



Editorials

New WHO guidelines for the treatment of malaria

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Quality assured diagnosis of malaria in Africa is a major challenge

The publication of a second edition of the World Health Organization's guidelines for the treatment of malaria in March 2010 just four years after the first is testament to how quickly malaria control has developed in the past few years.¹ This is not so much the result of new tools for control, but rather the changing use of existing tools, whose more effective application over the past 10 years has resulted in a marked reduction in the global burden of malaria.²

Both the first (2006) and new (2010) editions of the guideline provide a clear account of evidence and recommendations for the treatment of severe and non-severe malaria caused by *Plasmodium falciparum* and the other four species of *Plasmodium* known to infect humans (*P knowlesi* now being recognised as an important zoonosis).³ In addition, annexes provide scientific detail and references, and the new edition has used the GRADE system, which details the strength of evidence behind each recommendation. The 2010 edition differs from the first edition in four important areas—refining and improving treatment of malaria, minimising the risk of resistance to artemisinin-based combination treatments, using drugs to reduce transmission, and malaria diagnosis.

The choice of partner drug with artemisinin derivatives continues to be refined, and piperazine, which is attractive because of its low cost and co-formulation, is now recommended alongside lumefantrine, amodiaquine, sulfadoxine-pyrimethamine, and mefloquine. The new guideline places greater emphasis on completing courses of these combined treatments to minimise selection pressure for resistance to artemisinins, which is now a major concern after reports of partial resistance to artemisinin monotherapy in South East Asia.⁴

For severe malaria, intravenous artesunate is recommended in preference to quinine in adults, and it has at least equal preference to quinine in children. The results of the AQUAMAT trial (quinine v artesunate for severe malaria in African children), which are expected in early 2011, may guide a more definitive policy.⁵ The 2006 guideline included useful advice on the use of antimicrobials in severe malaria, but this section has been removed, possibly because of the lack of evidence from clinical trials. However, this leaves an important gap in recommendations for the treatment of malaria-bacterial co-infection, which is present in 14-25% of inpatient deaths from malaria in children.^{6 7}

In areas where reduction in transmission is a priority, a single dose of primaquine is now recommended at the end of a course of artemisinin based combination treatment. This recommendation is based on its historical use and a single trial that showed excellent clearance of gametocytes, although a transient fall in haemoglobin was noted.⁸ Mass drug administration to reduce transmission is not supported because it has only ever resulted in sustained malaria control on the small Pacific island of Aneityum.

The single most important operational change in the new guideline is the replacement of “presumptive treatment” in young children (treatment of any childhood fever with no obvious alternative cause as malaria, a cornerstone of WHO policy for the past 20 years) with parasitological diagnosis wherever possible. There is already a consensus that parasitological diagnosis of malaria is highly desirable, but opinion differs on the speed with which this can be achieved in resource poor settings.⁹ The evidence needed to guide this decision is limited, and being largely operational, might be inconclusive even if it did exist. So the new guideline has taken a bold step and the question now has to shift from whether we are ready to abandon presumptive treatment to how we can provide a quality assured parasitological diagnosis where infrastructure is weak and the burden of disease is high.

The challenges to achieving parasitological diagnosis of malaria are immense, especially in many areas of Africa where routine slide results compare badly with malaria rapid diagnostic tests or quality assured microscopy.¹⁰ The scaling up of rapid diagnostic tests has progressed rapidly in recent years. Many countries now have substantial rapid diagnostic test programmes supported by the Global Fund, but important areas still need urgent attention. These include selection and cost of tests (more than 80 are now available), establishment of quality assurance systems, and prescriber use and adherence to results.¹¹

Slide microscopy remains a key element in parasitological diagnosis of malaria, both for clinical care and quality control of malaria rapid diagnostic tests, but the limited evidence available suggests that the quality of slide results in routine care in Africa is poor, with estimates of sensitivity and specificity often falling below 70% (WHO sets a minimum standard of 90% specificity and 95% sensitivity). Although quality assurance schemes for routine slide microscopy in Africa exist in policy, they rarely operate in practice, and major efforts are urgently needed to correct this.

Targeting antimalarial treatment on those who actually have malaria is an important objective, and the 2010 WHO guideline sets a challenging task to provide accurate parasitological tests for malaria at all levels of the health system. However, the difficulties in translating the aspiration to reality should not be underestimated. Strong leadership is needed from WHO, international funders, and ministries of health if it is to succeed.

Notes

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Footnotes

- Competing interests: The author has completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declares: (1) No financial support for the submitted work from anyone other than his employer; (2) No financial relationships with commercial entities that might have an interest in the submitted work; (3) No spouse, partner, or children with relationships with commercial entities that might

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