

University of Oxford news release

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International network receives \$20m to combat malaria drug resistance

An international network of malaria scientists is to be established to map the emergence of resistance to antimalarial drugs and guide global efforts to control and eradicate the disease, thanks to a \$20m (£12.5m) grant from the Bill & Melinda Gates Foundation.

The WorldWide Antimalarial Resistance Network (WWARN) will provide the comprehensive and rigorous evidence base needed for policy makers to select the best antimalarial treatments and to formulate strategies to control the critical problem of resistance wherever it arises.

'With this critical mass of data, we will have powerful evidence to help inform decisions by policy makers,' says Dr Philippe Guerin, Director of WWARN and an epidemiologist in the Centre for Tropical Medicine at the University of Oxford. 'It is crucial that we provide all patients with access to the right drugs at the right time.'

A meeting to launch the network begins today, Friday 12 June, in Hinxton near Cambridge, UK.

Malaria is preventable and treatable, yet one million people die from malaria each year, most of them children. About 2.5 billion people, or 40% of the world's population, are at risk of the disease. These people mainly live in the poorest countries of the world, those least able to provide effective controls against the disease.

Prevention of infection is one important facet of malaria control, but with no vaccine against malaria, treatment relies on antimalarial drugs. The World Health Organization (WHO) has declared that the emergence of resistance to these drugs is a crucial problem, which could seriously undermine efforts to control the disease.

WWARN will integrate the efforts of researchers, NGOs and public health experts in malaria-endemic areas around the world. Four years in planning, the initiative was born in the scientific community as malaria scientists became aware that broad collaboration was critical to achieving the long-term goal of eliminating the disease. The international collaborative effort will be administered and supported from Oxford University. WWARN will work in close collaboration with WHO to enhance antimalarial resistance surveillance.

The collaboration will provide a platform for all malaria scientists to share results, improving the coverage, quality, and timeliness of the available data. This will give an up-to-the-minute picture of the effectiveness of antimalarial drugs at national, regional and global levels, and enable policy makers to respond more quickly to early signs of resistance.

'Everyone involved in the war against malaria understands that this is critical,' says Professor Carol Sibley, Scientific Director of WWARN. 'We need to gather the very best intelligence to alert the malaria community to signs of resistance and mobilize our best weapons on the frontline.'

While the *Plasmodium* parasite that causes malaria has been resistant to older drugs such as chloroquine and sulphadoxine-pyrimethamine for some time, evidence emerging from

Cambodia suggests the parasite is even developing a tolerance to artemisinin. This recently developed drug, made from a Chinese herb, is the best line of defence against malaria and it is critical that we contain any resistance to artemisinin.

'Antimalarial drug resistance is the greatest biological threat to the global initiative to eliminate malaria. We need readily accessible, quality assured and up-to-date information on antimalarial drug resistance if we are to win the war. WWARN will provide this essential intelligence' says Nick J. White, Professor of Tropical Medicine at Mahidol University in Thailand and Oxford University, and Chair of the Board of WWARN.

Current guidelines stipulate that artemisinin should be given in combination with other antimalarials to protect as much as possible against the development of drug resistance. However, this advice is being undermined by the lack of access to artemisinin combination therapies, their cost, and the prevalence of poor quality and counterfeit drugs in many parts of the world. One recent study from South East Asia found that 195 antimalarial drug samples out of 391 were fake.

'This situation is the best way to ensure the malaria parasite rapidly develops resistance to our best treatments,' says Dr Guerin. 'We must do better. Poor quality or fake drugs expose the malaria parasite to smaller amounts of the drug which gives the parasite the opportunity to evolve ways to evade the drug.'

For more information please contact Philippe Guerin, Director of WWARN at the Centre for Tropical Medicine, University of Oxford, on +44 (0)7826 651882 or philippe.guerin@wwarn.org

Or the Press Office, University of Oxford on +44 (0)1865 280530 or press.office@admin.ox.ac.uk.

Notes to Editors

* WWARN will focus on four areas critical to the control and elimination of malaria:

- Establishing reliable information on antimalarial drug effectiveness around the world;
- Rapidly identifying new areas of drug resistance
- Bringing together pharmacological data on drugs with molecular and in vitro information on resistance to optimise combination therapies; and
- Mapping global trends in antimalarial resistance.

* The overall WWARN initiative will be led by director Philippe Guerin of the University of Oxford and research director Prof Carol Sibley of the University of Washington in Seattle. Oxford University will provide the necessary IT infrastructure and software for sharing datasets on this scale. Menzies School of Health Research in Darwin, Australia, and the University of Oxford will lead the clinical efficacy module. The Center for Vaccine Development at the University of Maryland School of Medicine will lead the molecular markers module. The Centre National de Reference du Paludisme at the Institut de Médecin et d'Epidémiologie Appliquée (IMEA) in Paris, France, will lead the in vitro module. The University of Cape Town, South Africa, together with Mahidol University, Thailand, will lead the pharmacology module. Regional sites will be established in East Africa, West Africa, Asia and Latin America to coordinate with scientists and public health groups involved in the collection of data.

* **Oxford University's Medical Sciences Division** is one of the largest biomedical research centres in Europe. It represents almost one-third of Oxford University's income and expenditure, and two-thirds of its external research income. Oxford's world-renowned global health programme is a leader in the fight against infectious diseases (such as malaria, HIV/AIDS, tuberculosis and avian flu) and other prevalent diseases (such as cancer, stroke, heart disease and diabetes). Key to its success is a long-standing network of dedicated Wellcome Trust-funded research units in Asia (Thailand, Laos and Vietnam) and Kenya, and work at the MRC Unit in The Gambia. Long-term studies of patients around the world are supported by basic science at Oxford and have led to many exciting developments, including potential vaccines for tuberculosis, malaria and HIV, which are in clinical trials.