Simple rapid diagnostic tests for malaria work well

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When a person living in a malarial area gets a fever, health workers need to know the cause to make absolutely sure they give the right treatment. For many years in sub-Saharan Africa primary health workers have often assumed a fever is caused by malaria, and given antimalarial drugs. This approach means sometimes people receive the wrong treatment for their illness. It also wastes resources and, over time, can promote resistance to available drugs.

A new *Cochrane Systematic Review* examines the accuracy of Rapid Diagnostic Tests (RDTs), which are designed to detect malaria based on the presence of parasite antigens, using a quick and easy to use format. The World Health Organization (WHO), now strongly recommends health staff confirm a malaria diagnosis prior to treatment with artemisinin combination therapies (ACT's), but in many settings, this demands a major shift in practice and is not as easy as it may seem to adopt.

Up until recently, confirming a diagnosis of malaria infection was done by detecting parasites in a blood sample using a microscope. This requires highly trained staff, reagents and equipment, all of which are in short supply in many areas where malaria is common. RDTs use carefully manufactured molecules (antibodies) that when in contact with an infected patient's blood can bind with the malaria parasites and trigger a colour change on a test strip that can be easily seen with the naked eye. While these tests are technically difficult to manufacture, once built they are relatively simple to perform, require no specialised equipment and

provide accurate results in many geographical settings.

"After reviewing available data in 74 different studies, we can say that the these antigen-detecting tests will identify at least 19 out of 20 cases, a success rate that would be very useful in clinical practice," says Katharine Abba, who carried out this review at the Liverpool School of Tropical Medicine, UK.

"The use of Rapid Diagnostic Tests is another step towards reaching the goal of universal accuracy in the diagnosis of malaria and key to ensuring that the correct treatment is given to patients. Resources can be saved with the rational use of anti-malarial drugs and it will also reduce the pressure on drug resistance."

There are various different RDTs designed to detect the malaria parasite. "All the tests performed reasonably well, but we do need more research to address issues such as how easy these tests are to use and what barriers there may be to adopting them," says Abba.

Malaria is caused by the parasitic protozoan Plasmodium. It causes high fevers, headaches and aches and pains elsewhere in the body. If not treated early, malaria quickly evolves from an uncomplicated state into a severe disease where the brain is involved and the risk of death or brain damage is high. Malaria kills over 700,000 people a year worldwide, mostly children in Africa. In addition there are cases in Asia, Latin America, the Middle East and parts of Europe.

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