, including right here in Liverpool, has been crucial in changing the face of the fight.

Tremendous progress has been made, but there is still more to do to defeat this disease and remove the burden from the most disadvantaged communities.

Ending the epidemic of malaria is a key target of the United Nation's Sustainable Development Goals (SDGs), which were set out in 2015 as a roadmap to global development and prosperity by 2030. Despite significant progress made in the 21st century, the world is not on track to reach the targets of reducing global malaria incidence and mortality rates by at least 90% by 2030. Momentum has slowed due to insecticide and drug resistance, funding gaps, faltering political will and now we also face the rising challenge of climate change.

We are at a critical juncture in the malaria fight - one that could impact the future of the world as we know it. Extreme weather events are hitting the most vulnerable the hardest. They are disrupting health systems and providing new opportunities for mosquitoes to thrive – causing deadly surges of malaria. I have personal experience of this through my work on malaria and was recently able to demonstrate some of the challenges to the All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases during their recent visit to Malawi. We were also able to see the power and reach of British science – thousands of children in Malawi have recently received the first-ever World Health Organization approved malaria vaccine, RTS,S/AS01, developed by British

company GSK. We are also excited by the prospect of a second effective malaria vaccine developed by scientists at Oxford in partnership with the Serum Institute of India. British-backed science has played a vital role in developing the broad toolkit we need to combat malaria – including next generation insecticide treated nets developed through the Liverpool-based Innovative Vector Control Consortium, and life-saving treatments developed in partnership with Medicines for Malaria Venture (MMV).

But it's not enough to just develop the tools, they must be deployed to those who need them most. That is why multilaterals like the Global Fund and Gavi, the Vaccine Alliance, are so crucial to the fight. These multilaterals, product development partnerships, and global consortia led by UK institutions are also essential to building R&D and manufacturing capacity in the African continent. Funding for these localised approaches generates long-lasting, sustainable dividends for health and wealth.

Despite the enormous challenges many African countries face, the continent has some of the fastest growing economies in the world. However, malaria is still holding back these countries from reaching their full potential. We know that a 10% reduction in malaria incidence is associated with an average rise of 0.3% GDP per capita[2]. A more prosperous world is good for Britain too - UK trade with malaria endemic commonwealth countries totalled £77.4bn in 2022 – imagine what could be achieved if we ended malaria.[3]

We now have a decision to make – we can ramp up efforts to remove one the world's oldest and deadliest diseases, saving lives and freeing up resources to tackle other crises or stand back and watch a malaria crisis unfold. It's time for the UK to lead the world to malaria eradication and stand alongside our G7, G20, and Commonwealth allies to get the job done.

Professor David Lalloo
Director, Liverpool School of Tropical Medicine

Introduction

The threat malaria poses to the world

Every minute, a child dies of malaria. Every minute, a family loses a loved one to this preventable disease. In 2021 alone, more than half a million people lost their lives to malaria. The same year saw nearly a quarter of a billion malaria cases.[4] Few diseases rival malaria's loss of life and wellbeing on this scale. Malaria is a disease of poverty; it affects the world's most vulnerable and perpetuates cycles of poverty by preventing growth and development. But malaria's impacts do not end there - malaria affects the whole world, including Britain, by weakening global health security and holding back prosperity.

Since 2000, British science and funding has helped the world cut the death rate from malaria in half. However, that momentum has slowed significantly, and hundreds of thousands of deaths still occur every year. The world is facing a perfect storm of growing drug and insecticide resistance, funding gaps, faltering political will, and climate change. Without urgent action to address these threats, we face the risk of malaria resurgence, losing the hard-won gains of the last two decades.

We are at a critical juncture in the malaria fight, but if we act now, we can end malaria and save millions of lives.

This report sets out how malaria threatens global health security - straining health systems and masking emerging threats.[5] It shows the devastating consequences of climate-related weather events on malaria control efforts and how it is becoming harder to predict and prevent malaria as climate change accelerates.[6] It demonstrates how malaria is preventing economic growth and the potential trading opportunities for Britain with Commonwealth countries if we end malaria. It lays out how British science has pioneered malaria research and innovation for over a century. This includes the development of the world's first malaria vaccines RTS,S and R21, new classes of antimalarial medicines, next-generation insecticide-treated mosquito nets, and innovative vector control methods. It outlines the role of malaria as a pathway to African R&D and manufacturing capacity-building. Lastly, it emphasises Britain's role in the world and the opportunity to

strengthen diplomatic ties with our G7, G20 and Commonwealth allies through malaria eradication.

The British public have been consistently clear, they feel proud of Britain's contribution to the world stage in the field of science and medicine, and the vast majority of the population think it is important that the UK continues its scientific research into fighting malaria.

The devastating consequences of the COVID-19 pandemic and rising effects of climate change have demonstrated that we must be resilient and proactive in the face of global health threats. By addressing the threat of malaria now, the UK can strengthen global health systems and better prepare the whole world for climate-related challenges of the future.

To do this, strong UK support for Product Development Partnerships (PDPs), such as the Liverpool-based Innovative Vector Control Consortium (IVCC) and MMV is needed to ensure life-saving interventions for malaria continue to be developed. The UK government must also maintain its commitments to multilateral institutions to ensure these British-backed innovations reach the worlds' most vulnerable. The Global Fund helps to deliver life-saving bed nets, antimalarials and other tools, while simultaneously strengthening health systems and supporting countries in times of crisis. Continued support for Gavi will ensure that malaria vaccines developed here at home will save thousands of children's lives. It will also support local manufacturing of vaccines and strengthen capabilities in Africa. By ensuring that malaria control is central to building climate-resilient health systems across the world, Britain will not only end one of the world's deadliest diseases but free up resources to tackle future crises.

With the right tools, funding, and political will, malaria eradication is within reach. Through the power of British science and leadership, the UK can play a decisive role in ending one of the world's deadliest diseases.

Section 1

Britain's role in building a safer and malaria-free world

Malaria is a global problem – it impacts us all. It weakens health systems, masks emerging disease threats, and takes up valuable resources which could be used to prepare for other threats such as climate change. At the same time, malaria is becoming increasingly unpredictable and harder to tackle because of climate change. While multilateral institutions and endemic countries face funding shortfalls that are already impacting efforts to tackle malaria, more financing than ever is also being drained from the emergency funds – such as that of the Global Fund – in response to climate-related and humanitarian crises.

Global Fund Emergency Funding Approvals 2022-2023

Malaria poses a significant threat to global health security because it can mask emerging diseases; malaria symptoms, including fever, are similar to those of many other infectious diseases, and can occur simultaneously, making diagnosis difficult. An estimated 40% of fevers go undiagnosed[5] in sub-Saharan Africa due to limited access to health facilities, insufficient diagnostic infrastructure, and poor case management. We are only just starting to understand the implications of underfunded malaria programmes coupled with climate change threats in areas where new diseases could emerge. Malaria programmes, particularly those led by community health workers, are a front-line defence against emerging disease threats, not only protecting the areas that are most active but protecting us all through early detection and global warning mechanisms.

"Malaria cases and deaths, which had been dropping, rose over the past few years – in part due to the violent rains and hotter weather. Now, with the loss of so much of our health infrastructure and stock of preventative and therapeutic health products, malaria and other diseases are set to spike in the coming months."

Dr. Lazarus Chakwera
President of Malawi

Climate change is making the malaria fight harder.

The effects of climate change on malaria are already being acutely felt. Malaria is a highly climate-sensitive disease. Even the smallest changes in temperature, precipitation, or humidity can drastically affect malaria transmission risk. Rising temperatures, more variable rainy seasons and moving populations will make malaria more unpredictable and will hit vulnerable populations harder. Climate change is already having a devastating impact on countries in southern Africa with an increase in the frequency of catastrophic weather events such as mass floods and cyclones. Extreme events like these disrupt routine health programmes, and can cause major outbreaks of malaria, cholera, and other diseases.

The current funding shortfall for malaria is making countries particularly vulnerable to these impacts - it is only with sufficient support to strengthen health systems, supply chains, logistics personnel, and expertise that countries can mitigate these effects. More investment is urgently needed to ensure there is also the appropriate medium and long-term forecasting, so that malaria programmes can adjust control strategies to minimise the impacts of climate change.

When sufficiently funded and supported, malaria programmes are well-positioned to integrate climate and other crisis resilience into strengthening health systems. Community health workers and climate-sensitive disease surveillance are core components of malaria control which can and have been leveraged to respond to other threats. In Malawi, community health workers, community health centres, and data surveillance systems have supported

Case Study

Fazila is a 25-year-old midwife who was forced to evacuate her village in the Sindh province due to devastating floods in Pakistan last year. She and her mother spent two weeks living in a makeshift camp on a bridge for safety. When they were able to return home, the water was as tall as Fazila herself, and everything was destroyed and covered with mud and debris. She and many others found themselves living in temporary tents for months, using the lingering flood waters for bathing and cooking.

As a trained health care provider, Fazila began working with the mobile health units set up by the Indus Hospital and Health Network with support from the Global Fund to Fight AIDS, TB, and Malaria. These mobile health units were dispatched to provide essential services to the most severely affected communities, even travelling by boat to areas cut off by the floods. In her role on the mobile health unit, Fazila tests and treats people for malaria. Malaria risk rapidly increased with the floods and lingering stagnant waters which created ideal breeding grounds for the disease-transmitting mosquitoes. According to the WHO, in 2022 there were over 1.6 million malaria cases in Pakistan, a fourfold increase from the previous year's total of 400,000. The devastating floods in Pakistan have been attributed to a severe heat wave followed by abnormally heavy monsoon rains and melting Himalayan glaciers.

The Global Fund responded rapidly to the crisis in Pakistan, with investments supporting emergency health camps and mobile clinics to provide essential health services including malaria testing and treatment. Global Fund support has also provided clean water and electricity and helped to repair and renovate laboratories and clinics that were damaged or destroyed in the floods. In addition to routine programming, $30 million US dollars was rapidly mobilised from the Global Fund's Emergency Fund to support the response.

the response to the prolonged cholera epidemic. In Pakistan, integrated vector management and community health response addressed the flood-related malaria and dengue surges. However, the short and long-term financial burden of disasters is growing; including national funding, emergency relief for the Pakistan floods cost over £600 million pounds, resulted in economic losses over £11.8 billion, and reconstruction needs over £12.6 billion.[9]

The Global Fund has increased its Emergency Fund by almost 50% for the 2023-2025 allocation period but anticipates that this will still be insufficient to meet the needs of disaster-affected communities.

Ending malaria can help us be better prepared to tackle future crises

The Intergovernmental Panel on Climate Change predicts that global warming will continue to increase and that with further warming, climate change risks will become increasingly more complex and difficult to manage. In the near term, hazards and associated risks are expected to rise, including increases in heat-related human mortality and morbidity, food-borne, water-borne, and vector-borne diseases, mental health challenges, and food insecurity. Climate related impacts are also expected to compound non-climatic risk drivers such as competition for land between urban expansion and food production, pandemics, and conflict. We know that malaria places a huge burden on health systems. In two of the most malaria-impacted countries, Nigeria and Malawi, malaria accounts for 60% and 36% of outpatient visits respectively.[10][11]

Tackling malaria will only get harder as climate change accelerates. Action must be taken now to end malaria whilst we still can. By ending malaria, resources previously allocated to its control will then be available to take on future threats and crises exacerbated by climate change.

Malaria control at the heart of climate resilient health systems

Community-driven health and surveillance systems to eliminate malaria can be leveraged to address other health threats, as was seen in malaria-endemic countries responding to COVID-19. But these systems are still in development. Britain has long played a crucial role in strengthening health systems across the globe through financing both the Global Fund and Gavi. As COP26 hosts, the UK launched the COP26 Health Programme, which led to the creation of the Alliance on Transformative Action on Climate and Health (ATACH) - the Alliance is supporting countries to build climate resilient and low carbon sustainable health systems.[i] There is a clear link between building 'climate resilient' health systems and the strong health systems needed to deliver malaria control programmes. To achieve true climate resilience, malaria and other climate-sensitive diseases must be integrated into climate vulnerability assessments and national adaptation plans (NAPs).[ii] Without integrated climate-malaria surveillance and control, health systems may be pushed to the breaking point in moments of crisis. The UK must continue to pave the way to building climate resilient health systems worldwide, as set out by the UK's COP26 presidency. Doing so protects both global and domestic health security, with the UK leading the way to a

more resilient world.

It is no longer enough to view health system strengthening and climate resilience as separate challenges; they must be addressed as converging issues. Malaria is one of the highest-burden climate-sensitive diseases, and therefore ending malaria must be part of building climate resiliency. The exercise of ending malaria will save millions of lives, strengthen health systems, increase climate resilience, prepare us for future pandemic threats, and unlock resources to address other global challenges. To maximize these potential gains, we must act now before the challenge grows exponentially harder. The UK can do this by continuing to invest in the Global Fund and Gavi, demonstrating leadership at the climate-health nexus, and directly supporting countries to strengthen health systems and climate resilience through malaria programming.

[I] ATACH is a WHO-led, voluntary network of government and non-state actors to share expertise and technical support, enhance cooperation, and coordinate resource mobilisation to address challenges in climate-health resilience and climate-resilient, sustainable health systems.

[II] National Adaptation Plans, or NAPs outline countries' medium- and long-term adaptation needs according to the latest climate science, and strategies to address them. They aim to 1. Reduce vulnerability to climate change impacts through adaptive capacity and resilience and 2. Integrate adaptation across national, sub-nation, and sectoral policies, plans and budgets.

Section 2

Ending malaria can boost global economic prosperity

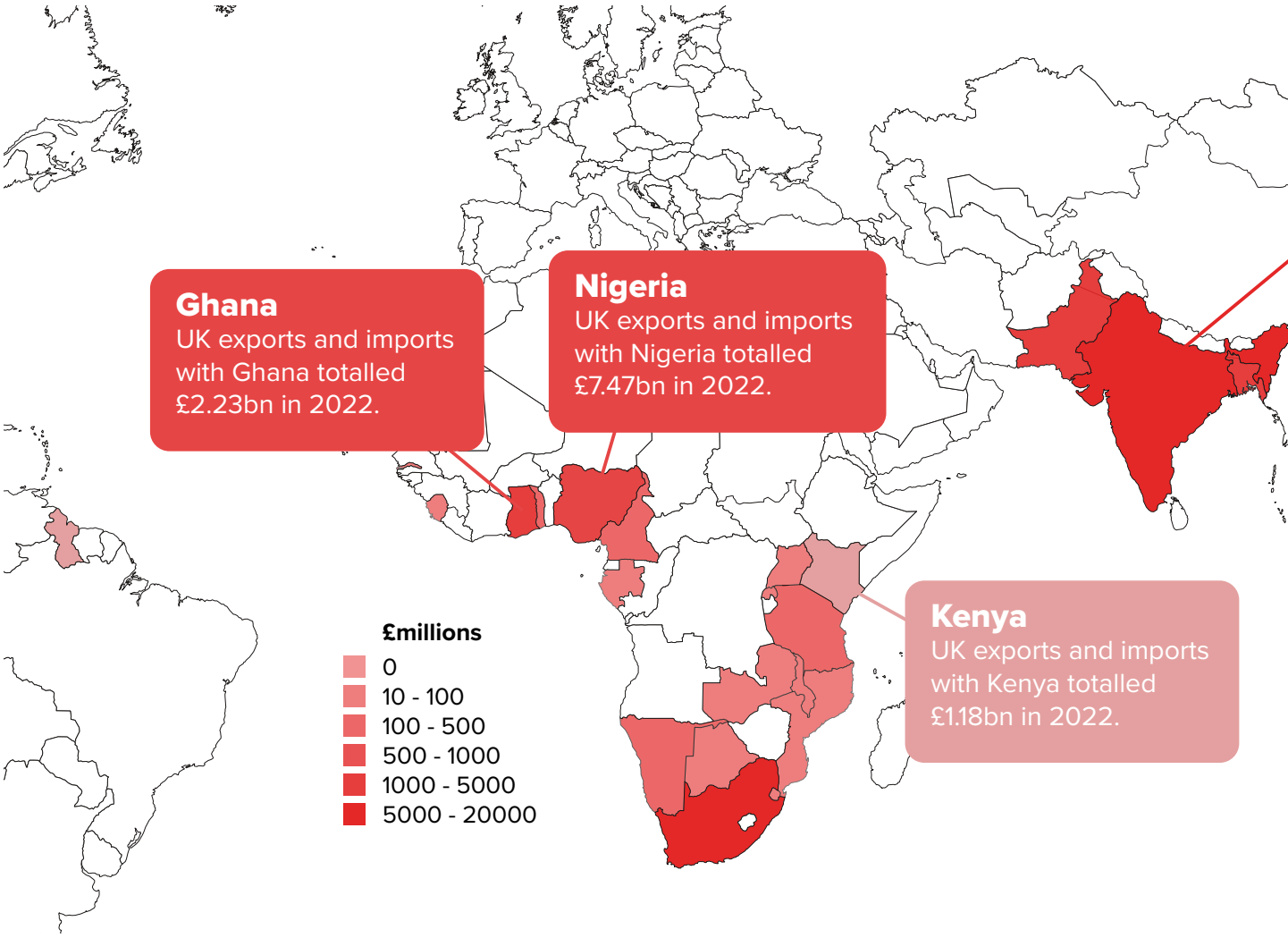
Malaria is not only a global health burden, but also a global economic burden. Malaria control is expensive, but uncontrolled malaria is even more costly. Malaria weighs down the economies of endemic countries, holding back economic progress and stopping individuals from succeeding. Investments in malaria prevention now hold promising dividends for global economic growth. Britain's global leadership in ending malaria can not only help boost global economic prosperity but may also bolster trading relationships with emerging economies. Twenty-six Commonwealth countries are plagued by malaria, currently hindering opportunities for both exports and imports with the UK.

By ending malaria, we can also create more opportunities to trade with some of the fastest growing economies in the world.

Each 10% reduction in malaria incidence is associated with an average rise of 0.3% GDP per capita and faster GDP growth.[13]

Malaria is both a cause and an effect of poverty and the fight against malaria should be approached both through disease control and mitigating the causes of extreme poverty.

Moreover, women bear the brunt of the economic burden of malaria, and children are held back from reaching



their full potential. As primary care givers, women must often miss work and earning opportunities to bring their children to health facilities and to manage their care at home. Persistent childhood infection of malaria is associated with cognitive impairment, behavioural alterations, poor school performance and a 50% reduction in adulthood income.[14][15][16] Reducing malaria allows children to attend school, frees up capacity for carers - especially mothers - to work, and ultimately can translate into higher incomes, improved education levels, and higher female participation in political and labour markets. Ending malaria therefore not only saves lives but boosts individual and global prosperity.

Case Study

"My son Philip first got malaria when he was seven years old, and he now gets it three or four times every year. He misses school often - at least one month every year altogether - and I am worried about him falling behind his classmates. He can't play with his brother or sisters or see his school friends. When the malaria starts, I can only pour cold water on his head to help cool him down, and then take him to hospital, which is six kilometers away. Every round of treatment for him it costs 100 GHC [Ghanaian Cedis – approx. £15]. My husband Emmanuel and I are both labourers and not working regularly, so we must borrow money for the therapy then pay it back by weeding the cassava fields. It is very hard work, and it takes ten days to pay back the hospital fee. I lost half of my finger last year in an accident with a machete in the fields because I was so tired, I couldn't concentrate. I am not at home to look after the children when I am working either, and Rejoice has to stay with neighbours. My oldest daughter sometimes can't go to secondary school because we don't have enough to pay the fees when Philip is sick." (Source: MNMUK-Ghana media trip 2020) In northern Ghana, research has shown that the economic cost of malaria care is one third of household incomes for those living in poverty.[12]

Mother-of-four Augustine Tamia (29), cradles her baby daughter Rejoice Baahemaa (7 months), on the morning of her second RTS,S malaria vaccine (final WHO pilot stage 4) at Tuobodom Health Centre in Kintampo, Ghana.

This is particularly true for the Commonwealth. The Commonwealth shoulders a disproportionate malaria burden. Over 130 million malaria cases occurred in the Commonwealth in 2021, and roughly 90% of Commonwealth citizens live in malaria-affected countries.[17] As the UK looks to have a more global outlook outside of the European Union, capitalising on relationships throughout the Commonwealth is vital to strengthen trading and economic links. However, attempts to strengthen economic partnerships with many Commonwealth countries will be hampered by the economic impacts of malaria if it is not dealt with.

Ghana is one of the fastest-growing economies in the world, with extensive natural resources and a growing services sector.[18] Ghana has been an active member of the Commonwealth since gaining independence over 60 years ago. Researchers at Oxford University, in collaboration with Johns Hopkins and the Ghana Malaria Control Programme, have estimated that malaria elimination in Ghana would cost £750 million between 2020 and 2029 but would avert £1.7 billion in health systems expenditures, and result in an economic gain of £25 billion in increased household prosperity and productivity gains.[19] As one of Ghana's top trading partners, UK-Ghana trade totalled over £2 billion in 2022.[20]

By supporting the reduction of the malaria burden, the UK would not only demonstrate our dedication to supporting allies but also unlock significant economic trade potential.

"Investing in long-term health planning is one of the best investments that can be made. The return -in lives saved, economic futures assured, security and wellbeing, opportunities for infrastructure development - is enormous"

Dr. Lazarus Chakwera
President of Malawi

By investing in malaria prevention, treatment and elimination, the UK is investing in boosting the economic strength of many of our closest partners. This helps women and girls to succeed, enhances the potential for the UK's own trading partnerships, and releases countries from the economic burden of malaria to invest in the long-term, rather than pouring money into holding back the tide of malaria cases. Eliminating malaria strengthens economies both at home and around the globe. Investments in malaria prevention through bilateral agreements and multilateral organisations, such as the Global Fund, generate both short-term improvements to individuals' quality of life, and long-term returns on investment through productivity gains, economic growth and strengthened diplomatic and trade ties.


ZEISS
Primo Sta
fluorescence

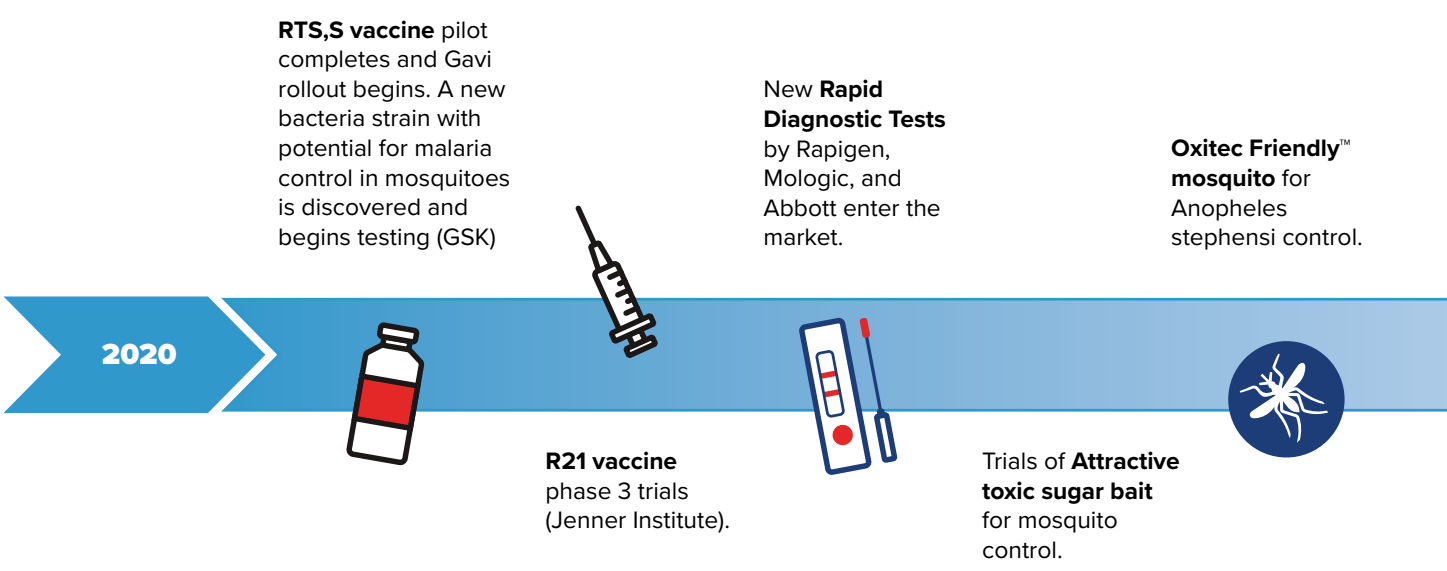
Section 3

Saving lives with the power of British Science

The UK is a world leader in science and innovation. Ranking second on the Global Innovation Index among the G7 countries, nothing exemplifies our strength in this area more than British-backed malaria science and innovation.[21] Despite recent setbacks to the malaria fight and the challenges posed by climate change and biological threats, the power of science can get us back on track to ending malaria. The fight against malaria has long drawn on the best of British science and innovation, stretching back to 1897 when British scientist Sir Ronald Ross discovered that female mosquitoes transmit malaria to humans.[22] From this moment, British scientific leadership has been at the forefront of the malaria fight, through the development of new tools to combat emerging threats such as drug and insecticide resistance, and through bolstering the existing arsenal with new interventions such as the first ever WHO approved vaccine developed by GSK.

As we head towards the 2030 goal of reducing deaths and cases by 90%, British backed scientific innovation will be as important ever. Malaria has one of the most exciting disease pipelines out there with potentially groundbreaking British backed science at its core.

Here are some of the many recent and upcoming innovations to combat malaria.

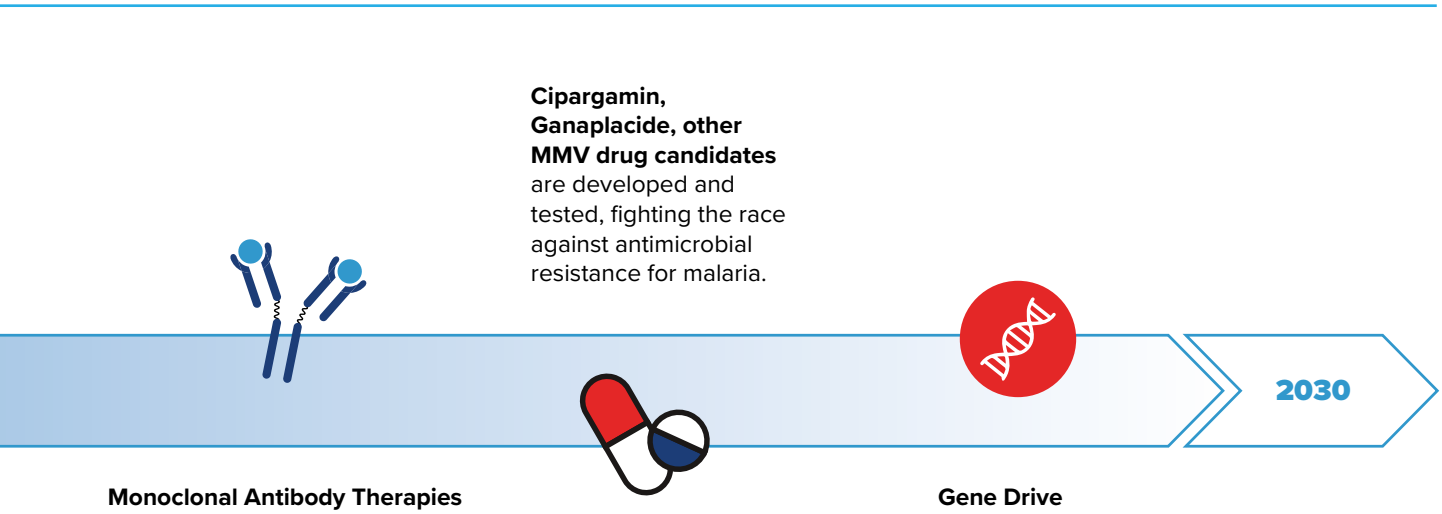


[III] https://www.who.int/news-room/questions-and-answers/item/q-a-on-rts-s-malaria-vaccine

Vaccines and other game-changing tools

The world's first ever WHO approved malaria vaccine, RTSS/AS01, was developed in Britain by GSK. Already this vaccine has been given to 1.7 million children across 3 pilot countries.[iii] From 2024, it will be provided to twelve African countries through Gavi. However, supply is limited - it simply can't reach everyone who needs it. But there is hope on the horizon with a second candidate, R21/Matrix-M, developed by the Jenner Institute at Oxford, which is awaiting a WHO decision on approval. Through international collaboration with the Serum Institute of India, the R21 could drastically increase the supply of malaria vaccines available, saving thousands of additional lives. On top of vaccines, we now have monoclonal antibodies reaching phase 2 trial, and long-lasting injectable drugs in the pipeline.

MMV has played key advisory roles in development of mAbs for malaria prevention. MMV is working to develop and implement an annual, seasonally administered, single-dose injectable treatment that could be used in people of all ages. In addition to mAb candidates, MMV has several long-acting injectable (LAI) drugs in its discovery pipeline, including MMV371 and MMV167, being developed to produce a two-drug LAI injectable combination.



Cipargamin, Ganaplacide, other MMV drug candidates are developed and tested, fighting the race against antimicrobial resistance for malaria.

Monoclonal Antibody Therapies

Monoclonal antibodies (mAbs) are the fastest-growing class of drug and currently used for some cancers, inflammatory diseases and infections including COVID-19 and Ebola virus. Unlike vaccines, mAbs are a type of passive immunity. This means they are given directly to an individual to rapidly protect against or fight an illness rather than being produced by the body and can work even in people with compromised immune systems. With Phase 2 trials showing 80% efficacy in children, the excitement for these potentially game-changing drugs is growing.

Gene Drive technology for mosquito control and second-generation vaccines are in development.

One dose, long lasting injectable treatments will be game-changing additions to the malaria arsenal, offering longer and more accessible protection.[23] Simpler dosing regimens could also make these tools more practical emergency response tools in crisis settings, and adaptable to changing malaria seasonality.

Vector control- staying one step ahead of the mosquito.

Mosquitoes are the deadliest animal on earth due to their role in transmitting malaria and other deadly diseases.[24] Insecticide-treated nets have been the backbone of malaria prevention for the last two decades, helping to prevent 68% of malaria cases in Africa between 2000 and 2015.[25] However, mosquitoes are developing resistance to the compounds used in insecticides, so new insecticides and vector control tools, like those developed by Liverpool-based IVCC and its partners, are necessary to stay ahead of growing resistance. Over 60 million people were protected by new dual-active ingredient nets through the New Nets Project pilot, and millions more will be protected through upcoming net distribution campaigns.[26] However, many countries won't have the funding they need to protect their citizens due to the funding shortfall in the Global Fund's seventh replenishment cycle last year. UK support for the Global Fund would ensure these British-backed developments reach those who need them.

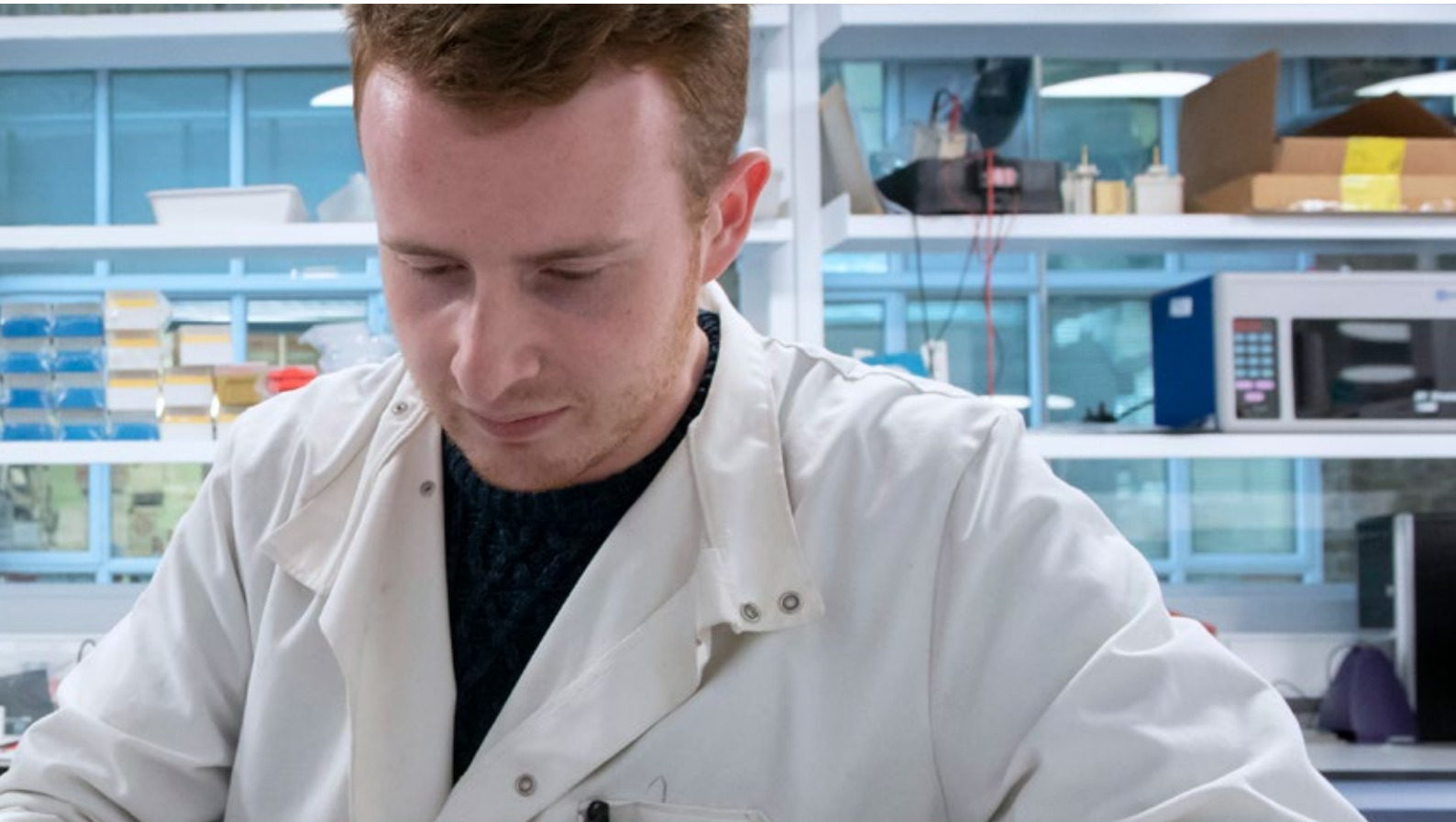
All the way to eradication - the 'end game' tools

As we approach 2030, the tools that will push us to elimination and eventually eradication will be vital. UK academic institutes are at the cutting-edge of malaria research for these types of 'end game'

tools. The Drug Discovery Unit at the University of Dundee has identified several candidates for antimalarials in collaboration with MMV and pharmaceutical industry partners. Antimalaria candidates include potential “end game” tools, such as single-dose radical treatments, which both cure malaria and prevent onward transmission. GSK, in collaboration with MMV, has developed a single-dose treatment for plasmodium vivax malaria-Tafenoquine, which will accelerate malaria elimination efforts in many countries. Target Malaria, in collaboration with Imperial College London is developing ground-breaking gene drive technology to radically reduce populations of malaria-transmitting mosquitoes.

Product Development Partnerships (PDPs), including IVCC and MMV, are essential to helping innovations grow from early research to usable and accessible tools at scale. PDPs are not-for profit organisations which bring together industry, academia, non-profit and private sector to create tools that address global health problems. PDPs have driven dozens of lifesaving innovations through the pipeline to save millions of people. The UK government has historically been a firm financial backer of PDPs, recognising the high impact investment potential.

Funding for PDPs, innovation and research is crucial to reach global malaria targets for 2030 and end the disease once and for all. However, science and innovation are useless unless tools can be successfully deployed where they are needed most. This is why the work of organisations like the Global Fund and Gavi are so important. Funding from the UK government ensures that these life-saving tools don’t just stay in the lab but that they save lives.



Section 4

Strengthening diplomacy through malaria eradication

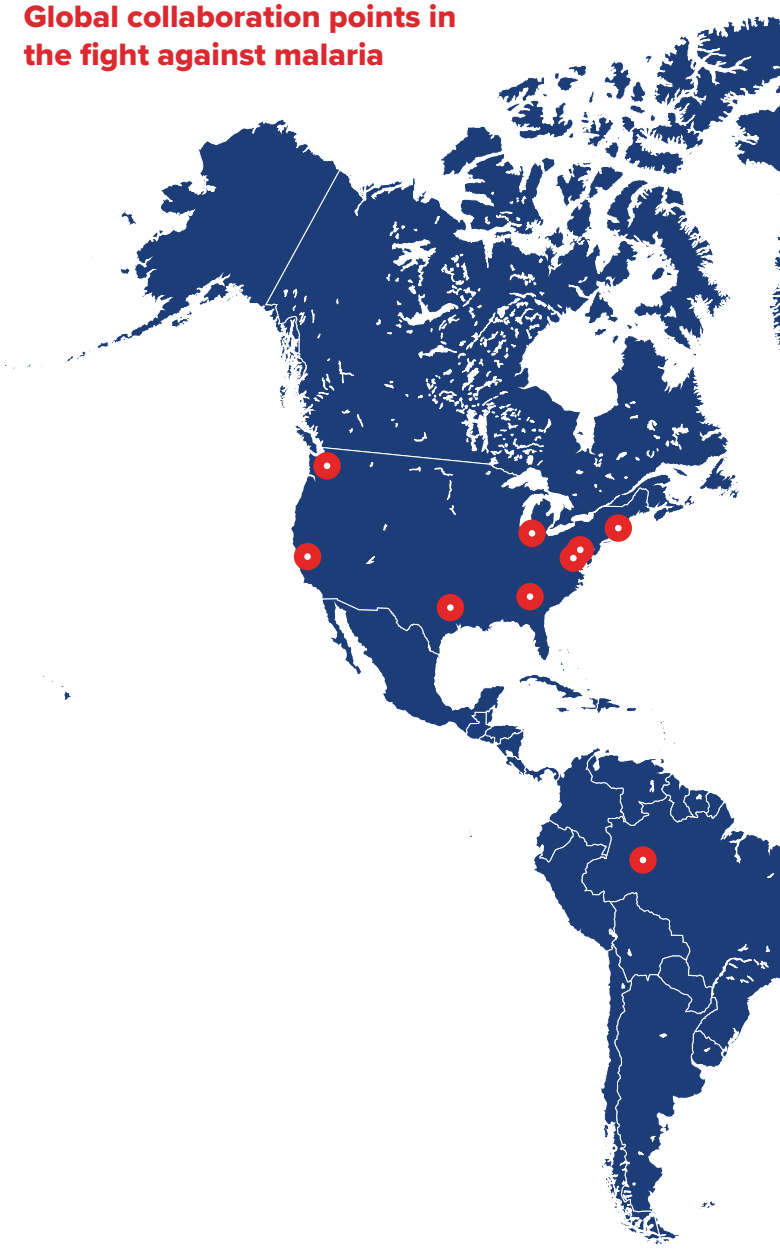
The UK has been part of the fight against malaria for hundreds of years, from the age of exploration to Ronald Ross's discovery, right up to the present. The world is a very different place, and as we strive to embrace a global leadership role while uplifting the world with us, this must include passionately and aggressively contributing to the fight against preventable deaths and hardships from malaria. The UK's position in the Commonwealth and G7 provides an excellent platform to demonstrate global cooperation and influence through tackling this ancient global health challenge and by addressing the 2030 Sustainable Development Goals.

Scientific collaboration and global relations

British science has even more to offer, and the power of British science should continue to be showcased on the global stage through high-impact health innovations. Despite top-tier science capabilities, the UK ranks 5th among our G7 peers for R&D investment as a portion of GDP.[27] A strong funding base and supportive political environment for innovation can support UK science leadership. It is also important to maintain UK institutions as attractive partners and trusted leaders in global science collaborations and research consortia. A clear commitment to ending malaria helps deliver this - demonstrating that British scientists have secure access to resources and opportunities to continue building upon the progress of the last century.

The UK is well-positioned to foster science and innovation partnerships in malaria-endemic countries, particularly Commonwealth nations, through capacity-sharing initiatives and research collaboration. IVCC has supported capacity-building by identifying key partners on the African continent to support in strengthening research facilities to obtain quality-assured data through Good Laboratory Practice certification.[28] UKRI and NIHR-funded Digital Diagnostics for Africa collaborations have enabled exciting diagnostic development, provided fellowships for leading African scientists, and are building research and diagnostic capacity in 6 African countries. The Malawi-Liverpool-Wellcome Trust

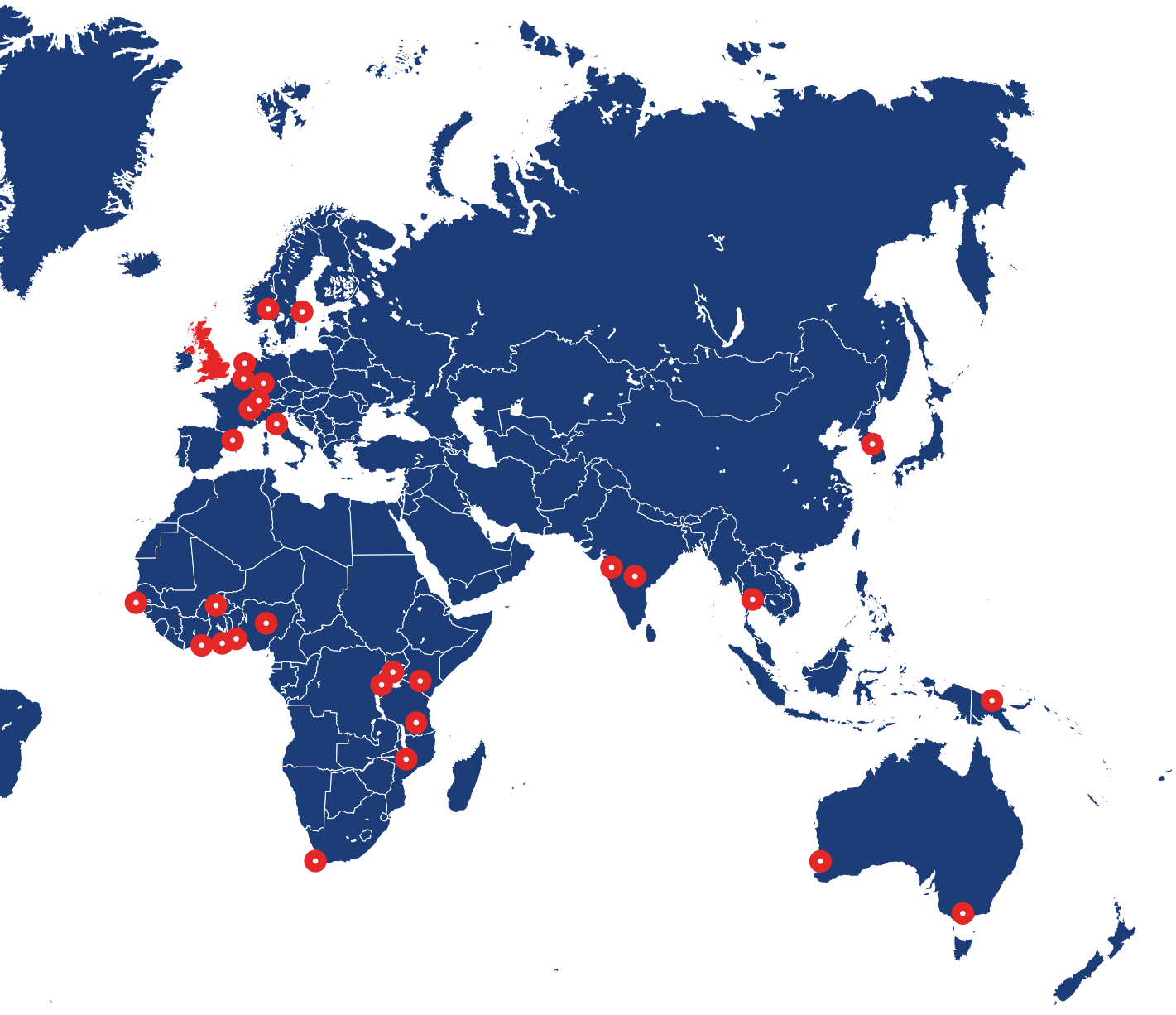
Global collaboration points in the fight against malaria



Programme based at the Queen Elizabeth Central Hospital in Blantyre, Malawi, is a longstanding partnership between the College of Medicine, the Liverpool School of Tropical Medicine (LSTM) and the University of Liverpool (UoL) core-funded by the Wellcome Trust. It brings together leading global scientists to meet a range of health challenges and provides training opportunities for the next generation of research leaders. By fostering local capacity for localised solutions, UK funding and UK institutions can drive economically and politically sustainable development.

Health and diplomatic dividends of investments in vaccine manufacturing

UK partnerships can accelerate growth in African life sciences industries, including vaccine and pharmaceutical manufacturing and development. Producing vaccines in Africa promotes greater health equity, diversifies and strengthens supply chains, reduces carbon emissions, and strengthens economies. In response to calls from the African Union and G7 Development ministers, Gavi, the Vaccine Alliance developed a plan of action for expanding sustainable vaccine manufacturing in Africa.



"The [COVID-19] pandemic has taught us that it is not just diverse and scalable manufacturing capacity that is required for a rapid pandemic response, but rather a thriving, diverse industry: one that stimulates investment in basic science, new technologies and drug discovery, all of which can be leveraged when any of the numerous potential threats emerge. This creates a business case for investing in the full value chain of an African vaccine industry, including the many unaddressed diseases impacting the African continent and the world." - excerpt from Gavi Report Expanding sustainable vaccine manufacturing in Africa: Priorities for Support[29]

This value was recognised by the 100 Days Mission spearheaded under the UK's 2021 G7 presidency. In addition to direct investments and policies which foster growth opportunities in African industries, the UK must promote African vaccine development through strong financial commitments to Gavi in the upcoming replenishment cycle to ensure this vision is executed.

To complement growing industrial capacity, the Global Fund is supporting initiatives to strengthen African Regulatory authorities, improving technical, institutional, and financial capabilities. Unfortunately, as other G7 allies stepped up by pledging 30% increases in funding for the Global Fund, the UK stepped back and reduced its commitment by 30%.[30] As a Board member of both Gavi and the Global Fund, the UK has a responsibility to support these organisations wholeheartedly. Strong financial commitments to Gavi, the Global Fund, and other multilateral health and research initiatives demonstrate to our G7 allies that we are a dedicated and reliable partner in the pursuit of sustainable health equity.

Conclusion and Recommendations

Despite our successes malaria remains one of the great global health challenges of our time and in 2019 we were dealt a stark reminder of the speed with which global health challenges can become local. As we continue to recover from the COVID-19 pandemic one thing our government must do is strengthen health security, and our commitment to tackling malaria has a vital role to play in this. By building health systems that can quickly identify emerging challenges, we enable Britain and others to move quickly and to protect people both at home and abroad.

We are at a critical juncture in the malaria fight. If we are to meet SDG 3.3 which includes a commitment to reducing the global malaria burden by 90% by 2030, we must act now. Climate change is making malaria more unpredictable and harder to tackle, but by incorporating malaria control into climate-resilient health systems, we can better prepare the world for other climate-related challenges. Ending the epidemic of malaria by 2030 will also free up financial resources to meet the growing health challenge of climate change. Malaria holds back individuals and economies from growth and prosperity. By eliminating this hurdle, we can enable a thriving global economy, particularly for our Commonwealth allies. British-backed science, global collaboration and capacity-sharing are necessary to sustainably deliver the innovative tools and sustainable interventions needed to reach our 2030 targets.

Britain has the capabilities to drive this mission forward and realize the rewards of a safer and more prosperous world.

World-class British science and industry has been at the forefront of malaria science and innovation for over a century. The UK can confidently claim credit for many of the discoveries that have helped us to reach this point in the fight. We have helped cut the global malaria burden in half in the last 20 years, thanks to brilliant research and millions of pounds investment. We cannot let this momentum falter and we cannot let this progress be for naught. Together with our allies, we can finish the job.

The 2030 Sustainable Development Goals, mark a pivotal moment in our trajectory towards peace, health, and economic prosperity for Britain and the world. Among SDGs, the targets for malaria are genuinely achievable with the help of Britain in driving science and innovation, investment, and political will. The next seven years will be a test of the UK's commitment towards global development, and we must rise to meet the challenge. The UK has an opportunity to create a safer more prosperous world, strengthen Britain's own health security and demonstrate its leadership by leveraging its influence in the G7 and Commonwealth to end malaria.

To do so, the UK government should:

- ***Continue to be a global leader within the malaria eradication agenda, leveraging diplomatic influence to build momentum towards the 2030 Sustainable Development Goals for malaria, so that we can finish the job.***
- ***Deliver a strong pledge to the Global Fund's 8th replenishment alongside our G7 allies. This funding will be pivotal in getting British-backed innovations to communities, strengthening health systems and climate resilience, and enabling crisis response to emerging threats.***
- ***Protect vulnerable children from preventable disease by maintaining strong funding commitments to Gavi in the next replenishment cycle and ensure British-backed malaria vaccines are delivered, and local vaccine manufacturing is supported.***
- ***Fully fund Product Development Partnerships with multi-year funding agreements, supporting capacity sharing initiatives and helping the UK to further build its scientific influence on the world stage.***
- ***Continue leadership on climate/health and ensure malaria control is central to the promotion of climate-resilient health systems through the ATACH programme.***

Acknowledgements

This report was authored by Malaria No More UK. We are grateful to those who contributed to its creation:

Justine Dufour (Medicines for Malaria Venture), Ariane McCabe and Evie Gray (GSK), Ravini Senanayake, Scott Boule, Laura Zagrebelsky (The Global Fund to Fight AIDS, TB, and Malaria), Christopher Larkin and Laura Roberts (Innovative Vector Control Consortium), Marie Gray and Clare Bebb (Liverpool School of Tropical Medicine).

Annex

Emergency Funding Approvals 2022-2023

Country	Focus	Amount
Afghanistan	Continuation of life-saving services through the Sehatmandi Program in Afghanistan	USD 15,000,000
Haiti	Coverage of essential gaps in the malaria prevention and treatment campaign for the affected departments in Haiti	USD 967,403
Ukraine	Maintaining essential TB and HIV services through conflict	USD 25,320,000
Mozambique	Mitigating the impacts of floods and Cyclone Freddy on malaria programmes	USD 1,000,000
Pakistan	Malaria and essential services support in response to devastating floods related to climate change	USD 30,000,000
Somalia	Supporting TB services in response to severe drought-linked displacement	USD 1,900,000
Sri Lanka	Maintain essential HIV service in Sri Lanka amidst economic crisis	USD 989,687

Imports and Exports with the UK, in millions GBP (Commonwealth Countries with Endemic Malaria)

Country	Exports	Import
Bangladesh	897	3831
Botswana	616	3
Cameroon	169	769
Eswatini	7	16
Gabon	179	167
Ghana	883	1347
Guyana	494	713
India	15112	20828
Kenya	540	637
Malawi	36	26
Malaysia	3091	2541
Mozambique	179	51
Namibia	133	34
Nigeria	4338	3134
Pakistan	1620	2737
Papua New Guinea	24	205
Rwanda	21	18
Sierra Leone	50	6
Solomon Islands	5	14
South Africa	4012	6604
Tanzania	275	48
The Gambia	42	71
Togo	193	41
Uganda	390	88
Vanuatu	26	0
Zambia	134	4
Total	**33466**	**43933**

References

[1] **World Health Organisation, World Malaria Report 2022 https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2022**

[2] **Sarma N, Patouillard E, Cibulskis RE, Arcand JL. The economic burden of malaria: revisiting the evidence. Am J Trop Med Hyg. 2019;101:1405–15. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6896867/**

[3] Figures taken from ONS, Trade in all goods: all countries, seasonally adjusted **https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/datasets/uktradeallcountriesseasonallyadjusted**

[4] **World Health Organisation, World Malaria Report 2022 https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2022**

[5] **Rolfe. B, 2021, Leave No Fever Unresolved: The malaria pathway to end this pandemic- and prevent the next, https://malarianomore.org.uk/report-highlights-malaria-global-health-security**

[6] **Nissan H, Ukawuba I, Thomson M. Climate-proofing a malaria eradication strategy. Malaria Journal. 2021;20. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-021-03718-x**

[7] **Chakwera L. Africa must climate-proof health systems to withstand environmental disasters. The Telegraph. 20.04.23. https://www.telegraph.co.uk/global-health/climate-and-people/climate-change-weather-cyclone-freddy-africa-health-systems/**

[8] **The Global Fund. 2023 – 2025 Allocation Period: Sources and Uses of Funds. https://www.theglobalfund.org/media/12501/bm48_03a-2023-2025-allocation-sources-funds_report_en.pdf AND The Global Fund. 2020 – 2022 Allocation: Sources and Uses of Funds. https://www.theglobalfund.org/media/9046/bm42_02-2020-2022-allocationsourcesandusesfunds_report_en.pdf.** The 2020-2022 Global Fund cycle initially budgeted $20million to the Emergency Fund, while the 2023-2025 budget has allocated $40 million. The Global Fund board did authorise an additional $40 million for the previous cycle's Emergency Fund budget in October 2022 to respond to crises including the war in Ukraine and floods in Pakistan.

[9] **Nabi I. Responding to Pakistan Floods. Brookings. 10.02.23. https://www.brookings.edu/articles/pakistan-floods/**

[10] **Dasgupta R R, Mao W, Ogbuoji O. Malaria Journal. 2022;21. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-022-04113-w#:~:text=In%20**

[11] **The Malawi Priorities Project. The costs and benefits of Malaria Control Strategies in Malawi: A Scenario Comparison using the Spectrum-Malaria Impact Modelling Tool. https://copenhagenconsensus.com/sites/default/files/documents/mp_malaria_policy_brief.pdf**

[12] Figures taken from ONS, Trade in all goods: all countries, seasonally adjusted **https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/datasets/uktradeallcountriesseasonallyadjusted**

[13] **Sarma N, Patouillard E, Cibulskis RE, Arcand JL. The economic burden of malaria: revisiting the evidence. Am J Trop Med Hyg. 2019;101:1405–15. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6896867/**

[14] **Fernando S D, Rodrigo C, Rajapakse S. The 'hidden' burden of malaria: cognitive impairment following infection. Malaria Journal. 2010;9. https://malariajournal.biomedcentral.com/articles/10.1186/1475-2875-9-366#:~:text=This%20'hidden'%20burden%20of%20malaria,of%20full%20potential%20in%20life**

[15] Bruneel F. Human cerebral malaria: 2019 mini review. Rev Neurol (Paris). 2019:445-450. https://pubmed.ncbi.nlm.nih.gov/31375284/

[16] Sarma N, Patouillard E, Cibulskis RE, Arcand JL. The economic burden of malaria: revisiting the evidence. Am J Trop Med Hyg. 2019;101:1405–15. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6896867/

[17] Mghamba J. Why our moment to accelerate malaria elimination efforts is here. The Commonwealth. 25.04.2022. https://thecommonwealth.org/news/blog-why-our-moment-accelerate-malaria-elimination-efforts-here

[18] USAID. Economic Growth and Trade: Ghana. https://www.usaid.gov/ghana/economic-growth-and-trade#:~:text=Ghana%20has%20

[19] Shretta, R., Silal, S.P., Malm, K. et al. Estimating the risk of declining funding for malaria in Ghana: the case for continued investment in the malaria response. Malria Journal. 2020:19. https://malariajournal.biomedcentral.com/articles/10.1186/s12936-020-03267-9#citeas

[20] Figures taken from ONS, Trade in all goods: all countries, seasonally adjusted https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/datasets/uktradeallcountriesseasonallyadjusted

[21] World Intellectual Property Organization (WIPO). Global Innovation Index 2022: What is the future of innovation-driven growth? https://www.globalinnovationindex.org/gii-2022-report

[22] Centre for Disease Control and Prevention (CDC). Ross and the Discovery that Mosquitoes Transmit Malaria Parasites. https://www.cdc.gov/malaria/about/history/ross.html

[23]

[24] Centre for Disease Control and Prevention (CDC). Fighting the World's Deadliest Animal. https://www.cdc.gov/globalhealth/stories/2019/world-deadliest-animal.html

[25] Bhatt S, Weiss DJ, Cameron E, Bisanzio D, Mappin B, Dalrymple U, Battle K, Moyes CL, Henry A, Eckhoff PA, Wenger EA, Briët O, Penny MA, Smith TA, Bennett A, Yukich J, Eisele TP, Griffin JT, Fergus CA, Lynch M, Lindgren F, Cohen JM, Murray CLJ, Smith DL, Hay SI, Cibulskis RE, Gething PW. The effect of malaria control on Plasmodium falciparum in Africa between 2000 and 2015. Nature. 2015 Oct 8:207-211. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4820050/

[26] Unitaid. Global Fund and Unitaid Welcome WHO Recommendation for Insectside-treated Nets With Dual Active Ingredients. Unitaid: 14.03.2023. https://unitaid.org/news-blog/global-fund-and-unitaid-welcome-who-recommendation-for-insecticide-treated-nets-with-dual-active-ingredients/#en

[27] World Intellectual Property Organization (WIPO). Global Innovation Index 2022: What is the future of innovation-driven growth? https://www.globalinnovationindex.org/gii-2022-report

[28] Innovative Vector Controls Consortium. African Trials Facilities. https://www.ivcc.com/research-development/african-trials-facilities/

[29] Gavi, The Vaccine Alliance. Expanding sustainable vaccine manufacturing in Africa: Priorities for Support. https://www.gavi.org/sites/default/files/document/2022/Gavi-Expanding-Sustainable-Vaccine-Manufacturing-in-Africa-2022.pdf

[30] The Global Fund. Pledges and Contributions. https://www.theglobalfund.org/en/government/

ZERO MALARIA | BRITAIN

Britain. Fighting to win.

www.zeromalaria.org.uk

This report was produced by Malaria No More UK (Charity Number 1126222)