

**Report from Consensus Meeting on use of Rapid
Diagnostic Tests for Malaria Case Management
in Uganda**

5th December 2007

Compiled by the Malaria Consortium

ACKNOWLEDGMENTS

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1. BACKGROUND

Uganda has recently changed its malaria treatment policy to reflect the global policy of shifting from non-artemisinin-based combination therapies. In 2004, the first line treatment for uncomplicated malaria, chloroquine+SP, was replaced with artemether/lumefantrine. Implementation of this new drug policy, commenced in 2005 with health facility deployment of artemether/lumefantrine as a brand called Coartem[®]. As part of the change in policy the Ministry of Health proposed to increase the emphasis on parasitological diagnosis by introducing malaria rapid diagnostic tests (RDTs). The National Malaria Control Programme (NMCP) drafted policy guidelines in consultation with stakeholders. To enrich the guidelines on RDT use in Uganda, this meeting was organised to gather consensus on policy recommendations based on local experiences and ongoing research by UMSP, WHO and the Malaria Consortium. It follows a larger meeting organised in February 2007.

The objectives of the meeting were:

1. To review the current draft policy guidelines on the use of rapid diagnostic tests in malaria management
2. To get an update of the evidence for malaria parasitological diagnosis
3. To review the Ugandan experience with RDTs in malaria case management
4. To agree policy recommendations on the role of RDTs in malaria case management

The meeting took place on 7th December 2007, see schedule of the day in the annex, and was attended by approximately 30 people. Herein is a summary of the main issues discussed at the meeting.

2. Session 1: Parasitological Diagnosis

Presentation

By Elizabeth Streat, Malaria Consortium – Role of parasitological diagnosis in malaria case management in the era of ACT

Discussion

- The cut-off for using RDTs is parasite prevalence of 50% and below. Above this threshold, the value of the diagnostic tool is limited because of its reduced negative predictive value.
- The role of parasitological diagnosis (microscopy and RDTs) should be clearly defined and articulated to health workers. Both methods should be implemented in a complementary manner and RDTs should not be promoted as a replacement for microscopy, which when done properly still remains the gold standard. The settings in which RDTs can be deployed should be defined, for example at community level or at health centres without laboratory facilities or at all levels to be used whenever microscopy is not possible e.g. when the laboratory is very busy or it is closed. Use of RDTs at large scale down to community level should take the pressure off labs and microscopy allowing upper level health facilities to consolidate their microscopy. This happened in Mozambique a few months after introduction of RDTs at community level.
- A decision needs to be made by the Ministry of Health on whether or not to treat children aged under five years presumptively nationally or just in high transmission areas. There is need to consider the feasibility of using different approaches for those aged under five years and those aged five years and above. In low transmission settings parasitological diagnosis can be used for all ages whereas in high transmission settings, parasitological diagnosis can be restricted to those aged five years and above.
- Confidence in test results is a challenge and the tendency is to treat anyway irrespective of the test results as long as the clinician suspects malaria. Managing this practice to promote adherence to parasitological diagnosis should be a fundamental part of the guidelines and supervision.
- District hospital clinicians tend to have too much work and resort to sending patients for unnecessary lab tests without doing any clinical screening. This practice is not

good for confidence in test results and the relationship between clinicians and laboratory staff. To improve diagnostic practice, an education campaign will be needed.

- The management of persistent antigenaemia will need to be addressed, for example a HRP2 test may be followed by a pLDP test to investigate patients with unresolved symptoms who have had a full course of an ACT.
- Storage of RDTs should take into consideration temperature stability at service delivery points and during transportation.
- There were two view points regarding testing of pregnant women, one group feeling that they should be tested with RDTs and the other feeling otherwise. Given the lack of sufficient evidence to exclude pregnant women from being tested with RDTs, it would not be justifiable to make this decision at this stage.
- There was also lack of sufficient evidence to know whether suspected cases of severe malaria should be tested with an RDT before referral to a higher level health facility for treatment. The general feeling was that doing the RDT would delay referral and it was not clear if the RDT results would influence the decision to give pre-referral treatment.

3. Session 2: Experiences of RDTs in Uganda – RDT characteristics

3.1. Presentations

By Dr Charles Katureebe, WHO - Study on ICT Pf and Paracheck in Gulu by NMCP/WHO

By Dr Heidi Hopkins, UMSP - Utility of RDTs at sites of varied transmission intensity across Uganda

By Dr Daniel Kyabayinze, Malaria Consortium - Study on ICT Pf at Soroti including prolonged positivity results of ICT and Paracheck

3.2. Discussion

- The current standard treatment guidelines for uncomplicated malaria state that if a patient has a negative slide but the clinician still strongly suspects malaria, they should give antimalarial treatment.
- The reason that the study NMCP/WHO study in Gulu only recruited over 5s is because the WHO guidelines are that in highly endemic areas, RDTs should only be used in over 5s

- The higher specificity for the HRP2 found in the Gulu study compared to the other two studies presented in this session is not easily explained although it may be because of differences in the population recruited.
- While discussing the merits of using RDTs at different levels of the health service including as a resource in larger facilities when microscopy was not available, the point was made that, because of heavy workloads, the RDTs would be used anyway until they ran out.
- Clinicians often do not respect negative results from microscopy and many will still treat, often using the second-line treatment instead.
- Dr Katureebe noted that Uganda and Zambia are earmarked to be strengthened in RDT use. Technical assistance is expected in Uganda early 2008 from WHO and PMI to assist countries in quality assurance and other areas that require support.
- It was noted that it may be preferable for the MoH to have one policy document on malaria parasitological diagnosis but have separate guidelines on the use of RDTs and use of microscopy.
- The evidence presented by Dr Heidi Hopkins appears to indicate that the HRP2 test was able to pick up subpatent parasitaemias whereas the pLDH test had a lower sensitivity especially at subpatent parasite densities.
- To improve disease management, clinicians need to have treatment options for patients with fever who are RDT-negative. Otherwise, the tendency will be to give treatment for malaria anyway.
- It was emphasised that before scaling up of RDTs, IEC/BCC should be deployed with messages designed to promote the effectiveness of parasitological diagnosis.
- That given the dominance of *P. falciparum* as the main malaria parasite, the HRP2 tests should be the mainstay of malaria rapid diagnosis. They are also cheaper than the other types of RDTs and therefore may be more cost effective.

4. Session 3: Experiences of RDTs in Uganda - implementation

4.1. Presentations

By Dr Umaru Ssekabira, JUMP - Lessons learned from integrated training in fever case management

By Carol Asiimwe, Malaria Consortium - Field Experiences from Pilot of RDTs in HCs

4.2. Discussion

- The training of health workers as health centre teams instead of separate cadres promotes team work and unity of purpose.
- The approach used by JUMP is to combine training with follow up to quantify improvements in fever management practices.
- Comment from the Public Health Laboratory: There is a real risk of supply problems or stock-outs with RDTs based on previous experience and so need to have more than one brand of RDT so as not to be completely dependent on one manufacturer.
- Important not to think of supply of RDTs as an isolated issue – need to make sure to integrate with general supply chains for HCs 2 and 3 for things such as drugs and gloves. Because of vertical approach often can find that HCs have too many gloves as not coordinated supplies from different programmes.

5. Session 4: Consensus building – plenary discussion

5.1. ISSUE 1: At what level(s) of health system should RDTs be deployed?

- Comment from Masela Chinyama (Malaria Consortium Zambia): Likely to have higher numbers of all-cause mortality if treat presumptively. Example from Zambia of two health facilities in same district, one only treating parasitologically-confirmed cases and the other giving treatment based on symptoms regardless of test result. The latter had twice the rate of all-cause mortality than the facility only treating confirmed cases.
- High cost to put RDTs at all levels, in larger HFs there is a need for labs to function effectively which includes issues of accountability.
- Some feeling that RDTs should be available even at Mulago Hospital.
- Could have system in hospitals such as Mulago where a request for an RDT is recognised to be for urgent cases and lab staff would be aware of this and prioritise that case.
- For HC IVs – should have a special consultation room for RDTs.
- Need to have clear criteria for when to use RDTs and when to use microscopy.

CONSENSUS: RDTs should be put at all levels of health service where and when microscopy is not available and also in special circumstances

5.2. ISSUE 2: Use of RDTs at community level

- The use of RDTs at community level needs more operational research especially around the issue of safety.
- Karin Kallinder: their study in Tanzania is a crossover design, alternating weeks with RDTs and clinical diagnosis only – have seen a saving in adults but not in children.
- Definition of Community Medicine Distributors varies from country to country – eg in Uganda trained for only 2 days (but this will become 5 days) while in Zambia they are trained for 6 weeks and in Mozambique they are trained for 3 months.
- If want to tackle issue of physician accepting the RDTs and following the results instead of treating on clinical symptoms alone, need to introduce to higher levels of health service first.

CONSENSUS: More evidence is needed before deciding on the use of RDTs at community level

[NOTE: Another point raised about Home Based Management of Fever – soon the Community Health Workers will be giving people ACTs in Uganda – then what if the patient then goes to the HC and they do an RDT and the result is positive, what should the HC staff do?]

5.3. ISSUE 3: Should there be one policy for all of Uganda or should it vary depending on the transmission levels in different districts and for different age groups?

- Need to remember the risk of co-infections, especially in highly endemic areas.
- Practically there are limited resources for RDT supplies and this means that under fives in highly endemic areas should not get RDTs.
- Wherever have RDTs it is very important to do community sensitization so that people have confidence in their use and will not self-medicate if get a negative result and therefore no antimalarials at HF.
- Could have a phased implementation of RDTs starting in areas of low transmission and moving towards the higher transmission areas.

CONSENSUS: Deploy RDTs in low/moderate area in first phases of national roll-out as more information is gathered about the use of RDTs in high transmission areas

5.4. ISSUE 4: How to define selection criteria for RDTs including choice and whether they should be named in policy document

- National Drug Authority has responsibility for this
- The only RDTs that can be used should be on the WHO procurement list. This is because studies have been done on these RDTs. However those that have been tested should be given priority.
- More studies on more RDTs should be conducted so that there is an algorithm. There will be no problem in procurement with specific names. For the others on the list it should be mentioned that more studies need to be conducted, this helps to narrow down the numbers.
- Quality assurance could be done by WHO international network of reference which includes KEMRI as a regional laboratory for East Africa. We should identify two to three laboratories for quality assurance testing kits and then compare the results. There is a need for in country and a regional centre to test the kits. The manufacturer should be able to pay for it.
Each kit should be inclusive of all materials such as swab, lancet, test buffer, blood transfer device.

CONSENSUS: The NDA should have responsibility for this and should develop guidelines covering the points raised above.

5.5. ISSUE 5: What guidelines to give when RDT is negative but no other diagnosis?

- This is linked to levels of care and resources, including HR.
- In Zambia, found that when gave only an antipyretic did not have patients coming back with severe illness later.
- Follow-up is a key factor.

CONSENSUS: No antimalarials should be given to RDT negative cases, give antipyretic. The administration of antibiotics needs more research

5.6. ISSUE 6: Should RDT be done when there are danger signs or severe malaria?

- RDT does not change management. Example from Zambia – do RDT even in severe illness and if the result turns out to be negative they then withdraw the iv quinine.
- One argument for doing an RDT is that there is a lot of value in a negative result so that differential diagnosis becomes more important.
- Some felt if going to refer don't do an RDT so that no delay.
- For HCs II – the policy is that where there are danger signs or features of severe malaria, the staff should follow IMCI and refer, no RDT.

CONSENSUS: No real consensus, this issue needs more consultation and discussion between the stakeholders

5.7. ISSUE 7: Use of RDTs in pregnancy

- RDTs are more sensitive than microscopy in detecting placental malaria but still have very poor sensitivity compared to their detection of “normal” malaria.
- Are RDTs really necessary where there is IPT?
- More evidence is needed as to whether performing an RDT gives any added value or if it puts woman at risk as may have false negative result.

CONSENSUS: No consensus on this issue

Annex 1 – Schedule for the day

TIME	ACTIVITY	RESPONSIBLE
Opening		
8.30 am	Remarks	NMCP
8.40 am	Remarks	UMRC
Session 1:	Parasitological diagnosis (50 mins)	Chair: Heidi Hopkins
Essence of this session: To discuss comments about the draft policy guidelines; To present summary of the evidence on misdiagnosis; To review evidence on usefulness or disadvantages of parasitological diagnosis.		
10 mins	Draft policy – where are we; highlights	NMCP
20 mins	Role of parasitological diagnosis in malaria case management in the era of ACT	To be confirmed
20 mins	Discussion	
20 mins	Break	
Session 2:	Experiences with RDTs in Uganda – RDT characteristics (1 hr 15 mins)	Chair: To be confirmed
Essence of this session: To get a succinct overview of sensitivity & specificity, ease of use, advantages and disadvantages. To link these RDT characteristics with the policy guidelines		
15 mins	TBC	NMCP & WHO
15 mins	Utility of RDTs at sites of varied transmission intensity across Uganda	Dr Heidi Hopkins, UMSP
15 mins	TBC	Malaria Consortium
30 mins	Discussion	
Session 3	Experiences with RDTs in Uganda – Implementation (1 hr 20 mins)	Chair: Helen Counihan
Essence of this session: To share lessons learned and use the experiences to enrich the policy guidelines		
20 mins	Lessons learned from integrated training in fever case management	JUMP (Dr Umaru Ssekabira or other team member)
20 mins	Field experiences	Malaria Consortium
10 mins	M&E; EQA	TBC
30 mins	Discussion	
60 mins	Lunch	
Session 4	Consensus building (2 hr 5 min)	Chair: James Tibenderana
Essence of this session: To make key policy recommendations based on evidence and experiences that will improve the policy guidelines; To prepare an outline of a policy brief		
10 mins	Setting the scene	UMRC
15 mins	Highlights on writing a policy brief	Nelson Musoba
60 mins	Discussion on key policy recommendations	
20 mins	Research gaps	
10 mins	Next steps	UMRC
10 mins	Wrap up	NMCP
	Close	