EXECUTIVE SUMMARY

MALARIA ERADICATION WITHIN A GENERATION

The Lancet Commission on malaria eradication

Malaria eradication within a generation: ambitious, achievable and necessary

50 years after a noble but flawed attempt to eradicate malaria in the mid-20th century, the global malaria community is once again seriously considering eradication. Momentum towards eradication has been building for decades, and more than half of the world's countries are now malaria free. Since 2000, a surge of global progress has occurred, facilitated by the roll-out of new technologies and the substantial growth in political and financial commitment by countries, regions, and their global partners. Annual domestic and international spending on malaria increased from roughly US$1·5 billion in 2000 to $4·3 billion in 2016. Simultaneously, the number of countries with endemic malaria dropped from 106 to 86, the worldwide annual incidence rate of malaria declined by 36%, and the annual death rate declined by 60%.

Inspired by these outstanding achievements, and troubled by a stagnation in progress that saw 55 countries report an increase in cases between 2015 and 2017, *The Lancet* Commission on malaria eradication (the Commission) was convened to consider whether malaria eradication is feasible, affordable, and worthwhile. In this report of the Commission, we synthesise existing evidence and new epidemiological and financial analyses to show that malaria eradication by 2050 is a bold but attainable goal, and a necessary one given the never ending struggle against drug and insecticide resistance and the social and economic costs associated with a failure to eradicate.

Global social, economic, and environmental trends are, in most places, reducing malaria. Our models show that these trends alone will lead to greatly reduced but still widespread malaria by 2050. When the effects of enhanced access to high-quality diagnosis, treatment, and vector control are factored in, the 2050 projections show a world largely free of malaria, but with pockets of low-level transmission persisting in a belt across Africa, from Senegal in the northwest to Mozambique in the southeast. In view of these projections, we explore the responses to the operational, biological, and financial challenges that are required to bend the curve (ie, to accelerate the decline in malaria cases and deaths) and achieve elimination everywhere outside of Africa by 2030 and worldwide eradication by 2050.

Operational obstacles limit the success of malaria programmes in many countries, including ineffective management, inadequate use of data to inform strategies, poorly incentivised staff, and disengaged communities. Solutions to most of these challenges are available and inexpensive but require access to management training and tools, which many malaria programmes do not have. Strengthening programme management and improving the availability and use of data for decision making are operational priorities which, if addressed, would enhance programme effectiveness and accelerate the path to malaria eradication. Leveraging the expertise and comparative advantages of the private sector and forming close partnerships with private health-care providers will further strengthen performance.

Multiple challenges arise from the complexity of malaria biology: malaria parasites and their mosquito vectors are constantly evolving resistance to widely used drugs and insecticides, the most common methods of parasite detection are not sensitive enough to identify all infections, simian malaria is now common in humans in parts of southeast Asia, and the effectiveness of standard vector control interventions is low in areas with the highest transmission intensity and where outdoor biting is common. Encouragingly, the research and development pipeline for drugs, insecticides, diagnostics, and vector control tools is robust. Promising new products with strong potential to overcome existing challenges have become available in the past five years or are scheduled to roll out over the next decade. Continued investment in research and development will be essential, with prioritisation of technologies that provide long durations of efficacy, do not require difficult or protracted compliance from individuals and households, and drive down malaria in high transmission or otherwise problematic settings.

The cost of malaria eradication is not known and will be highly dependent on managerial efficiency, the efficacy and cost of new tools, and the degree to which interventions can be targeted. Estimates suggest that annual spending of $6 billion or more is required; current global expenditure is approximately $4·3 billion. The Commission believes that an additional

investment of $2 billion per year is necessary, with a quarter of that coming from increased development assistance from external donors and the rest from government health spending in malaria-endemic countries. Securing additional funding will not be easy. Development assistance for health has plateaued since 2011, but opportunities exist for new and smaller donors to step in and fill the gap. In addition, our analyses show that government spending on malaria in high-burden countries has increased faster than their growth in gross domestic product, indicating that health in general, and malaria specifically, is a high priority. The opportunities for increased public expenditure on malaria and reduced reliance on donor funds need to be assessed and acted upon country by country. For both donors and countries, a shared and time-bound commitment to eradication will catalyse enthusiasm and financial support.

Strong and committed leadership and governance, reinforced through transparency and independent accountability mechanisms, are essential to ensure that eradication is achieved. Leadership and ambition are increasingly coming from the national and regional levels. Global malaria eradication will be achieved through regional elimination. Global organisations should focus on supporting and enabling countries and regions by developing guidance, coordinating across stakeholders, and advocating for sustained investment and research. There is value in closer collaboration and clearer definition of roles between the two apex organisations, WHO and the RBM Partnership to End Malaria. Opportunities also exist for greater alignment of policies and investment strategies between The Global Fund to Fight AIDS, Tuberculosis and Malaria and the US President's Malaria Initiative, the two major malaria funders. Finally, the Commission recommends the creation of an independent monitoring board for malaria eradication.

Beyond the obvious benefits of eradicating a disease that has caused untold morbidity and mortality throughout human history, malaria eradication also contributes to broader health and development goals. Strengthening global health security and meeting many of the Sustainable Development Goals—including achieving universal health coverage, promoting equity, and reducing poverty—are all supported and reinforced by progress towards malaria eradication, and vice versa. Malaria eradication has multiple benefits for human welfare and prosperity, the value of which will greatly exceed the investment required to get the job done.

In this report, the Commission concludes that malaria eradication is possible, worthwhile, and affordable, and that the alternatives to eradication are untenable. We identify opportunities for specific actions that will overcome challenges and accelerate progress, starting with an immediate, firm, global commitment to achieving eradication by 2050.