

Mosquitoes - Breeding Africa's Next Generation of Malaria Scientists

By Dr Richard Kamwi and Dr Havana Chikoto

It has been over 110 years since Ronald Ross made the discovery that female *Anopheles* mosquitoes transmit malaria, which we commemorate today, on World Mosquito Day. This discovery was a pivotal moment in the modern battle against this terrible disease.

In the intervening century, the world has made unbelievable strides in the fight against malaria. But both the mosquito and the malaria parasite are wily foes with the ability to develop resistance against the tools we use against them.

A recent study, Malaria Futures for Africa (MalaFA), questioned malaria leaders in 14 African countries about their views on the fight against malaria. The report, commissioned by the healthcare company Novartis, revealed that many of them are highly concerned about resistance to artemisinin combination therapies (ACTs) emerging. The early stages of resistance to ACTs, the current standard treatment recommended by the World Health Organization (WHO) against malaria, have emerged in Southeast Asia and been observed in several countries there.

Strains resistant to earlier malaria medicines have spread to Africa from Southeast Asia, resulting in a big increase in malaria deaths as treatments like chloroquine became ineffective. Some of the experts questioned thought such resistance would spread faster because of today's vastly increased trade and travel



Image: Sir Ronald Ross (Source: sahistory.org.za)

links between Africa and Asia, but many of them thought that spontaneous emergence of ACT resistance in Africa is just as likely.

To stave off the threat of malaria becoming resistant to today's medicines, we need to ensure that new treatments will be available before they stop working. So scientists are working hard to develop them before the threat of resistant malaria becomes a reality in Africa. But Africa needs to maintain and strengthen its network of strong scientific leaders in malaria for the disease to be eradicated.

Novartis is one of the companies taking up the challenge to stay one step ahead of the parasite, and we are particularly excited that they are collaborating with some of Africa's best and brightest scientists to develop new treatments. One of the biggest malaria clinical trials with a new treatment running at the moment is with a medicine called KAF156. This Novartis sponsored clinical trial is currently being conducted across 15 trial

sites in seven African and two Asian countries, including Mali and Uganda.

Dr Havana Chikoto is in charge of running the KAF156 malaria trial for Novartis.

Running a large trial like this is a complex process, requiring specialised laboratory equipment, cold chains for samples sent off for analysis, and reliable internet connections. However, the greatest need is for trained scientists who must run the trials. In many established centres, there are many such scientists, but in more remote areas, there are often very few – or none. And we need to go to such remote areas, where the disease is most common, and the impact on people's lives the greatest.

Novartis is working with local clinical trial centres to make sure that the scientists running the KAF156 trial conduct it to the highest possible standards. The current trial, running across nine countries and enrolling more than 500 patients, is big. However, if it is successful, it will need to be followed by a further Phase 3 trial that may need to enrol perhaps 2,000 patients. This will involve setting up many more centres and training additional African scientists, many of whom will be in remote areas.

And this new generation of investigators we're training will not just be equipped to work on malaria trials – their training and experience will ensure they are ready to work in other diseases such as TB or HIV.

This shows how effective collaboration pays real dividends in building up the next generation of African scientists. Working together, we have the power to end malaria for good.

Dr Richard Kamwi is the Ambassador for the Elimination 8, a coalition of eight southern African countries that aim to eliminate malaria by 2030. He was formerly minister for health in Namibia.