



FOREWORD

Malaria causes around a million child deaths a year worldwide and accounts for nearly 11% of all deaths in children under five years old in low income countries. This is an unacceptable toll which must be substantially reduced if we are to reach the internationally agreed UN Millennium Development Goals over the next decade, particularly in Sub-Saharan Africa.

It is gratifying to see that the relative neglect of research on malaria in recent decades is now being reversed. However, there is no room for complacency. Increasing resistance to commonly used drugs and insecticides, the continuing challenges of vaccine development and the pervasive weakness of health systems needed to deliver effective interventions, all indicate why further research is needed.

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. School staff are contributing to global knowledge on malaria using a range of methodological approaches and study designs which address a spectrum of research priorities. The Malaria Centre brings together outstanding researchers from a range of disciplines to make innovative and rigorous contributions to the advancement of knowledge on malaria. It is the capacity to work across so many inter-connecting aspects of malaria simultaneously 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.

Professor Andy Haines, DEAN, LSHTM

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INTRODUCTION

After many years of neglect, malaria is once again attracting attention from the international community. Through the Global Fund to fight AIDS, Tuberculosis and Malaria and other donor initiatives more funds are now becoming available for malaria control than at any time since the malaria eradication programmes of the 1950s; in absolute terms, current funding for malaria control represents an all-time high. Insecticide-treated nets and, more recently, intermittent preventive treatment in pregnancy are both being promoted vigorously as preventative measures and many countries in malaria endemic areas have appreciated the need to change to more effective first line drugs than chloroquine or sulphadoxine-pyrimethamine, even though these new approaches to treatment are more expensive to purchase than existing therapies.

These enhanced efforts to control malaria will only succeed if they are based on a sound scientific basis. Thus, control efforts must be supported by well-thought out and innovative operational research programmes. The emergence of resistance to drugs and insecticides by parasite and vector respectively remains a constant threat to efforts at malaria control and an expanded programme of research to identify new drugs and insecticides for use in the future is needed. Some believe that in the most highly endemic areas, malaria control will only be achieved with the help of a vaccine and research is needed in this area also. For these reasons, the research programme needed to underpin current enhanced efforts at malaria control must be broad-based, extending from basic laboratory research on the molecular and cellular interactions between parasite and host which may lead to the development of new drugs and vaccines to very applied research aimed at identifying how current tools can be used most effectively and their uptake increased. Scientists at the London School of Hygiene and Tropical Medicine (LSHTM) work across this broad spectrum.

The Malaria Centre at LSHTM was established in 1998 to facilitate interdisciplinary research on malaria at the School and to promote links with collaborators in malaria endemic countries. This report describes work conducted by staff who are members of the Centre during the two-year period 2002/2003 and illustrates the wide range of malaria research activities that the School is supporting including studies in the areas of epidemiology, immunology and vaccine development, molecular and cell biology of the parasite, drug discovery and evaluation, vector control and economic and social studies. This broad-based programme ensures that the many MSc students enrolled at the School whose courses cover some aspect of malaria control and the approximately 40 PhD students who have chosen a malaria topic as their research project have access to a wide range of expertise.

For convenience, the account of each individual study lists first the LSHTM investigators involved in the study. However, in many cases the initiative for the study has come from one of the School's many collaborators across the malaria endemic world and they have been responsible for much of the work described. Providing a means through which malaria researchers across the world can establish contact with each other is one of the important functions of the LSHTM Malaria Centre.

Below each report you will find a contact address at LSHTM. If you want to learn more about any individual study and/or would be interested in developing a collaboration in this area please contact this person; let me know if you have any difficulty in doing this.

I hope that you will enjoy reading about some of the activities of the LSHTM Malaria Centre during the past two years.

Professor Brian Greenwood, DIRECTOR, LSHTM MALARIA CENTRE