

**All-Party Parliamentary
Group on Malaria and
Neglected Tropical Diseases**



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Global Britain in the Fight against Malaria and Neglected Tropical Diseases

Annual Report / Sept 2016-Sept 2017

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About the All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases

Annual Report / Sept 2016-Sept 2017

The All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases provides a forum for exploring issues pertaining to the fight against malaria and neglected tropical diseases (NTDs). Keeping malaria and NTDs high on the political agenda is crucial if we are to sustain the progress made in recent years to prevent, control and eliminate these diseases. This group allows parliamentarians, academics and sector professionals to come together to discuss both the problems and solutions to defeating some of the world's most devastating diseases.

■ The Annual Report

This report covers the period from September 2016 to September 2017. The report makes reference to key events outside of this reporting period that have influenced this All-Party Parliamentary Group's (APPG) activity, and will inform the APPG's work over the coming year.

■ Publications by All-Party Parliamentary Groups

This is not a publication for the House of Commons or the House of Lords. It has not been approved by either House or its committees. All-Party Parliamentary Groups are informal groups of Members of both Houses with a common interest in particular issues. The views expressed in this report are those of the group.

■ Declaration of Interests

Jeremy Lefroy MP sits on the Board of Liverpool School of Tropical Medicine and Innovative Vector Control Consortium (IVCC).

Officers

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Jeremy Lefroy MP
(Conservative)

■ Vice Chairs

Pauline Latham OBE MP
(Conservative)

Catherine West MP
(Labour)

The Rt Hon. the Baroness Hayman GBE
(Crossbench)

■ Secretary

Fiona Bruce MP
(Conservative)

■ Coordinator

Aparna Barua

■ Abbreviations

ACT	Artemisinin-based Combination Therapy
APPG	All-Party Parliamentary Group
APPMG	All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases
DFID	UK Department for International Development
EDCTP	European and Developing Countries Clinical Trials Partnership
GFATM	Global Fund to Fight AIDS, Tuberculosis & Malaria
GSK	GlaxoSmithKline
GTS	Global Technical Strategy
IVCC	Innovative Vector Control Consortium
MDA	Mass Drug Administration
MDG	Millennium Development Goal(s)
MMV	Medicines for Malaria Venture
MVIP	Malaria Vaccine Implementation Programme
NTD	Neglected Tropical Disease(s)
PATH MVI	PATH Malaria Vaccine Initiative
PDP	Product Development Partnership
R&D	Research and Development
SAFE	Surgery, Antibiotics, Face-washing and Environmental Hygiene
SDG	Sustainable Development Goal(s)
STH	Soil-transmitted Helminths
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

■ Acknowledgements

This report was authored by Aparna Barua, Coordinator of the All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases. Jonathan Williams, Research Assistant to the APPMG, supported contributions and editing of this report.

We are grateful for the support of several experts and stakeholders who have offered excellent speakers to the APPMG's events this past year, listed under the summary of events. We thank members of the UK Coalition against Neglected Tropical Diseases and the UK Malaria Advocates Network for their contributions to the content of this report and APPMG events. Their support has been critical in informing members of global progress on malaria and NTDs.

The All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases would also like to thank GlaxoSmithKline for its generous funding to support the design and printing of this report.

Chair's Report

Over the past 15 years, unprecedented progress has been made across malaria and neglected tropical diseases (NTDs).

Deaths from malaria have come down by 62% over the term of the Millennium Development Goals (2000-2015), and 29% between 2010 and 2015. Since 2000, 17 countries have seen malaria eliminated, and it is estimated that 6.8 million deaths from malaria have been prevented.

Over the last 10 years of work fighting NTDs, mass drug administration (MDA) has supported prevalence reductions in onchocerciasis (50%) and schistosomiasis (30%). More than 16 million leprosy patients have been treated over the last 20 years, preventing resurgence is a key challenge. In 2016 alone, one billion people were treated for neglected tropical diseases, making it the world's largest public health programme. There is great hope that at least five of the 20 WHO-listed NTDs could be eliminated in the next few years, in addition to significant gains being made across a further six NTDs. However, there is also an equal number of NTDs where progress has been minimal, stalled or even losing ground, especially for vector-borne and zoonotic diseases.

Progress to date against both malaria and NTDs has been the result of extensive collaboration between individual countries, WHO, NGOs, research institutions and the private sector. However, the recent 2017 WHO World Malaria Report highlights a grave concern. In 2016, five

million more cases of malaria were reported compared to 2015 after years of decline in new cases. There is serious concern that malaria progress has stalled. Funding for malaria has plateaued since 2010. We urgently need to see more money committed both by countries where malaria is endemic and international donors.

The September 2016 UN High Level Panel report on Access to Medicines highlighted the urgent need to address antimicrobial resistance (AMR). Anti-malarial resistance arising out of the Greater Mekong Subregion is a pressing and urgent concern. Considerable research is taking place into new malaria drugs, insecticides, diagnostics and vaccines. In addition, the first malaria vaccine – GSK's RTS,S – has been approved by the World Health Organization (WHO) for piloting in three countries. We are also seeing more work being done to tackle malaria in areas which are harder to reach, such as the Sahel where seasonal malaria is prevented through mass drug administration.

Significant challenges must be overcome for sustainable progress and impact. Young people, in particular adolescent girls and young women, still face extraordinary levels of risk, and investment is needed to address the inequalities affecting women and girls. Building resilient and sustainable systems for health will be critical to combat malaria and NTDs, improving the quality of health care overall, and enabling countries to respond to emerging regional and global health threats like Ebola and Zika virus.

The UK is a global leader in the fight against these diseases through support to both bilateral and multilateral programmes like the Global Fund to Fight AIDS, Tuberculosis and Malaria. For progress to continue there remains an urgent need to coordinate global efforts and continued investments in both implementation and research and development (R&D). Over the past year the UK Government has announced new funding across malaria and NTDs to support these areas which we have highlighted in this report.

As the UK moves forward with leaving the European Union, it is essential that we maintain our strong relationships with our European partners in tackling these diseases. We also need to encourage other countries around the world to join us.

Inequalities within countries are growing and this is no more evident than in middle-income countries. It remains the poorest within these countries that carry the burden of disease. The All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases (APPMG) will have a crucial role in raising the profile and understanding of evidence presented by expert stakeholders. It will also seek to maintain an ongoing commitment by the UK to maintain effective investment in international development, including that spent by departments other than the UK Department for International Development (DFID). In 2016 a quarter of the aid budget (£3.5 billion) was spent outside of DFID and there is increasing use of cross-government funds including the Ross Fund,



Self-Help Group run by The Leprosy Mission Mozambique for leprosy affected patients caring for feet with ulcers

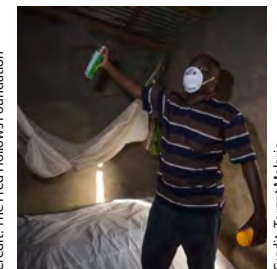
Credit: Paul Salmon for The Leprosy Mission England and Wales



Credit: Schistosomiasis Control Initiative, Imperial College London



Surgical outreach, Oromia, Ethiopia



Pyrethroid Spray Catch inside a house in a village site in Mali

Credit: Target Malaria

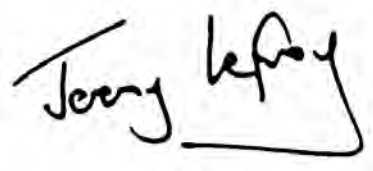
Prosperity Fund and Conflict, Stability and Security Fund.

This annual report seeks to provide an overview of the APPG's engagement across the issues of malaria and neglected tropical diseases over the past year, and highlight future areas of growing importance for parliamentary colleagues to track and engage with over the coming months and year.

I would like to thank my parliamentary colleagues, Pauline Latham OBE MP, Fiona Bruce MP, Catherine West MP, Baroness Hayman GBE and Lord Trees for their constant support over the past year and their dedicated commitment to raising the profile and understanding of these issues in parliament. The APPG on Malaria and NTDs is deeply grateful to our sponsors who are listed at the end of the report, and the expertise of so many UK and global stakeholders who have participated in and supported our parliamentary activities. We would like to thank Malaria No More UK, Malaria Consortium, Medicines for Malaria Venture, PATH Malaria Vaccine Initiative, FIND, IVCC and London School of Hygiene & Tropical Medicine for their support in hosting several high-level malaria events in 2016 and 2017. We are also particularly grateful to the Group's Coordinator, Aparna Barua, who has led the development of policy briefing papers for parliamentary debates, UK and international meetings attended by APPMG members and strengthened our collaborative partnerships with other APPGs and organisations. She will be leaving us at

the end of January 2018 and we wish her every success in her future career. I would also like to thank Lis Wallace, Alex Simpson, Michelle Akintoye BEM and Jonathan Williams who have helped in the work of the APPG.

Malaria and neglected tropical diseases have a devastating economic impact, yet treating them is affordable and entirely possible. Investing in eliminating these diseases is a smart choice for global development. Key opportunities over the coming year including the 2018 Commonwealth Heads of Government Meeting, hosted by the UK Government, and the 2018 G20 Summit under the Argentina Presidency, provide influential platforms to convene global leaders and renewed commitment to combating these ancient diseases. Economic growth by itself cannot close the gap between rich and poor. Ensuring access to basic services and the strengthening of health systems will be key to supporting healthy communities who are able to contribute to economic development and social well-being.



Jeremy Lefroy MP
Chairman of the All-Party Parliamentary Group on Malaria and Neglected Tropical Diseases



"The direct elimination of poverty should be the objective of all development aid. Development should be viewed as a human rights issue, not as a question of simply increasing the gross national product (GNP)."

Nobel Laureate, Muhammad Yunus
Chairman of Yunus Centre,
Founder of Grameen Bank, Bangladesh



Child being measured to assess treatment dose, Zanzibar

Credit: Schistosomiasis Control Initiative, Imperial College London

Overview of the Year: Malaria

Since 2000, there has been unprecedented global progress in combating malaria, with deaths decreased by 62% and incidence cut by 41%, over the term of the Millennium Development Goals (MDGs) between 2000 and 2015. During this period 17 countries have seen malaria eliminated, and it is estimated that 6.8 million deaths from malaria have been prevented.

Britain is a global leader in the fight against this devastating disease that still claims the life of a child every two minutes. The APPG on Malaria and Neglected Tropical Diseases recognises and supports UK aid that is working to strengthen the scientific community, innovation and the bravery of ordinary men and women who go out to fight these diseases. The APPG also recognises that combined global efforts will enable healthier futures for people living in the world's poorest places, making the world a safer place for all.

Despite recent year-on-year success in malaria control, progress has stalled, according to the 2017 WHO World Malaria report. The report highlights an estimated five million more malaria cases in 2016 than in 2015, though malaria deaths stood at around 445,000, similar to deaths in 2016 (446,000). We are now at a turning point in the fight against malaria, and without urgent action we risk going backwards. The WHO Global Technical Strategy (GTS) for Malaria calls for reductions of at least 40% in malaria case incidence and mortality rates by the year 2020. According to WHO's 2017 malaria report, the world is not on track to reach these critical milestones.

Although funding for malaria has remained relatively stable since 2010, the level of investment in 2016 falls far short of what is needed to reach the first milestone of the GTS: a reduction of at least 40% in malaria case incidence and mortality rates globally when compared to 2015 levels.



APPMG Chair Jeremy Lefroy MP speaks at the 2016 WHO World Malaria Report launch event.

To reach this milestone, the GTS estimated that annual funding would need to increase to US\$ 6.5 billion per year by 2020. The US\$ 2.7 billion invested in malaria in 2016 represents less than half (41%) of that amount. Stepping up investments in malaria research and development is key to achieving the GTS targets. In 2015, US\$ 572 million was spent in this area, representing 83% of the estimated annual need for research and development.

■ Key global successes in malaria

- Europe became the first continent to be declared malaria-free by WHO in 2015, though the recent malaria death in Italy highlights the need for continued vigilance to remain malaria-free.
- Asia has made huge strides against malaria in the past few years; however, 22 Asian countries are still considered endemic. If malaria is successfully eliminated from the region by 2030, it will save more than a million lives and deliver almost US\$ 300 billion in cost savings and social benefits, at a cost of just US\$ 5-8 per case averted. However, the growing threat of antimalarial resistance could potentially rob the continent of these gains due to the emergence and spread of antimalarial resistance rising from the Greater Mekong Subregion.

- Globally, more countries are moving towards elimination: in 2016, 44 countries reported fewer than 10, 000 malaria cases, up from 37 countries in 2010.
- Kyrgyzstan and Sri Lanka were certified by WHO as malaria-free in 2016.
- In 2016 WHO identified 21 countries with the potential to eliminate malaria by the year 2020. WHO is working with country governments – known as ‘E-2020 countries’ – to support their elimination acceleration goals.
- Although some of E-2020 countries remain on track to achieve their elimination goals, 11 have reported increases in indigenous malaria cases since 2015, and five countries reported an increase of more than 100 cases in 2016 compared with 2015.

■ New opportunities for malaria

United Nations General Assembly step up commitments to malaria – In September 2017 in New York, country leaders and senior officials from

Malaria Factsheet

1. Malaria is caused by *Plasmodium* parasites, spread to people through the bites of infected *Anopheles* mosquitoes. Of the five parasite species, *Plasmodium falciparum* is the deadliest.
2. In 2016 there were an estimated 216 million malaria cases in 91 countries, an increase of five million new cases over 2015, and malaria deaths reached 445,000.
3. In areas with high malaria transmission, 70% of all malaria deaths are children under five years.
4. Since 2010, malaria mortality has fallen globally by 29% among all age groups and 35% in children under five.
5. Early diagnosis and treatment of malaria reduces disease, transmission and prevents deaths. Access to diagnostic testing and treatment is critical.
6. Emerging parasite resistance to artemisinin, the core compound for WHO recommended treatment, is a major concern.
7. Long-lasting insecticide nets provide personal protection against mosquito bites. Between 2010-2015, there was an 80% increase in the use of insecticide-treated nets.
8. Indoor residual spraying is the most effective way to rapidly reduce malaria transmission, when at least 80% of houses in targeted areas are sprayed.
9. Pregnant women are at high risk of dying from complications of severe malaria and can hugely impact on new-born health outcomes. WHO recommends intermittent preventative treatment at antenatal visits in the first trimester.
10. Malaria causes significant economic loss in high-burden countries, disproportionately affecting marginalised and poor communities who cannot afford treatment, or who lack access to health care.

Source: <http://www.who.int/features/factfiles/malaria/en/>



Urban insecticide spraying for mosquitos

across Africa, Asia Pacific, Europe and the Americas announced new political and financial commitments to accelerate the global fight against malaria and intensify efforts to meet the WHO global goal of reducing the malaria burden by 90% by 2030. Increases in domestic spending were noted by Swaziland and Zambia and a call to action for greater investment by the private sector. The U.S. President’s Malaria Initiative (PMI) also announced an expansion of its investment into west and central Africa. The initiative, led by USAID and implemented with the U.S. Centers for Disease Control and Prevention, will launch new country programmes in Cameroon, Cote d’Ivoire, Niger, and Sierra Leone, and will expand its existing programme in Burkina Faso. This country expansion will benefit almost 90 million additional people at risk of malaria, totalling 332 million people at risk across the west-to-central African corridor from Senegal to Cameroon with life-saving

bed nets, anti-malarial treatments and diagnostic tests.

WHO unveils new vector control strategy –

Launched in October 2017, this strategy will guide global integrated vector control responses from 2017 – 2030. This strategy recognises the wide range of vectors including mosquitoes, flies and bugs that cause an equally wide array of diseases including malaria, dengue, leishmaniasis, Chagas disease and Zika virus disease. The strategy was supported by a UN member resolution at the 2017 World Health Assembly meeting.

Rapid unplanned urbanisation, changing land use patterns, and increased international travel, climate and environmental changes have all been cited as factors that have increased the interaction between humans and vectors and the spread of vectors themselves in to new geographical territories.

	Milestones 2020	Milestones 2025	Milestones 2030
Reduce mortality due to vector-borne diseases globally, relative to 2016	By at least 30%	By at least 50%	By at least 70%
Reduce case incidence due to vector-borne diseases globally, relative to 2016	By at least 30%	By at least 45%	By at least 60%
Prevent epidemics of vector-borne diseases*		In all countries without transmission in 2016	In all countries

* Rapid detection and curtailment of outbreaks to prevent spread beyond the country.

Source: WHO Vector Control Strategy 2017-2030

The Global vector control response 2017-2030

Reducing the burden and threat of vector-borne diseases that affect humans

The statistics are staggering:

- vector-borne diseases cause ongoing disease or outbreaks in all WHO regions;
- 80% of the world's population is at risk of one or more vector-borne disease;
- 17% of the global burden of communicable diseases is due to vector-borne diseases;
- there are more than 700,000 deaths annually from these diseases.

The Global Vector Control Strategy 2017-2030 therefore outlines a broad approach aligned with the 2030 Agenda for Sustainable Development and will directly contribute towards Goals 1, 3, 6, 13 and 17.

The strategy requires US\$330 million annually or five cents per person at risk per year, to shift focus towards integrated, locally adapted vector control, and

represents 10% of what is currently spent each year on vector control interventions for malaria, dengue and Chagas disease alone.

Malaria vaccine – In April 2017 WHO announced that Ghana, Kenya and Malawi will take part in the WHO-coordinated Malaria Vaccine Implementation Programme (MVIP) that will make GSK's RTS,S malaria vaccine available in selected areas, beginning in 2018. The MVIP programme will assess whether the vaccine's protective effect in children aged five- to 17-months-old during Phase III testing can be replicated in real-life settings. Gavi, the Global Fund to Fight AIDS, Tuberculosis and Malaria, and UNITAID, are partnering to provide US\$49.2 million for the first phase of the pilot programme (2017-2020) which will be complemented by in-kind contributions from WHO and GSK.

The MVIP represents another important step toward making the malaria vaccine RTS,S available to children most at risk from malaria in sub-Saharan Africa. Through its cluster randomized design, the

MVIP should generate the evidence needed to allow global public health authorities and individual African countries to take policy decisions on the wider scale use of the vaccine candidate in sub-Saharan Africa. The MVIP will be funded by GAVI, the Global Fund and UNITAID.

GSK and PATH will collaborate to donate doses of RTS,S for use in the pilot implementation and GSK will be ramping up its production capacity to supply the doses required. In parallel, GSK will run the GSK-sponsored Phase IV studies as agreed upon with the European Medicine Agency.

To prepare for success beyond the MVIP, GSK will also closely collaborate with global health partners to develop the right level of readiness, support and procurement mechanisms for wider introduction of the RTS,S malaria vaccine should WHO recommend the vaccine candidate for broader use.



Bed nets being used at home.

VECTOR CONTROL AND THE GLOBAL GOALS

1 NO POVERTY 	<p>Vector-borne diseases disproportionately affect the poorest and most vulnerable in society, trapping people in a cycle of illness, suffering and poverty</p>	3 GOOD HEALTH AND WELL-BEING 	<p>By reducing the prevalence of the major vector-borne diseases, vector control contributes to defeating malaria and NTDs, achieving universal health coverage, and reducing maternal and neonatal mortality</p>
4 QUALITY EDUCATION 	5 GENDER EQUALITY 	<p>Some vector-borne diseases disproportionately affect women, due to either higher exposure or biological vulnerability such as pregnancy, while others predominantly affect men, as the result of occupation-related exposure</p>	7 AFFORDABLE AND CLEAN ENERGY 
<p>Vector-borne diseases can cause a significant level of school absenteeism during high transmission seasons, seriously impacting the educational opportunities of children. Infections also cause underperformance at school and adversely affect the overall physical and mental development of children, with a devastating impact on their future</p>	6 CLEAN WATER AND SANITATION 	<p>Water plays a crucial role in the life cycle of most vectors and many diseases. Therefore cooperation and integration with the water and sanitation sector will be necessary for vector control to be successful</p>	<p>The construction of hydro-electric dams result in complex environment changes that alter vector epidemiology, and have been linked to outbreaks of schistosomiasis and changes to malaria epidemiology</p>
	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	
	<p>Vector-borne diseases cause illness, disability and stigma that damage economic growth, reduce productivity and hinder the potential of the workforce</p>	11 SUSTAINABLE CITIES AND COMMUNITIES 	<p>Successfully implemented vector control will lead to cleaner, safer and more sustainable cities and communities, without the breeding grounds for vectors</p>
13 CLIMATE ACTION 	<p>It is expected that global warming will cause more outbreaks of vector-borne diseases, leading to higher disease burdens across a larger number of countries. Vector control can therefore be considered a form of climate adaptation</p>	17 PARTNERSHIPS FOR THE GOALS 	<p>Successfully implemented vector control will require a joint commitment and coordinated efforts from partners across sectors and countries</p>

Credit: Malaria Consortium



Credit: Malaria Consortium

Guppy fish is used to reduce dengue vector populations in larger water containers



Credit: Malaria Consortium

A malaria volunteer tests a child for malaria using a finger prick blood sample in Mya Sein village in Myanmar



Credit: Elizabeth Poll/MMV

Funding for malaria

Globally:

In 2016, an estimated US\$ 2.7 billion was invested in malaria control and elimination efforts by governments of malaria-endemic countries and international partners. The majority (74%) of investments in 2016 were spent in the WHO African region, followed by the WHO regions of South-East Asia (7%), the Eastern Mediterranean and the Americas (each 6%), and the Western Pacific (4%). Governments of endemic countries contributed 31% of total funding (US\$ 800 million) in 2016. More than half (57%) of resources in 2016 were channelled through the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM).

UK Leadership:

The UK Government is a global champion and was the second largest source of international financing for malaria in 2016. However, there is an urgent need for new donors, new partnerships and collaborations to bring the additional resources needed to end malaria.

Since January 2016, key announcements have been made including by the then Chancellor, George Osborne, and Bill Gates, co-Chair of the Bill & Melinda Gates Foundation. Together they announced a landmark £3 billion funding commitment for malaria. With the then International Development Secretary, Rt Hon. Justine Greening MP, they set out a significant funding package to ramp up efforts to fight malaria over five years and a mission to support WHO's goal of reducing malaria deaths by 90% by 2030.

As part of this £3 billion partnership, the Bill & Melinda Gates Foundation will spend US\$200 million in 2016 to support R&D for malaria and to accelerate regional malaria elimination efforts, with a similar amount over each of the following four years. This UK announcement includes a £500 million-a-year investment, with part of this delivered by the Ross Fund. The Ross Fund aims to develop new tools to help combat the world's most serious infectious diseases in developing countries including malaria, tuberculosis, outbreak diseases such as Ebola and neglected tropical diseases.

In the face of urgent concerns around the spread of antimalarial resistance, the economic loss and productivity as a result of malaria morbidity and the devastation of child mortality from a preventable and treatable disease, this partnership and funding will make a significant contribution to rapidly reducing the disease burden imposed by malaria and improve the quality of life for many of the world's poorest populations.

Key UK Investments for Malaria

- **January 2016: UK Government announces £3 billion in partnership with the Bill & Melinda Gates Foundation, to be spent on malaria control and elimination efforts over the next five years. This includes £500 million a year invested by the UK Government over the same period.**
- **September 2016: £1.1 billion is pledged to support the Global Fund to Fight AIDS, TB and Malaria (over the next three years).**
- **December 2016: £50 million announced to support Medicines for Malaria Venture to support research, development and delivery of new anti-malarial drugs.**
- **December 2016: £25 million announced to support the Innovative Vector Control Consortium based at the Liverpool School of Tropical Medicine, to develop new insecticide products.**
- **July 2017: Liverpool School of Tropical Medicine awarded £6.4 million from the Global Challenges Research Fund led by the UK Department for Business, Innovation and Skills, to strengthen capacity to control malaria and other vector-borne diseases.**



Credit: Ben Moldenhauer/MMV

Overview of the Year: Neglected Tropical Diseases

Neglected tropical diseases (NTDs) are a grouping of 20 bacterial, viral and parasitic diseases as defined by the World Health Organization (WHO). These devastating diseases affect more than one billion people globally and cause 170,000 deaths each year. They result in disability, stigma and disfigurement. NTDs disproportionately affect the poorest communities. Some NTDs are linked to poor access to water, sanitation and hygiene, inadequate housing and are exacerbated by malnutrition.

The 2012 London Declaration on NTDs signified a turning point in global efforts to control and eliminate the most common NTDs. It has guided dynamic partnerships and commitments between endemic country governments, donor governments, private sector and philanthropic sectors. This has culminated in a global partnership that is working to deliver the world's largest public health programme to over a billion people, combating the 10 most common NTDs. This is made possible due to the drug donations of 13 pharmaceuticals to combat the deadliest and most high-burden NTDs impacting the world's poorest communities.

■ Key successes across NTDs

At the WHO Global NTD Summit in April 2017, the WHO released its progress report and showcased several major successes across NTD control and elimination.

- The number of people at risk of NTDs has fallen dramatically over the past five years from two billion to just over one billion.
- Nearly **one billion people received treatment in 2015** for at least one NTD, and five billion doses were donated by pharmaceutical companies.
- 556 million people received preventive treatment for lymphatic filariasis (elephantiasis).
- More than 114 million people received treatment

for onchocerciasis (river blindness: 62% of those requiring it).

- Only 25 human cases of Guinea-worm disease were reported in 2016, putting eradication within reach.
- Cases of human African trypanosomiasis (sleeping sickness) have been reduced from 37,000 new cases in 1999 to well under 3,000 cases in 2015.
- Trachoma – the world's leading infectious cause of blindness – has been eliminated as a public health problem in Mexico, Morocco, and Oman. More than 185,000 trachoma patients had surgery for trichiasis worldwide and more than 56 million people received antibiotics in 2015 alone.
- Visceral leishmaniasis: in 2015 the target for elimination was achieved in 82% of sub-districts in India, 97% of sub-districts in Bangladesh, and in 100% of districts in Nepal.
- Many countries have increased their domestic contributions to financing NTD programmes, such as the Democratic Republic of Congo, where 25% of NTD programmes are now domestically financed, up from zero in 2011.

Better tools, from mapping to diagnostics, have boosted progress against NTDs by improving drug delivery and making treatments more effective. About 87% of



countries in Africa are now fully mapped for some of the most devastating NTDs, including trachoma, thanks to the Global Trachoma Mapping Project managed by Sightsavers. However, the WHO report also highlights the need to further scale up action in other areas. Continued progress against NTDs will depend on wider progress towards the 2030 Agenda for Sustainable Development. Meeting global targets for water and

sanitation will be key, given the relationship between poor sanitation and transmission of many NTDs. WHO estimates that 2.4 billion people still lack basic sanitation facilities such as toilets and latrines, while more than 660 million continue to drink water from 'unimproved' sources such as surface water. Without these basic environmental changes, it will not be possible to make sustainable progress towards elimination.

About NTDs

- NTDs affect more than one billion people globally, but receive little attention.
- Funding for prevention, diagnosis and treatment falls far short of need.
- Closely linked to poverty, these diseases are often severe and disabling, or fatal if left untreated.
- 13 pharmaceuticals are donating billions of doses of drugs to support the world's largest public health programme.

Examples of Disease Burden

Chagas: a parasitic disease spread through biting insects is the leading cause of heart disease in Central and South America and afflicts 10 million people worldwide.

Dengue: infects up to 100 million people annually. More than 40% of the world's population lives in high-risk areas for the disease.
Leishmaniasis: a parasitic disease that causes disfiguring skin sores and internal organ damage, infecting up to two million people each year.
Onchocerciasis: a disease that has left over 750,000 people blind or visually impaired. So widespread in Africa that whole communities have fled fertile river valley homes.
Schistosomiasis: 206.5 million people require treatment and in 2016, only 88 million were reported to have been treated.

Economic Impact of NTDs

Hookworm: infects more than

576 million people globally and is the leading cause of anaemia and protein malnutrition. It causes an estimate of 43% reduction in future wage earnings.
Trachoma: world's leading cause of preventable blindness, resulting in an estimate of \$2.9 billion lost in productivity each year.
African sleeping sickness: there are 10,000 new cases of this disease each year resulting in an estimated loss of \$1.5 billion in agricultural income annually.
Dengue fever: for every US\$1 invested in surveillance and prevention for dengue fever, it has the potential to save US\$5 in illness costs.

Summary of progress against the London Declaration on Neglected Tropical Diseases

In December 2017, Uniting to Combat NTDs, a collective of global partners across the public, private, philanthropic and NGO communities, will launch its 'Fifth Progress Report' and Scorecard, tracking progress and challenges for the 10 diseases prioritised by the London Declaration.

date including: (1) diverse open partnerships in global health; (2) improved data and tools to reach remaining at-risk communities; (3) benefited from generous drug donations; (4) increased domestic country resources and improved programming to achieve impressive public health milestones.

Over successive reports this initiative has reported key factors that have contributed to successes to

The 2017 WHO NTD progress report, *Integrating Neglected Tropical Diseases in to Global Health and*

London Declaration NTDs		Coverage and impact milestones	Programme support milestones	Drug requests filed	Research	Overall progress
Preventive chemotherapy (PC)	Lymphatic filariasis	2	2	1	1	2
	Onchocerciasis	2	2	1	2	2
	Schistosomiasis	3	2	1	3	3
	Soil-transmitted helminths	1	1	1	2	1
	Trachoma	2	2	1	2	2
Innovative and intensified disease management (IDM)	Chagas disease	2	2	1	3	2
	Guinea worm disease	2	2	N/A	2	2
	Human African trypanosomiasis	1	2	1	2	1
	Leprosy	3	2	1	2	2
	Visceral leishmaniasis	1	2	1	2	1

- 1 Achieved or minor delay; or 90%-100% of requested treatments shipped
 2 Delayed by achievement anticipated; or 80%-89% of requested treatments shipped
 3 Delayed additional action required; or 0%-79% of requested treatments shipped

Source: Uniting to Combat NTDs: Fifth Progress Report and Scorecard (2017)



Theresa Aremu, 60, washes her face regularly with clean water and soap to keep away flies that spread trachoma, Uganda.

Development shows that significant progress was made in 2015 towards achieving the WHO NTD Roadmap targets. These achievements result from the implementation of the five interventions recommended by WHO to overcome NTDs, namely: preventive chemotherapy; innovative and intensified disease management; vector ecology and management; veterinary public health services; and the provision of safe water, sanitation and hygiene.

Looking forward, there are opportunities to achieve synergies in programming. The seven preventive chemotherapy diseases (ascariasis, hookworm infections, lymphatic filariasis, onchocerciasis, schistosomiasis, trichuriasis, and trachoma) are preventable by a simple oral drug treatment, administered once or twice a year. Due to the geographic overlap of endemic areas for some

NTDs, and a common requirement for preventive chemotherapy, an integrated approach to mass drug administration has been increasingly adopted. This integrated approach provides a means to make cost savings and increase efficiency compared to single-disease approaches.

Drug donations from the private sector

The implementation of the world's largest public health programme has been made possible by the availability of highly cost-effective treatment options, many of which have been donated by the pharmaceutical industry. Most people requiring a package of essential NTD medicines can be reached by mass treatment for less than US\$0.50 per person. This includes treatment for schistosomiasis, trachoma, lymphatic filariasis, onchocerciasis and soil-transmitted helminths. Without this generous support, announced at the London Declaration, and valued at US\$17.8 million to 2020, we would not have achieved the progress seen to date.

The sheer number of donated drugs being administered to scale is astonishing. In 2016, more than 1,500 tonnes of medicines used for preventive chemotherapy interventions were delivered through WHO to more than 100 endemic countries worldwide; more than one and a half billion tablets were delivered annually to countries that requested these medicines.

Year	2010	2011	2012	2013	2014	2015	2016
No. shipments	44	55	89	102	149	151	158
No. tablets (millions)	682	635	822	1002	1278	1519	1320
No. pallets	2198	2055	2598	3346	3684	3971	3760
Total weight (tonnes)	894	839	1057	1262	1490	1603	1590

Source: www.who.int/neglected_diseases/Medicine-donation-Revised-4-April-2017.pdf

■ Essential medicines donated by pharmaceutical companies through WHO and other platforms

Company	Medicine	Commitment	Donation
Bayer	Nifurtimox	2014 - 2019	Up to 320,000 tablets/year for treatment of human African trypanosomiasis Donated through WHO
	Nifurtimox	2012 - 2021	Total of 7,750,000 over five years for second-line treatment of Chagas disease Donated through WHO
	Suramin	Until 2020	Up to 10 000 vials/year for treatment of human African trypanosomiasis Donated through WHO
Esai	Diethylcarbamazine citrate (DEC) combined with Albendazole	2014 - 2020	Up to 2.2 billion tablets for preventive chemotherapy of lymphatic filariasis Donated through WHO
Gilead Sciences, Inc.	Liposomal Amphotericin B (Lyophilized 50 mg formulation)	2017 - 2020	Up to 380 000 vials for visceral leishmaniasis in South-East Asia and East Africa Donated through WHO
GlaxoSmithKline	Albendazole (400 mg tablet)	Since 1997 until global elimination of lymphatic filariasis is achieved Initial five-year period 2012-2016	Up to 600 million tablets/year for preventive chemotherapy of lymphatic filariasis Donation expanded by 400 million tablets/year for use in preventive chemotherapy of STH in school-age children Donated through WHO
Johnson & Johnson	Mebendazole (500 mg tablet)	Initial five-year period 2012-2016	Up to 200 million tablets annually for the treatment of soil-transmitted helminthiasis in school-age children Donated through WHO
Merck	Praziquantel (600 mg tablet)	Initial 10-year period 2007 - 2017 2017 for an unlimited period	Up to 200 million tablets/year for schistosomiasis in school-age children in Africa Since 2017, donation will be scaled up to 250 million tablets annually for the treatment of schistosomiasis. Donated through WHO

continued...

■ Essential medicines donated by pharmaceutical companies through WHO and other platforms (continued)

Company	Medicine	Commitment	Donation
Merck Sharp & Dohme (MSD)	Ivermectin (3 mg tablet)	Since 1987 until elimination of onchocerciasis in WHO's African, Americas, Eastern Mediterranean regions	Unlimited supply for the treatment of onchocerciasis and lymphatic filariasis; 7.8 billion tablets donated during the past 29 years; current annual donation is over 791 million tablets
		Since 1997 until elimination of lymphatic filariasis in Yemen, African countries co-endemic lymphatic filariasis and onchocerciasis	Donated through the Mectizan Donation Programme
Novartis	multidrug therapy (Rifampicin, Clofazimine, Dapsone) Loose Clofazimine in capsules	Since 2000 until the world is free of leprosy	Unlimited supply for the treatment of leprosy and its complications
		Since 2002 until the world is free of leprosy	Unlimited supply for the treatment of severe erythema nodosum leprosum reactions. Donated through WHO
	Triclabendazole	2016–2018	Up to 600,000 tablets for the treatment of fascioliasis and paragonimiasis Donated through WHO
Pfizer	Azithromycin	1998–2020	Unlimited quantity for elimination of trachoma as a public health problem; 500 million doses donated to date Donated through the International Trachoma Initiative
Sanofi	Eflornithine	Until 2020	Unlimited quantity for the treatment of human African trypanosomiasis Donated through WHO
	Melarsoprol	Until 2020	Unlimited quantity for the treatment of human African trypanosomiasis Donated through WHO
	Pentamidine	Until 2020	Unlimited quantity for the treatment of human African trypanosomiasis Donated through WHO

■ New opportunities in NTDs

WHO NTD List – In 2017, snakebite envenoming was added to the WHO list of Neglected Tropical Diseases. More than 95,000 people die every year because of snakebite, many of them residing in some of the world's poorest communities with a further up to 300,000 surviving victims with permanent physical disabilities or disfigurements. The Alistair Reid Venom Research Unit at the Liverpool School of Tropical Medicine (LSTM) has been an advocate of change to reverse the plight of tropical snakebite victims for over two decades. The Unit is currently working to develop a universal antivenom against the 21 most medically important snakes in sub-Saharan Africa. This work will see a broad collaboration between LSTM and the Instituto Clodomiro Picado, San Jose, Costa Rica and the Institute de Biomedicina de Valencia, Spain work to deliver a broad-spectrum, or poly specific antivenom which will be both effective and affordable.

Research – Rigorous research and new innovation remains an important part of the NTD response. DFID-supported NTD research includes both product development and operational research. This investment seeks to develop new drugs for sleeping sickness, visceral leishmaniasis, Chagas disease and diagnostics for sleeping sickness through the work of Drugs for Neglected Diseases Initiative (DNDi) and FIND respectively. DFID is also investing in development of new insecticides through the Innovative Vector Control Consortium and implementation research on the integrated approach to mass drug administration for tackling NTDs through COUNTDOWN, a five-year DFID funded project which brings together innovative and multi-disciplinary NTD researchers including the Liverpool School of Tropical Medicine, policy makers, practitioners and implementation research specialists from Cameroon, Ghana, Liberia, Nigeria, the UK and the

USA. The project is generating knowledge about the realities of increasing the reach of NTD treatment in different contexts.

Progress will only continue to be made by being innovative, testing new technologies and approaches to programming, and assessing how established approaches may need to be adapted to respond to different epidemiological and geographic contexts. It is critical that new research findings—both positive and negative—are shared so that lessons can be learnt about what forms of intervention are effective, and those that are not.

■ Challenges to continued progress across NTDs

As responses to diseases move towards the endgame, **evaluation and monitoring to ensure post-control surveillance will become critical** and will demand additional financing, which most national NTD programmes have not yet been able to mobilize.

Integrated vector control will help to combat multiple vector-borne diseases including some NTDs. Overcoming the threat of neglected zoonotic diseases will also require a multifaceted approach that bridges the human-animal interface, and mandates a broad and inclusive multi-sectoral programme of work to protect and improve the physical, mental and social well-being of humans.

While the NTD community has exhibited broad public, private and philanthropic partnerships to scale up treatment, for sustained progress the involvement of multiple sectors is critical, across veterinary, water, sanitation and hygiene, and must be aligned with the Sustainable Development Goals and universal health coverage in order to make sustained progress and lasting impact.



■ UK commitment to NTDs

The UK has had a long history of NTD support using its funding and influence to champion and help catalyse the academic, public and private sectors to take action. As NTDs primarily occur in rural and poor urban areas of low-income and middle-income countries, NTDs not only provide an important marker for global progress towards achieving universal access to health, but also towards the leave no-one behind agenda and the commitment that development should seek to improve the lives of the poorest and most vulnerable in the world.

To date, the UK and the USA have been the largest bilateral donors on NTD implementation, with the Bill & Melinda Gates Foundation also providing substantial support.

■ Key successes of UK NTD investment in 2016 include:

- Delivering over 136 million treatments for the diseases tackled through mass drug administration
- Reducing disability by supporting surgery for hydrocoeles due to lymphatic filariasis and surgery

to prevent blindness from trachoma.

- Funding has helped support Asia achieve elimination of visceral leishmaniasis as a public health problem; and supported African countries with visceral leishmaniasis to achieve better control, including earlier detection and response of outbreaks.
- UK support to the Carter Center has contributed to the eradication of Guinea worm disease: in 2016 there were 25 cases of Guinea worm disease in only three countries, down from more than three million a year in more than 20 countries when the programme started in 1986.

Britain will more than double its support over the next five years following the UK Government announcement in April 2017 of £360 million to support NTD programmes. This will mean a billion treatments for people at risk in the developing world as part of an international push to eliminate and eradicate these diseases for good.

The UK's total support package will:

- wipe out Guinea worm, which is transmitted through dirty water.
- eliminate visceral leishmaniasis in Asia, a parasitic

disease caused by infected sand-flies which destroy the internal organs.

- prevent up to 400,000 cases of blindness caused by trachoma, the leading cause of infectious blindness in the world.
- prevent tens of thousands of cases of disability caused by lymphatic filariasis, a mosquito-transmitted disease which can cause severe swelling of the lower limbs.

There has been much progress since the London Declaration. Yet NTD transmission continues in many countries, and hundreds of millions of people still do not have access to the treatments that they need. If the world is to achieve global targets we must continue to work in strong partnership and rise to tackle new challenges. The research community will also continue



Credit: IVCC

IVCC supports the Kilimanjaro Christian Medical University College (KCMUCo) field trial site in Moshi, Tanzania to achieve Good Laboratory Practice (GLP) certification, a first for Africa and vector control

to have an essential role to play – generating and testing the new tools and rigorous evidence needed to ensure that the burden of NTDs can continue to be reduced, and that no-one is left behind.

Key investments for NTDs in 2017

- April 2017: UK announced £360 million on implementation programmes and breaks down as follows:

- ✓ £205 million of new support from 2017/18 to 2021/22.
- ✓ £55 million for the next two years forming part of an existing UK commitment made at the London Declaration in 2012.
- ✓ £100 million allocated

from the Ross Fund portfolio, a £1 billion programme which brings together UK Government investments to tackle the world's deadliest infectious diseases.

UK pledge to invest in research and development for new NTD technologies included:

- April 2017: £48m to the Drugs for Neglected Diseases Initiative, for a range of NTDs including sleeping sickness

and visceral leishmaniasis.

- April 2017: £30m to Foundation for Innovative New Diagnostics (FIND) supporting diagnostic development for a range of diseases – malaria, TB, Chagas disease, sleeping sickness and epidemic diseases.
- April 2017: £10 million to the Coalition for Operational Research on Neglected Tropical Diseases.

Credit: Target Malaria



Stakeholder Engagement Officer leading a meeting with stakeholders in a village site in Burkina Faso

Credit: Target Malaria



Swarm sampling in a village site on an island in Uganda



Feeding of mosquitoes larvae in the laboratory in Burkina Faso

Credit: Target Malaria



District Eye Health Officer James Murambwe on a follow-up visit to Kataike Lakeri at her home the day after surgery for Trachoma Trichiasis (TT). Part of TT surgery outreach camp, Nsinze health centre, Namutumba district, Uganda. The camp funded via CBM UK by Queen Elizabeth Diamond Jubilee Trust

Credit: CBM

Summary of Events

During this reporting period the secretariat supported 11 public meetings in parliament, hosting a broad range of discussions from monitoring and surveillance to data sharing, country and regional partnerships to combat malaria and NTDs, and global health programming through a gender lens. The APPMG actively sought collaborations across four events with the APPGs on Global Health, HIV and AIDS, Global Tuberculosis, Population, Development and Reproductive Health. The APPMG also co-hosted two events with UK malaria advocates.

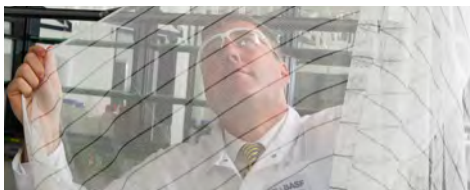
A Summary of events hosted by the APPG on Malaria and Neglected Tropical Diseases

■ 13 September 2016

Success and challenges to vector control

Malaria rates halved throughout sub-Saharan Africa between 2000 and 2015. These impressive gains reflect a change of emphasis to make vector control a priority in malaria-control programmes. Insecticide-treated bednets and indoor residual spraying accounted for 78% of the gains, according to an Oxford University-led consortium of international researchers. While malaria treatment programmes play a key role towards malaria control and elimination efforts, the need for continued investment in R&D and effective delivery and uptake of vector control tools will play an increasingly important role to meet the challenges of insecticide resistance.

Guest speakers included Dr. Nick Hamon, Chief Executive Officer, IVCC; David Malone, Chief Scientist, IVCC; Dr Peter Gething, Associate Professor in the Department of Zoology, University of Oxford.



Credit: BASF

BASF's Interceptor® G2 is a new insecticide treated net to combat insecticide resistance. Launched in 2017, this net introduces a safe and reformulated insecticide from agriculture into public health – a first in 30 years.

■ 18 October 2016

Surveillance – response systems: the key to eliminating NTDs

One year on from the official ratification of the Sustainable Development Goals, this meeting served to showcase the value of inclusion of NTDs in a universal framework for development. The growing importance of effective surveillance will be key to improving the delivery of NTD treatment programmes. Guest speakers brought together insights from country-level efforts in Mozambique, one of the least developed countries in the world and the fourth most disease-afflicted country in the world. Endemic for leprosy, early diagnosis remains crucial to prevent lifelong disability. While effective antibiotic treatment exists, in recognition of the growing importance of antibiotic resistance worldwide Leprosy Mission stressed improving data, monitoring and surveillance of NTDs were crucial in detecting future cases of drug resistance. The meeting also noted the re-emergence of NTDs in areas where control and elimination had been achieved as well as emergence in new areas i.e. the spread of Zika across Latin America, new occurrences of Buruli Ulcer in Australia and leishmaniasis in Italy. Many countries lack the sophisticated surveillance systems that are needed to monitor several public health threats simultaneously. Malaria Consortium highlighted the crucial role of communities in participating and improving surveillance and reporting systems to strengthen health services.

Tying these issues together involved looking at how global NTD stakeholders can deliver the 2030 Agenda for Sustainable Development. The inter-related nature of development calls for greater collaboration with water, sanitation and hygiene programmes and integration with broader health platforms to improve surveillance, referral systems and contribute towards improved health systems.

Guest speakers included Dr. Arie de Kruijff, Mozambique Country Director Leprosy Mission, Dr. Guiseppina Ortu, Senior Public Health Specialist, Malaria Consortium and Andrew Griffiths, Head of Advocacy, Sightsavers.

■ 22 November 2016

How does data-sharing support global health and policy?

Following recent publications by the UK Review on Antimicrobial Resistance (May 2016) and the UN High-Level Panel on Access to Medicines (September 2016), this meeting looked to showcase a wide variety of collaborations working to secure better treatment outcomes for patients suffering from malaria, NTDs and emerging infections. Key questions addressed included how we develop approaches from existing and new data initiatives to provide valuable evidence to inform government policy and practice, and questioned what are the health, funding and sustainability implications for policy makers, public health experts and disease-affected communities. This session addressed these questions through exploring the innovative approaches and learning from a group of data-sharing initiatives.

Guest speakers included Professor Phillipe Guerin, WorldWide Antimalarial Resistance Network, Laura Merson, Oxford University's Centre for Tropical Medicine & Global Health/Infectious Diseases Data Observatory (IDDO) and Drugs for Neglected Diseases (DNDi).

■ 6 December 2016

Christmas reception, jointly hosted with the APPG on Tanzania

A joint event with the APPG on Tanzania, the 2016 Christmas Reception marked 45 years of independence in Tanzania, as well as significant strides in progress across malaria and NTDs in the country. UK Government relationships with Tanzania through DFID have focused on wealth creation – scaling up programmes and increasing work with the private sector; achieving the Sustainable Development Goals in relation to education, health, nutrition, water and sanitation. Over the last 15 years, Tanzania has succeeded in reducing infant mortality and deaths from malaria have halved. Tanzania was one of seven governments (US, UK, United Arab Emirates, Bangladesh, Brazil, Mozambique), who participated in the official launch of the 2012 London Declaration against Neglected Tropical Diseases, the world's largest public, private and philanthropic collaboration delivering on public health.

Guest speakers included Tanzania High Commissioner to the UK, Her Excellency Dr. Asha Rose Migiro; Professor Alan Fenwick, Schistosomiasis Control Initiative/Imperial College; Professor David Molyneux, Liverpool School of Tropical Medicine; Jon Pender, Vice President Government Affairs, IP & Access, GSK; Professor Charlotte Watts, Chief Scientific Adviser, UK Department for International Development.

■ 13 December 2016

Global launch of the WHO 2016 World Malaria report, in partnership with the UK malaria advocates

This event was jointly supported by the APPG on Malaria and Neglected Tropical Diseases and the UK Malaria Advocates Network (IVCC, FIND, Malaria Consortium, Malaria No More UK, Medicines for Malaria Venture, PATH Malaria Vaccine Initiative and



Credit: Zure Lightfoot / Lightfoot Photography

Parliamentary launch of the WHO World Malaria Report 2016

the London School of Hygiene & Tropical Medicine). The then DFID Secretary of State, Rt Hon. Priti Patel MP provided the keynote address which showcased financial commitments to advance the development of new medicines and insecticides for malaria control.

Additional guest speakers included David Reddy, CEO Medicines for Malaria Venture, Dr Nick Hamon, CEO IVCC, Jeremy Farrar, Wellcome Trust and Dr. Pedro Alonso, WHO, Dr. Winnie Mpanju-Shumbusho, Board Chair, Roll Back Malaria Partnership.

■ 10 January 2017 Reflections from the 2016 WHO World Malaria report and new opportunities to tackle malaria

The WHO 2016 World Malaria report launched in December showcased significant successes including a reduction of new malaria cases globally by 21% from

2010-2015, as well as a global reduction in malaria mortality by 29% during the same time period. However, in many countries progress is threatened by the development and spread of antimalarial drug and insecticide resistance. Seasonal outbreaks of malaria continue to have a devastating impact and malaria remains a major killer of under-fives, claiming the life of one child every two minutes. This meeting included discussions to understand the cost effectiveness of a range of current and new interventions to decide malaria resource allocations in country, regional and complicated environments.

Guest speakers included Diego Moroso, Malaria Consortium shared recent data demonstrating the impact of seasonal malaria chemoprevention (SMC) in the Sahel region of Sub-Saharan Africa. This UNITAID-funded ACCESS-SMC programme is helping to shape the market for antimalarial drugs, and will demonstrate the feasibility, safety and effectiveness of SMC at scale

in reducing cases of malaria. Dr Peter Winskill, Imperial College, shared insights in to how evidence from the use of current and novel interventions can help to further guide the allocation of resources to combat malaria in endemic countries.

■ 21 February 2017 Oxford University, POST note student presentations – challenges in global health

This event was a cross-APPG collaboration between the APPGs on Malaria and NTDs, HIV and AIDS and Global Tuberculosis to host UK, Commonwealth and international students from the University of Oxford, Master's programme on International Health and Tropical Medicine, class of 2016-2017. Students were invited to present on four topics highlighting major global health challenges and aimed to support the skill development of health professionals in presenting policy research and recommendations to a parliamentary audience.

■ 21 February 2017 Marking the 5th anniversary of the London Declaration on Neglected Tropical Diseases

2017 marks the fifth anniversary of the 2012 London Declaration on Neglected Tropical Diseases, a unique global public/private/philanthropic partnership that is working to improve the lives of over one billion people around the world. This partnership is focusing to control, eliminate or eradicate 10 diseases by 2020. The UK Government has been an instrumental champion for these preventable and treatable diseases that affect the world's poorest communities. Over the last five years tremendous progress has been made; 60% of people at risk are now receiving treatment, drug donations from pharmaceuticals in 2015 alone reached

1.5 billion treatments and endemic country leadership and political will in Togo, Malawi and Uganda more recently have all played a key role in increasing domestic financing towards lymphatic filariasis and onchocerciasis elimination. Several countries in Latin America have been declared free of river blindness, including Ecuador, Guatemala and Colombia. We are now closer than ever to eradicating Guinea worm, a debilitating parasitic disease that affected 3.5 million people 30 years ago, with now only 25 cases reported in 2016.

Guest speakers included Ellen Agler, CEO, The END Fund (Mobilising Philanthropy for Public Good); Dr. Waleed Al Salem, Ministry of Health, Saudi Arabia (The Regional Threat of NTDs in the Middle East due to Conflict); Dr. Lesley Drake, Executive Director, Partnership for Child Development, Imperial College (Cross sectoral Partnerships to Scale Up Access to Treatment); Tijana Duric, GlaxoSmithKline UK/ NTD Drug Supply Chain Forum (Private Sector Partnerships in Action); Jerome St Denis, Foundation for Innovative New Diagnostics (FIND) (Innovations for Improved Tools to Combat NTDs as we near Elimination); Professor David Rollinson, Natural History Museum/ London Centre for NTD Research (Better Science, Better Tools and Better Delivery for the NTDs).

■ 26 February 2017 EDCTP: African-European partnership for global benefit

This joint meeting with the APPGs on Global Health, Malaria and NTDs, HIV/AIDS, Global Tuberculosis and on Population, Development and Reproductive Health, focused on the work of EDCTP in African-European partnership for global health benefit via genuine 'partnership of equals'. The meeting shared first-hand information on some of the life-changing outcomes from the partnership.

Guest speakers included EDCTP Board Chairperson,

Dr Mark Palmer, EDCTP Executive Director; Dr Michael Makanga; Dr Veronica Mulenga, Paediatrician at the University Teaching Hospital in Lusaka, Zambia; Professor Diana Gibb, Programme Leader Paediatric Programme of trials and cohorts at MRC Clinical Trials Unit, University College London; Dr Leonardo Simão, EDCTP High Representative for Africa; Professor Marcel Tanner, EDCTP High Representative for Europe; Dr Cissy Kityo, Deputy Executive Director of the Joint Clinical Research Centre, Uganda; Dr Line Matthiessen, Acting Director for Health Research in the Directorate General Research & Innovation, European Commission.

■ 14 March 2017

Addressing the women and girls agenda in the battle against malaria and NTDs

Following International Women's Day on 8 March, this joint event with the APPG on Population, Development and Reproductive Health discussed how stakeholders address gender in the battle against malaria and neglected tropical diseases (NTDs). It is vitally important to recognize that gender, either alone or with other key determinants of health, is an important driver of health outcomes for both men and women. A thorough understanding of the gender-related dynamics of treatment-seeking behaviour, as well as of decision-making, resource allocation and financial authority within households, is key to ensuring effective public health programmes. This meeting showcased how global health institutions address gender and gender dimensions of treatment programmes looking at case studies across intermittent preventative treatment of malaria in pregnancy, as well as the role and impact of women in community NTD treatment programmes.

Guest speakers included Professor Sarah Hawkes, Director UCL Centre for Gender & Global Health

(Gender in Global Health); Christian Rassi, Project Coordinator, Malaria Consortium (shared a case study on strengthening service delivery for malaria in pregnancy through a mHealth pilot intervention in West Nile, Uganda); Dr. Fiona Fleming, Schistosomiasis Control Initiative, Imperial College (presented on the role and impact of women in community based NTD programmes).

■ 18 July 2017

Within our grasp? How countries, regions and the Commonwealth can work towards a malaria-free world

A joint event with Malaria No More UK, this panel discussion with representatives from the Global Fund to fight AIDS, TB and Malaria, Roll Back Malaria, Elimination 8 campaign and Comic Relief, showcased regional platforms of collaboration and the opportunity for Commonwealth nations to come together to end malaria. Malaria was highlighted as a compelling story as to why aid and international cooperation works. Panellists highlighted concerns over plateaued global funding, remaining coverage gaps and the emergence of drug and insecticide resistance and discussed the value of mobilising the Commonwealth Heads of Government meeting in London in 2018 as a catalyst to reenergise global political will, commitment and funding.

Guest speakers included Joy Phumaphi, Executive Secretary, African Leaders' Malaria Alliance and former Botswanan Health Minister; Dr. Kesetebirhan Admasu, CEO Roll Back Malaria Partnership and former Ethiopian Health Minister; Dr. Marijke Wijnrocks, Interim Executive Director, Global Fund to Fight AIDS, TB and Malaria; Dr. Richard Kamwi, Elimination 8 Ambassador and former Namibian Health Minister; Adam Askew, Head of Funding Partnerships, Comic Relief

APPMG member activities

During this reporting period, the secretariat supported the Chair and members of the group to take part in global events on behalf of the APPG, championing continued UK investment in to malaria and neglected tropical diseases.

■ 18 April 2017

WHO Global NTD Summit, Geneva

The APPMG nominated Lord Alexander Trees to represent the APPG at the WHO Global NTD Summit in Geneva. With an audience including Bill Gates, co-Chair of the Bill & Melinda Gates Foundation, outgoing WHO Director General, Margaret Chan, and UK DFID Minister Lord Michael Bates, this two-day meeting culminated in a series of new financial commitments including from the UK Government made by then DFID Secretary of State, the Rt Hon. Priti Patel MP, just prior to the Summit. Lord Trees provided comments on behalf of the APPMG, supportive of the new UK contribution and highlighting the potential impact of scaling up existing treatments. He also highlighted concerns around the threat of zoonotic NTDs, calling for increased inter-sectoral collaborations.

■ 28 April 2017

Roundtable: research for impact and the G20. How can global health innovation drive sustainable development? Berlin

Jeremy Lefroy MP, Chair of the APPG on Malaria and Neglected Tropical Diseases, was invited to deliver a keynote address at a G20 discussion on global health research. Organized by Sovereign Strategy,

the round-table discussion engaged a wide range of researchers, product-development partnerships and research platforms including Coalition for Epidemic Preparedness Innovations (CEPI), Global Health Technologies Coalition (GHTC), Global Health Innovative Technology Fund (GHIT), Medicines for Malaria Venture (MMV), PATH, Sabin Vaccine Institute, TB Alliance, UNITAID and CARB-X. The objective of this meeting was to create a platform for cooperation and policy advocacy for an open and unique coalition of organisations. This group will work up to and following the Berlin declaration of the G20 Health Ministers and the Hamburg Summit.



Dr Arie de Kruijff, The Leprosy Mission, examining a young boy for leprosy patches, Mozambique

Credit: Paul Salmon for The Leprosy Mission England and Wales

Parliamentary debates

During this reporting period, the secretariat of the APPG produced more than 10 policy briefings across malaria and NTD treatment policy health systems strengthening and R&D for new tools, collaborating with expert stakeholders to disseminate several further policy briefs to support parliamentary debates.

■ 3 April 2017

Anniversary of the London Declaration on NTDs, House of Lords

The debate covered a wide range of topics around combating Neglected Tropical Diseases. A total of 15 peers spoke in the debate.

Baroness Hayman began the discussion, stating that the two aims for this debate were looking back and recording achievements in combating NTDs and to look forward and recognise the major challenges that remain if we are to meet the targets set in 2012 in the WHO's 2020 NTD road map and 2012 London Declaration.

Lord Stone of Blackheath spoke particularly on schistosomiasis elimination as a moral imperative and a cost-effective aim. Baroness Northover emphasised the need to make sure that treatments and preventive measures, such as vaccines, get where they are needed, and asked the government what part of the Ross Fund would be used to tackle NTDs. Baroness Chalker of Wallasey spoke of the need for clean water in tackling NTDs and stressed the need for more frequent debates on these vital issues. The Lord Bishop of St Albans talked about the need to adopt

clear protocols and joined-up approaches to ensure effective tackling of NTDs, as well as working with all the networks on the ground to address the social and religious contexts of those communities which are suffering from NTDs.

Lord Rea noted that tackling the causes requires the introduction of clean water, sanitation, improved hygiene and vector control where possible, and asked the Minister to provide assurance that the UK's contribution to the international collaboration on NTDs would continue to be adequately funded. Baroness Barker stressed the need to maintain the scientific base behind tackling NTDs which unites the complex strategy that is needed. Lord Alton of Liverpool spoke about the work of the Liverpool School of Tropical Medicine and its involvement in tackling NTDs. Lord Bishop of Peterborough highlighted the issue of leprosy and urged the Minister include leprosy in the funding priorities for the NTD programme.

Viscount Simon spoke of the need for synergy between malaria and lymphatic filariasis control programmes, and more widely of integration between malaria and NTD intervention programmes. Baroness Masham of Ilton talked about addressing tuberculosis and the need to focus on poverty in tackling NTDs,

and spoke of the need for enhanced collaboration and coordination on NTDs at national and international levels. Baroness Warwick of Undercliffe spoke of the need to accelerate progress to meet WHO road map targets, and of the importance of UK collaboration with European counterparts in order to help existing and new scientific partnerships flourish.

Baroness Sheehan explored three challenges of communicating key messages to effective communities, in-country training of medical practitioners to administer drugs effectively, and recognising that prevention and long-term sustainable control are key to success in tackling NTDs. She also asked the Minister to consider placing NTDs on the G20 agenda. Lord Collins of Highbury spoke of the devastating effect of NTDs on individuals and communities, the brunt of which is felt by women and children, and asked the Minister what assessment DFID has made of the impact of losing access to EU funding of research income following Brexit.

The Minister of State for DFID, Lord Bates responded to many of the questions asked by the peers, noting that there was no question of 'taking our foot off the pedal' as tackling NTDs is absolutely essential to achieving the UN sustainable development goals.

■ 20 April 2017

Tackling Infectious Diseases, House of Commons

This debate in the House of Commons on 20th April 2017, was supported by the parliamentary members of the APPGs on Global Tuberculosis, HIV and AIDS and Malaria and NTDs. The debate focused on research and development in relation to infectious diseases such as tuberculosis (TB), malaria, HIV and AIDS, and NTDs. The motion was moved by Virendra Sharma

MP (Labour) and six MPs spoke on the issue, with ministerial response from James Wharton the (now former) DFID Parliamentary Under-Secretary of State for International Development.

Virendra Sharma MP moved the motion and spoke in favour of increased research and development in how to tackle infection diseases around the world. Jeremy Lefroy MP stressed the importance of R&D and encouraged continued government spending on directly tackling these diseases. Wendy Morton MP welcomed the work of DFID, spoke of the proud record Britain has in this field and urged that even more be done. John Glen MP stressed the importance of UK aid budget and leadership in this area and spoke of the importance of vaccine development in the UK. Carol Monaghan spoke about the three main infectious killers (HIV, TB and malaria) and stressed the need for research and education regarding antibiotic resistance. Patrick Grady MP interjected twice to make points on antimicrobial resistance and the Centre for Virus Research in his constituency. Catherine West MP spoke on behalf of the opposition, questioned the Minister on the breakdown of resources allocated to infectious diseases R&D, and asked the Minister for continued commitment to vaccine development and antibiotic resistance. James Wharton spoke on behalf of the government, commenting on the value of witnessing cross-party consensus on this policy. He reminded the House of the UK record on these issues, and spoke about investments into research and in directly tackling these diseases.

Stakeholder perspectives

Key supporters of the APPMG offer their reflections on the year's progress and challenges, highlighting key opportunities to track in the coming year.

■ Malaria Consortium

Malaria Consortium works to extend access to effective prevention and treatment for NTDs, especially for the most vulnerable. Our expertise lies in surveillance, vector control, treatment, morbidity management and community engagement.

In the past year, we have provided deworming treatments for nearly 170,000 children in South Sudan, implemented community dialogues to increase the uptake of schistosomiasis treatment in Mozambique, and piloted an integrated malaria, schistosomiasis and soil-transmitted helminth approach in Ethiopia.

Wherever possible, Malaria Consortium seeks opportunities to integrate interventions and approaches, in order to improve cost-effectiveness and increase impact. We believe in the need to invest in the full complement of NTD approaches to progress the NTD agenda.

In particular, vector control has long been neglected for NTDs. We are working with the World Health Organization and partners to implement the newly launched WHO Global Vector Control Response, so that the potential of vector control for supporting NTD control and elimination can be realised.

Charles Nelson

Chief Executive



■ Malaria No More UK

Throughout this year, Malaria No More UK has worked with partners to encourage the UK Government to make malaria a priority when Commonwealth Heads of Government meet in April 2018.

Ninety per cent of Commonwealth citizens live in malaria-endemic countries. The Commonwealth makes up a third of the world's population but two thirds of the global population at risk of malaria. Sixty per cent of global malaria deaths occur in eight Commonwealth countries. There is no high-level international malaria forum that brings together this unique group of political leaders from countries with the highest burdens to ones nearing elimination and the centres of business, science and innovation driving progress.

The World Malaria Report 2017 shows that the world is at a crossroads and not yet on track to meet global targets to cut cases and deaths by a further 40% by 2020. Hard-won progress is at risk.

The Commonwealth Heads of Government Meeting is an unparalleled opportunity to leverage the UK's existing cross-sector investment and leadership in fighting malaria. By partnering with other political, business and science leaders, the UK can galvanise collective Commonwealth action, accelerate progress and put the world on a path towards ending malaria for good.

Lis Wallace

UK Advocacy Manager



Expert and Specialist Articles

This is a collection of unique short articles prepared by malaria and NTD experts to showcase specific challenges and opportunities across these issues.

Expert and Specialist Articles

■ Malaria in 2017: progress and challenges



*By Professor Azra Ghani,
MRC Centre for Outbreak
Analysis & Modelling,
Department of Infectious
Disease Epidemiology,
Imperial College London*

For the global malaria community, 2017 has ended on a sombre note with the news that progress in reducing malaria has stalled. Both malaria case and death estimates for 2016 (216 million and 454,000 respectively) are almost identical to those in 2015, though still significantly below levels estimated in 2010. It was perhaps no surprise to the community that such a plateau would eventually be observed given that global funding for malaria, although significantly higher than in the past, has remained at an almost constant level since 2010. Furthermore, in an increasing number of countries, rises in cases are being observed, potentially heralding the beginning of resurgence that history has shown to be all too frequent if efforts to control malaria are not sustained. Alongside this, resistance to both drugs and insecticides is increasing – with five countries in the Greater Mekong region experiencing resistance to both Artemisinin and partner drugs, and over 80% of countries in Africa reporting insecticide resistance. The World Health Organization has described this news as a ‘wake-up call’ – reiterating

the need for continued effort and funding to ensure that the world gets back on track with its goal to move towards malaria elimination.

Nevertheless, over the past year progress has been made in bringing a number of new tools to market. For vector control, an interim policy recommendation was issued by WHO for the deployment of new nets that contain an additional chemical (piperonyl butoxide or PBO) that blocks the pathway the mosquito had evolved to resist the killing effect of pyrethroids, thereby restoring full efficacy. In addition, a new insecticide for indoor residual spraying – SumiShield 50WG – recently received a policy recommendation and hence can now be considered for deployment in areas where resistance to the existing insecticides is high. April saw the launch of a new highly-sensitive rapid diagnostic test capable of detecting infection in individuals who may not show symptoms but could still potentially be onwardly infectious to mosquitoes. The use-case for this new diagnostic is now being tested in research studies. Tafenoquine – the first new drug for the treatment of Plasmodium Vivax infection in 60 years – is one step closer to market with the recent submission for approval to the US Food and Drug Administration (FDA). Finally, further progress has been made towards deployment of the RTS,S vaccine – with pilot implementation trials in three African countries (Ghana, Kenya and Malawi) due to begin early next year.

In addition, a successful investment campaign by The Global Fund in 2016/2017 for the period 2017-2020 (including a significant investment from UK government) has ensured that international support can be sustained in the near term. Modelling to underpin this investment case has shown that, if efficiently deployed, this level of funding could further reduce malaria cases and deaths by around 30% over the next five years. Additional investment from

endemic-country governments will also be critical to making further progress. One of the highest-burden countries – India – has made this commitment through the launch in 2016 of an ambitious malaria-elimination strategy, a lead which others will hopefully follow.

Malaria is at a crossroads; investment in both current and new tools can further decrease malaria and take us forward on the path to elimination but failure to act now could result in resurgence of cases and deaths. The UK is providing global leadership in this campaign; our sustained commitment in the coming years will therefore be crucial to ensuring that the global goals to end malaria for good are met.

■ Medicines for Malaria Venture: developing antimalarials, saving lives



*By David Reddy,
CEO Medicines for
Malaria Venture (MMV)*

MMV's mission is to discover, develop and deliver antimalarials that address key unmet needs in malaria-endemic countries. MMV is extremely grateful to DFID/UKAID for the substantial and long-standing support which has allowed us to transform key antimalarial drug projects into seven new medicines that are now positively impacting the lives of malaria patients in some of the world's most challenging areas. We estimate that since the first MMV partnership drug

was launched in 2009, these medicines have saved more than one million young lives.

The challenges malaria poses can be significant. With our partners, we are dedicated to developing the drugs needed to make greater inroads in the fight against malaria in line with the global elimination agenda, including easier-to-take medicines that can counter resistance, block transmission and cure relapsing malaria.

The world is gearing up to counter serious antimicrobial resistance (AMR), and this has led to a spotlight on malaria resistance. To help counter resistance, MMV has advanced eight promising new compounds from discovery into first-in-human studies. Preparing for the possibility that resistant malaria might become a threat outside of the Greater Mekong Subregion (GMS), we are advancing five next-generation compounds to overcome resistance. One of MMV's co-developed and launched ACTs, Pyramax®, can potentially play an important role in countries like Cambodia, in the GMS, where resistance is being reported in four of the five WHO-recommended ACTs. This ACT is now being considered for inclusion in WHO's standard treatment guidelines.

With constant support from our donors, we reached a key milestone in November this year, when the dossier for Tafenoquine, a potential single-dose radical cure for P. Vivax malaria, was submitted to the US FDA for regulatory approval. If approved, Tafenoquine could be the first new medicine for the prevention of relapse of P. Vivax malaria in more than 60 years, and could offer an important alternative to the current 14-day treatment, Primaquine. P. Vivax causes the relapsing form of malaria, which can be associated with progressively worsening anaemia and risk of death, particularly in vulnerable populations such as young children and pregnant women. Furthermore,



Credit: Damien Schumann

Reagan (bottom left) back home with his family after recovering from severe malaria. He was treated with injectable Artesunate and recovered in three days. Aceh, Uganda 2017

of people around the globe. We look forward to continuing our partnership with UKAID/DFID to progress other drugs through MMV's pipeline, especially in the face of increasing antimicrobial resistance, and ensure they are accessible to people who need them most. Together with our partners, we will do all that it takes to help end malaria for good.

■ Vision for the Commonwealth: trachoma free

By Dr Astrid Bonfield CBE, Chief Executive, The Queen Elizabeth Diamond Jubilee Trust

The Queen Elizabeth Diamond Jubilee Trust, set up in 2012 with the blessing of Commonwealth Heads of Government, has as its mission, through a single five-year programme, to enrich the lives of Commonwealth citizens and leave a lasting legacy in honour of Her Majesty The Queen and her remarkable service over 60 years as Head of the Commonwealth. After some initial research, how the Trust could accomplish this became crystal clear: 14 million people in the Commonwealth are blind, four out of five of them needlessly. Thanks to advances in science and technology, straightforward, tried and tested solutions exist to prevent or treat sight loss from a range of causes. One of these is a proven, successful strategy to eliminate blinding trachoma, the biggest infectious cause of blindness. The Trust's cause was found, and our five-year programmes to combat avoidable blindness in the Commonwealth designed and launched.

Chief amongst them is a programme, through the International Coalition for Trachoma Control, to combat blinding trachoma in Commonwealth Africa and Pacific. Around the world, nearly 182 million people live in trachoma-endemic areas and are at risk

of trachoma blindness. Trachoma is responsible for an estimated worldwide annual productivity loss of up to £6 billion. Blinding trachoma is endemic in 16 Commonwealth countries.

The WHO-approved strategy to eliminate it, SAFE, is straightforward enough: Surgery, for those in the advanced stages of the disease, to prevent damage to their eyes from in-turned lashes; administration of carefully-dosed Antibiotics to affected populations; Facial cleanliness and Environmental improvements to reduce transmission of the disease by flies. Straightforward only with leadership: a concerted effort of evidence-gathering, planning and collaboration is needed to achieve success. The Trust was fortunate enough to find that leadership amongst Commonwealth governments in the affected

countries. Progress has been swift: Kenya, Malawi, Uganda, Tanzania, Mozambique, Nigeria and Zambia have made great strides; in the Pacific, Solomon Islands, Kiribati, Vanuatu and Fiji are also progressing. Since 2014, the Trust's Trachoma Initiative has provided sight-saving surgery to more than 74,000 people and distributed over 17 million doses of antibiotics to more than 12 million people; 11 Commonwealth countries are on track to reach elimination thresholds by 2020.

In some cases progress has exceeded expectations: In Malawi, when the programme started in 2014, half the population, some eight million people, were at risk of losing their sight to the disease; now no one is. What was involved in getting to this point, and what it means in terms of lives transformed, a brighter future for children, and a life finally free of the excruciating



Credit: The Queen Elizabeth Diamond Jubilee Trust

Her Royal Highness The Countess of Wessex, Vice Patron of The Queen Elizabeth Diamond Jubilee Trust, in Malawi in Commonwealth Week 2017, observes face washing, part of the trachoma elimination programme



Her Majesty The Queen, accompanied by Astrid Bonfield, views the Time to See photo exhibition about avoidable blindness in the Commonwealth

pain of trachoma for existing sufferers, we were able to gauge when accompanying our Vice-Patron, HRH The Countess of Wessex, to Malawi in Commonwealth Week in March 2017. It is an experience I will never forget.

And it is why, with other leading organisations in eye health, we would like vision to be addressed at the Commonwealth Heads of Government Meeting in the United Kingdom in April 2018. We would like to see acknowledged the leadership shown by governments and the huge advances it has led to for their citizens; building on that success we would like the Commonwealth to commit to bringing vision to everyone, everywhere. Each Commonwealth country should commit to taking one significant step by 2020 and the next CHOGM, to bring closer a Commonwealth free of avoidable blindness and poor vision. One obvious step would be to commit to elimination of blinding trachoma. We know it can be done. What an achievement it would be for the Commonwealth and its people – and what a legacy in the name of its remarkable Head, Her Majesty The Queen.

■ Elimination through new partnerships

By the UK Coalition against NTDs

This year represented a moment to take stock of the progress made so far in the fight against NTDs, and then a moment to take action – with a bold re-commitment from UK Government. This should perhaps not come as a surprise, given that January 2017 marked the five-year anniversary of the London Declaration, when the global community came together in the UK capital to make a critical commitment to control, eliminate or eradicate 10 of the most damaging NTDs by 2020. Half a decade on, and with just three years to go, we have made impressive progress – in 2016 alone, and for the first time, more than one billion treatments were distributed for the treatment of NTDs. Throughout, the UK has continued to lead the way.

The Department for International Development will invest £360 million over the next five years, including £205 million of new funding, in order to rid the world of Guinea worm, eliminate visceral leishmaniasis in Asia, and prevent 400,000 cases of blindness caused by trachoma. In doing so, the UK has strengthened its position as the global leader in the fight against these diseases of poverty, which threaten more than 1.3 billion people worldwide.

The All-Party Parliamentary Group for Malaria and NTDs and its members can be proud of the role they have played in keeping NTDs high on the political agenda since the London Declaration, and for so successfully building and communicating the case for investment.

As we move into the final three years of the London Declaration, numerous challenges remain however:

- Firstly, the largest hurdle to overcome is a lack of funding. We need other donor countries to match the UK's commendable commitment with investments of their own.
- Donors alone will not be able to adequately fund the fight against NTDs – governments of endemic countries need to mobilise domestic resources, and there needs to be greater engagement of the private sector.
- We need to move to a more inclusive and cross-sectoral approach to tackling NTDs, in order to ensure that all population groups, including women, children, and people with disabilities, are reached with the interventions they need, so that no-one is left behind.
- Greater investment is needed into the neglected aspects of the NTD agenda, such as vector control, disease surveillance, 'water, sanitation and hygiene' (WASH) and morbidity management.
- There needs to be equal efforts to controlling or eliminating all 10 of the target diseases under the London Declaration, especially those where progress is slowest.

According to the World Health Organization, today more than one billion people are receiving access to essential medicines for neglected tropical diseases (NTDs). Through mass drug administration (MDA) or case detection and treatment, we are making progress towards the goals and targets set by the 2012 London Declaration for NTDs. However, for many of the high-burden NTDs it is likely we will need additional technologies, including vaccines, in order to meet these targets.

Helminth vaccines. New vaccines are under development for onchocerciasis, schistosomiasis, hookworm infection, and cysticercosis¹. Through The Onchocerciasis Vaccine for Africa (TOVA) initiative, a first-generation river blindness vaccine is being developed, especially for areas where Loa loa infection is co-endemic and where MDA using Ivermectin might not be possible^{1,2}. Similarly, a schistosomiasis vaccine is now believed to represent an essential technology for an elimination strategy for Africa³, with at least two vaccines now in clinical trials⁴. A hookworm vaccine is also under development to address the small public health gains achieved so far through MDA alone⁴.

Protozoan and other vaccines. New vaccines are also under development for leishmaniasis and Chagas disease. The leishmaniasis vaccine is urgently needed in the conflict zones of the Middle East, including Syria, Iraq, and Yemen, where the disease has re-emerged to affect hundreds of thousands of people⁵. A Chagas disease vaccine/immunotherapy may greatly augment the therapeutic efficacy of Benznidazole in patients with early stage heart disease⁶. Today 1.17 million people are affected by Chagasic cardiomyopathy. Vaccines for leprosy and Buruli ulcer are in different stages of development, with the former possibly being essential for interrupting transmission.

Despite the urgent need for NTD vaccines, these

■ NTD vaccines to meet London Declaration goals and targets



*By Professor Peter Hotez
MD PhD
Texas Children's Center
for Vaccine Development
(Product Development
Partnership),
National School of Tropical
Medicine, Baylor College of
Medicine, Houston, Texas
USA*

technologies mostly fall through the cracks in terms of international funding. For example, the new Coalition for Epidemic Preparedness Initiative (CEPI) so far has focused exclusively on perceived pandemic threats such as Lassa fever, Nipah virus infection, and MERS coronavirus infection, rather than the chronic and debilitating NTDs affecting millions of people living in poverty. The three PDPs currently developing NTD vaccines are also the smallest of all of the international PDPs and struggle to maintain international support.

Therefore, there is an urgent need for public-sector funds in order to allow NTD vaccine development to continue and for the pipeline to expand. At the same time there is a need to expand the number of global actors committed to NTD vaccine development. For example, there is almost no capacity in Africa and the Middle East for vaccine development currently, yet there is enormous potential for building the biotechnology sector in these regions. Through 'vaccine diplomacy' it is possible for the UK government to take on leadership in this new ecosystem⁷.

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■ Snakebite: a marginalised neglected tropical disease



By Robert A Harrison
Head, Alistair Reid Venom
Research Unit
Director, African Snakebite
Research Group
Liverpool School of Tropical
Medicine

Snakebite is a medical emergency that annually kills more than 115,000 people residing in some of the world's most disadvantaged subsistence farming communities, and leaves over 400,000 surviving victims with permanent physical disabilities, stigmatising disfigurements and chronic mental morbidity. It is the rural impoverished African, Asian and Latin American communities, and particularly the most economically-important and educationally-vulnerable 10-30-year-olds that suffer disproportionately high rates of snakebite

mortality and morbidity. Snakebite is therefore a significant cause of death, disability, poor quality of life and contributes to the prevailing poverty endured by tropical subsistence-farming communities.

While there have been some efforts to address this issue by some individual governments, civil society groups and academics, snakebite remains one of the world's most under-researched, under-resourced high mortality/high-morbidity tropical diseases. In the context of other diseases prevalent in the same regions – a quarter of the number of people that die annually from malaria (425,000) are dying from snakebite. In India, half the people dying from HIV/AIDS (100,000) die from snakebite every year and, in sub-Saharan Africa, 3-fold the number of people killed by the West African Ebola epidemic (11,000) die, every year from snakebite. Rural, tropical snakebite victims deserve and need the same level of recognition, support and investment afforded to malaria, HIV and Ebola patients.

After decades of such neglect and after recent advocacy efforts (from agencies such as Médecins Sans Frontières, the Kofi Annan Foundation), in early 2017 the World Health Organization (i) included snakebite in its list of priority Neglected Tropical Diseases and (ii) instituted an African antivenom pre-qualification programme. WHO's formal recognition of the neglect of tropical snakebite is likely to engender greater support for snakebite victims from tropical governments and international health agencies.

The UK Government has been quick to respond. Thus, the snakebite-domain expertise of the Liverpool School of Tropical Medicine enabled LSTM to compete for newly-available substantive investment from NIHR Global Health Research and DFID Product Development Partnership funding streams. In combination, these funds represent the most substantive global investment in tropical snakebite.



Close-up of dangerous horned viper in the Sahara

LSTM launched the NIHR-funded African Snakebite Research Group (ASRG) in mid-2017 to establish Snakebite Research and Intervention Centres (SRICs) in collaborating institutes in Kenya and Nigeria. This programme is heavily community focused and designed to identify multiple strategies to sustainably improve affordable access to effective healthcare and enable the SRICs to collate this information for providing Ministries of Health with context-informed guidelines on snakebite management. In powerful complementarity, the DFID-funded Product Development Partnership project (budget under negotiation) is designed, in partnership with world-leading antibody expertise of the International Aids Vaccine Initiative, to output the Next Generation of Snakebite Therapies to provide treatment with unparalleled (i) dose- and snake species-efficacy, (ii) safety and (iii) affordability – all acknowledged barriers to improving the current outcomes of tropical snakebite. Capacity strengthening is embedded in both programmes to ensure that outputs and lessons learned from the Kenya and Nigeria SRICs can be sustained and rolled out to neighbouring east and west African countries.

For more information, visit: www.lstmed.ac.uk/research/centres-and-units/the-alistair-reid-venom-research-unit

Sponsors

The APPG on Malaria and Neglected Tropical Diseases is grateful to the following organisations and coalitions which have sponsored it during the past year.

- **Malaria Consortium**
 - **Malaria No More UK**
 - **Medicines for Malaria Venture**
 - **PATH Malaria Vaccine Initiative**
 - **UK Coalition against Neglected Tropical Diseases**
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The APPG thanks GSK for its support in the publication of this report.



Contact information

Jeremy Lefroy MP

Member of Parliament for Stafford

House of Commons, London SW1A 0AA

Email: jeremy.lefroy.mp@parliament.uk

Front cover photo:

Mass drug administration in Tanzania; Danny Haddad / International Trachoma Initiative

Design and print by Red Giant; rglondon.co.uk