

Foreword



Malaria remains one of the leading causes of mortality worldwide, especially in children and pregnant women in Africa and resource-poor parts of Asia and South America. It accounts for nearly 11% of all deaths in children under five years old in low income countries and around 18% of death of children in Africa. Reducing this burden of disease is essential if we are to reach the internationally agreed UN Millennium Development goals over the next decade, particularly in sub-Saharan Africa.

The two years covered by this report have seen increasing resistance to commonly used drugs and insecticides worldwide, the continuing challenges of vaccine development and increasing evidence of the negative effects of weakened health systems which do not have the capacity needed to deliver effective interventions even when they are available. Finding solutions to these problems is recognised as one of the key challenges for research which aims to improve global health.

This report demonstrates the quality and range of research being undertaken on malaria by the staff of the London School of Hygiene & Tropical Medicine in collaboration with research partners in many countries. Tackling malaria systematically requires advances in areas ranging from basic science of the parasite, drug discovery and immunology, to field studies of methods to prevent and treat malaria, and on to studies of the socioeconomic and social aspects of malaria. The Malaria Centre brings together outstanding researchers from many disciplines to make innovative and rigorous contributions to the advancement of knowledge on malaria across this range. It is the capacity to work across so many inter-connecting aspects of malaria simultaneously, and to undertake cross-disciplinary research which characterises the Centre and makes it such a key contributor to the intellectual environment of the School as well as to the global pool of knowledge needed to tackle this devastating disease.

A handwritten signature in black ink that reads "Andy Haines". The signature is written in a cursive style and is underlined with a single horizontal line.

**Professor Sir Andrew Haines,
Director, LSHTM**

Introduction

The Malaria Centre at the London School of Hygiene & Tropical Medicine (LSHTM) exists to bring together scientists from a wide range of disciplines to conduct research which will lead to a reduction in the burden of malaria worldwide. Over the two years covered by this report there has been a recognition that the scale of the malaria problem worldwide has if anything been underestimated, especially in Asia. The spread of drug-resistant malaria parasites and insecticide resistance mosquito vectors has continued steadily, so that conventional methods of control and treatment are becoming less effective.

At the same time there have been positive developments which hold hope for the future. Systematic investment into research to develop new drugs and to a lesser extent new insecticides, ranging from the biology of the malaria parasite and vector through to epidemiological trials is beginning to bear fruit. Advances in the understanding of immunity to malaria continue the slow but steady progress towards the point where a malaria vaccine can be deployed. A new method of preventing malaria using intermittent preventative treatment in infants and children has shown considerable promise. Improvements in our ability to predict malaria epidemics, to diagnose malaria using rapid tests, and to identify the most effective and cost-effective ways to deploy existing and new interventions have continued. Members of the Malaria Centre have contributed to all these developments. Research is not an end in itself, and the introduction of new funding mechanisms, and in particular the Global Fund to fight AIDS, TB and malaria mean that there is a realistic chance that, once they are identified, effective interventions can be deployed in the most vulnerable countries.

Some of the fundamental questions which need to be answered if we are to reduce the impact of malaria can be answered using skills from single scientific disciplines such as immunology, molecular biology, epidemiology or clinical research. Many of the most important barriers to effective prevention and treatment of malaria, especially amongst the poorest and most vulnerable, can however only be overcome using research which cuts across traditional scientific boundaries. Research into health systems, and how interventions can be integrated into normal practice is critical if new advances are to be implemented. The Malaria Centre, by bringing together work from laboratory, field, economic and social sciences can tackle these questions, and examples of the results of crosscutting scientific studies exist throughout this report.

In addition to the scientific work described in this report members of the Malaria Centre continue to be heavily involved in providing technical support for the formulation of international and national policy for malaria control and treatment including for the WHO and other agencies and in malaria-affected countries, as well as providing national reference and advisory services on malaria for the UK. Members of the Centre provide teaching and training on malaria both in London and in other centres in the UK and in many countries overseas, through conventional courses and distance based learning.

The work of the Malaria Centre would not be possible without the collaboration of many individuals and institutions in over 40 countries, or without the generous support of funding agencies and these are acknowledged in individual projects. Core support for the Malaria Centre was provided over the period of this report by the Medical Research Council (MRC) and the Gates Malaria Partnership.



Christopher Whitty
Director, LSHTM Malaria Centre