

Malcolm Molyneux: Building research capacity in Malawi

SUMMARY

Malcolm Molyneux and colleagues have built international-standard clinical research facilities and training schemes in one of the world's most under-resourced countries – Malawi. In the 1990s he recognised the potential of the newly established College of Medicine at the University of Malawi as a major centre for medicine in the tropics. This vision has become the Malawi–Liverpool–Wellcome Trust Programme for Research in Tropical Medicine – one of the Trust's Major Overseas Programmes. This centre of excellence has trained local scientists, medical students and doctors in Malawi and internationally.



Background

Malawi, one of the most under-resourced countries in Africa, faces major challenges from malaria and HIV. Malaria is responsible for 30 per cent of deaths in children under five and 30 per cent of all hospital admissions, while HIV affects 14 per cent of Malawi's population and over 70 per cent of adults in medical wards are infected with the virus.

Malcolm Molyneux worked as a doctor in Malawi from the mid-1970s to mid-1980s, first in a mission hospital and then in the national hospital in Blantyre. In 1995, after 11 years in Liverpool, he returned to Malawi to set up a research programme in Blantyre – to function as the principal overseas focus for the newly formed Wellcome Trust Centre for Research in Clinical Tropical Medicine at the University of Liverpool (which he established with his colleague Professor Peter Winstanley).

Advance

Based at the University of Malawi's College of Medicine, the Malawi–Liverpool–Wellcome Trust Programme for Research in Tropical Medicine has become a thriving centre for biomedical science in the tropics and contributed high-quality research and clinical practice in the fight against malaria, HIV/AIDS and associated infections. The research unit is closely involved in the wards of the hospital, which allows the research to respond to local priorities and contributes to good clinical practice – as scientists and clinicians can work together.

In January 1999, Trust-funded research laboratories were officially opened in Blantyre. The facilities also include a high dependency ward with X-ray machines, a clinical laboratory and an endoscopy suite. Core funds from the Wellcome Trust maintain the centre, and Trust-funded research fellowships and project grants have also been awarded to many participating biomedical scientists and clinicians.

The research projects at the centre focus on diagnosis and treatment of malaria and HIV-related infections. Working with the Ministry of Health's national Malaria Control Programme, the centre has carried out a series of trials of existing and new antimalarial therapies: testing new artemisinin combination therapies (ACTs) for the treatment of malaria, assessing suppository treatment for severe malaria (of potential value at village level) and evaluating new possibilities for the control of both parasites and mosquitoes. Meanwhile, the biggest autopsy study ever of children with fatal malaria showed that some who had died of what had appeared to be severe malaria actually had a different diagnosis. The autopsies have helped the team to understand the importance of changes in the retina associated with malarial infection, which may lead to improved diagnosis of the disease.

Other studies have examined bacterial infections to which HIV-infected people are prone (especially *Streptococcus pneumoniae*, non-typhoidal salmonellae and tuberculosis), rotaviruses (the most common cause of gastroenteritis in infants), viral infections causing coma and convulsions, and the widespread problem of anaemia in children and in pregnant women.

How it's making a difference

The centre works closely with the College of Medicine at the University of Malawi to improve diagnosis and treatment of diseases such as malaria, HIV/AIDS, anaemia and tuberculosis. This research has been used to advise healthcare strategy in Malawi. It has also contributed to the worldwide fight against these diseases. For example, the rotavirus study – the most comprehensive description of rotaviral infection in an African population, which identified new strains of the virus – led to Blantyre being the main site of a major trial of rotavirus vaccination.

A major focus of the centre's work has been the training of local doctors and graduates – the people who will become the country's health leaders in both medicine and research. International trainees and scientists have also benefited from the research capacity at the centre – for example, through the close links with the Wellcome Trust Tropical Centre at the University of Liverpool, elective exchanges have been set up between clinical scientists in Oxford and Malawi.

Through his work at the Malawi–Liverpool–Wellcome Trust Programme, Malcolm Molyneux has become a leading expert in tropical medicine. As such, he chaired a malaria working group for the Ministry of Health, Malawi, and was founding editor of the *Malawi Medical Journal* (formerly the *Medical Quarterly*). Internationally he has worked with the World Health Organization and the Gates Foundation on developing malaria vaccination programmes.



Next steps

Malcolm Molyneux retired from his directorship of the centre in August 2007 – he was succeeded by Professor Rob Heyderman – although he remains an Honorary Consultant at Malawi University's College of Medicine, and will continue with his teaching and on-call duties at the hospital in Blantyre. He also intends to continue with research at the centre and to maintain his links with the University of Liverpool and the Liverpool School of Tropical Medicine.

References

Barry M, Molyneux ME. Ethical dilemmas in malaria drug and vaccine trials: a bioethical perspective. *J Med Ethics* 1992;18(4):189–92.

Hill AV et al. Extensive genetic diversity in the HLA class II region of Africans, with a focally predominant allele, DRB1*1304. *Proc Natl Acad Sci USA* 1992;81(3):413–8.

White NJ et al. Averting a malaria disaster. *Lancet* 1999;353:1965–7.

Molyneux ME. Impact of malaria on the brain and its prevention (Commentary). *Lancet* 2000;355:671–2.

Molyneux ME. Malaria. In S Tomlinson (ed.). *Mechanisms of Disease*, 2nd Edn. Cambridge: Cambridge University Press; 2008.

Timeline of Malcolm Molyneux

