

Malaria over-diagnosis in Africa



Finger-pricking a young boy in Sub-Saharan Africa, prior to making a blood slide for malaria detection

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In Africa, 70 per cent of fever cases in children are diagnosed in the home and treated with traditional remedies or drugs bought from local shops. These fevers are presumed to be due to malaria, but comparison of accurately diagnosed cases of malaria with presumed cases of malaria reveal shockingly high rates of over-diagnosis. It is estimated that in some areas that have intermittent malaria transmission, three quarters of patients with fevers are advised to take antimalarial drugs for non-malarial illness.

Treatment of all childhood fevers as malaria results in malaria over-diagnosis, which means other causes of febrile illness, such as pneumonia and meningitis, are missed. Indirect evidence shows that the over-diagnosis of malaria contributes to increasing ill health, death, loss of productivity and a vicious cycle of deepening poverty in the most vulnerable sections of society. Treating all childhood fevers as malaria means that poor people are wasting valuable resources on malaria drugs, and failing to be treated for other potentially life-threatening illnesses.

Consequences of new drug combinations

In the past, high levels of malaria misdiagnosis have been tolerated because first-line antimalarials such as chloroquine were relatively inexpensive and non-toxic. New drug combinations, particularly those including artemisinin, are more effective in treating malaria, but are also more expensive. This means that it is no longer economical to treat all fevers as malaria. Also taking into account the fact that large numbers of non-malarial illnesses are undiagnosed and untreated, it becomes unethical for health professionals to condone the current level of malaria misdiagnosis. It is now critically important to make sure that all suspected cases of malaria are properly confirmed.

The Malaria Knowledge Programme (MKP) has been working to improve levels of accurate malaria diagnosis. Looking at fever in combination with other signs can improve malaria diagnosis, but not to an acceptably high level. MKP has supported improved laboratory supervision to increase the accuracy of microscopic diagnosis of malaria, but at the peripheral health facility level laboratories, microscopes and technicians are often not available. Health workers at primary care facilities struggle to provide accurate diagnosis of malaria due to lack of resources and staff training. There is therefore an urgent need to improve the parasitological diagnosis of malaria in those areas where it is most needed.

Effects on vulnerable people

Malaria disproportionately affects lower socio-economic groups at community and household level and vulnerable people feel the impact of ill health much more than wealthier people. Poor and vulnerable people are less likely to seek western medical care for the treatment of fevers and so they adopt a ‘wait and see’ approach. This delays diagnosis and treatment and if eventually this is compounded by inaccurate diagnosis, they begin to lose confidence in formal health services.

Failure to diagnose and treat non-malaria causes of fever, some of them potentially life-threatening, results in prolonged and worsening illness, reduced productivity and school attendance, and unnecessary purchase of drugs and other costs associated with visiting clinics. The effect is particularly devastating for carers, who are often women, as their precarious livelihoods are threatened by even more non-productive periods. Most households in Africa depend on subsistence livelihoods with no insurance or savings to use as a financial buffer



Thick and thin blood films being made for detection of malaria using a microscope in a rural health facility

Intensive effort is needed to develop diagnostic tools that are simple, cheap, accurate and usable in communities where malaria has the most devastating impact

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when there is illness. Costs of preventing and treating malaria are already high for vulnerable people and these costs increase if misdiagnosis and subsequent failure of treatment result in repeated visits to clinics and additional drug purchases.

Diagnostic tools

The gold standard for diagnosing malaria is the examination of a blood smear under a microscope. Health care facilities at local level often do not have adequate resources such as working microscopes or properly trained staff to be able to carry this out. Rapid diagnostic tests are a good alternative, providing a simple 'present' or 'absent' result for malaria. They have been successfully used in Colombia, Thailand and Tanzania, and more recently in complex emergency situations. These tests are currently the only feasible option for diagnosis of malaria at community and household level, but their widespread use is restricted by cost and inability to indicate the density of malaria infection.

International agencies and donors can play a key role in driving development of better malaria diagnostic tools and in providing the evidence that governments need to make decisions related to putting diagnostic strategies into practice.

Recommendations

- New, more expensive malaria drugs must be targeted to those who truly have malaria, and intensive effort is needed to develop diagnostic tools that are simple, cheap, accurate and useable in communities where malaria has the most devastating impact.
- International efforts that are being put into developing new malaria drugs should be paralleled by a commitment to improve the availability of accurate diagnostic tools for malaria.
- Health systems need strengthening at referral and community level so that rapid accurate diagnosis and effective treatment are available.
- National policy makers need to receive information on the cost effectiveness of various combinations of diagnostic tools and treatment regimes, in order to make decisions about where to invest.
- Better direct evidence is needed about why and how misdiagnosis affects poor and vulnerable people.

References

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