

Integrating mRDTs into the health system in Uganda

Preparing health workers for routine use of malaria rapid diagnostic tests



Learning paper series

Since starting operations in 2003, Malaria Consortium has gained a great deal of experience and knowledge through technical and operational programmes and activities relating to the control of malaria and other infectious childhood and neglected tropical diseases.

Organisationally, we are dedicated to ensuring our work remains grounded in the lessons we learn through implementation. We explore beyond current practice, to try out innovative ways – through research, implementation and policy development – to achieve effective and sustainable disease management and

control. Collaboration and cooperation with others through our work has been paramount and much of what we have learned has been achieved through our partnerships.

This series of learning papers aims to capture and collate some of the knowledge, learning and, where possible, the evidence around the focus and effectiveness of our work. By sharing this learning, we hope to provide new knowledge on public health development that will help influence and advance both policy and practice.

A young child watches as a nursing assistant prepares to conduct a malaria rapid diagnostic test
Photo: Tadej Znidarcic



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Introduction

Until recently, most national guidelines in malaria endemic countries recommended that all patients with fever be treated presumptively for malaria where laboratory facilities are not available. For decades, healthcare providers working with limited resources in remote health facilities have been accustomed to diagnosing malaria based solely on symptoms.

In 2010, the World Health Organization (WHO) changed its guidelines to state that all suspected malaria cases should be tested for the presence of malaria parasites by microscopy or malaria rapid diagnostic tests (mRDTs) prior to treatment – a change prompted in part by the rampant overuse of valuable artemisinin-based combination therapies (ACTs) and made possible by the increased availability of accurate mRDTs. A number of countries have now adopted these guidelines and begun to integrate mRDTs into routine service delivery.

The widespread introduction of mRDTs promises an enormous potential impact on the management of fever, bringing a dose of rationality to malaria case management and helping to preserve ACTs for those who truly need it. In turn, this will increase focus on the effective diagnosis and treatment of other causes of fever as the burden of malaria declines in many areas. However, its success hinges on what healthcare providers actually do in practice. Providers must be convinced of the relevance of mRDTs, trust the test results and treat according to these results. They must also have the skills and capacity to use mRDTs as part of a broader diagnostic strategy. Thus, quality training and supervision are paramount.

The WHO 2011 operational manual, *Achieving universal access to malaria diagnostic testing*, outlines a number of steps and considerations in planning for mRDT introduction, including those related to health worker capacity building on the use of mRDTs¹. Drawing on the recent experience of integrating mRDTs into routine service delivery in five districts in Uganda, this learning paper describes the critical challenges facing health service providers and shares learning on capacity building approaches.

The widespread introduction of mRDTs promises an enormous potential impact on the management of fever

A child waits to be tested for malaria
Photo: William Daniels





Background

Having abolished user fees at public health facilities in 2001, Uganda provides all primary health services free-of-charge.

Although improvements to health infrastructure have also helped to expand access to services, Uganda's health sector continues to face severe shortages of health workers, with vacancies at the lowest level reaching 67 percent². The supply of essential medicines has been plagued by procurement delays, poor practices and quantification, leading to shortages of drugs at the point of care² and patients' negative perceptions of public health services^{*3}.

Clinically-diagnosed malaria has been the most common outpatient diagnosis in the country, accounting for an estimated 25-40 percent of health facility visits. The first-line treatment for uncomplicated malaria was changed to ACTs in 2004, with implementation in public health facilities following in 2006. Uganda's antimalarial needs are enormous – an estimated 13 million treatments of ACTs will be required for the public sector alone in fiscal year 2013⁴, and as in many other malaria-endemic countries, Uganda has faced chronic ACT stock-outs⁵⁻⁷. These shortages have negatively affected patient care and contributed to out-of-pocket health expenditures. In some cases, these provoked a 'hoarding' response from the population^{**3}.

Widespread ACT stock-outs in Uganda resulted in part from the indiscriminate use of antimalarial drugs in patients without malaria. Over-prescription of ACTs was a widely acknowledged problem; healthcare providers recognised the situation as being 'uncontrolled' but had little means to address it. As a nurse at a health facility that now uses mRDTs explained, "in those days, we would just give Coartem[®] tablets to whoever complained of having a fever; the tablets would get finished very fast".

With growing evidence supporting the need for policy change⁸, Uganda adopted a policy of parasite-based diagnosis in 2008, with the National Malaria Control Programme (NMCP) recommending that mRDTs be introduced in all health centres II (the lowest tier of

health facilities) and to fill the gaps at higher-level facilities lacking functional microscopy. This policy recommendation was later expanded to include the use of mRDTs at the community level⁹. A national training manual was developed and published in 2009 and an initial group of national trainers was trained in 2010. With support from the Global Fund, Uganda had planned mRDT introduction in 21 districts. However, training of clinicians and laboratory personnel at the district level was largely delayed until 2011, due to a disruption in grant disbursement and delays in mRDT procurement.

Under a Comic Relief-funded special initiative grant^{***} and in collaboration with the NMCP, Malaria Consortium supported the first sustained, district-wide introduction of mRDTs to health facilities, starting in December 2010. Under this programme, some 884 health workers from 88 public, lower-level health facilities were trained across five districts. In early 2011, after training was rolled out in the first district, a national-level consultative process was undertaken to revise the national training curriculum for use in country-wide scale-up. In 2012, Malaria Consortium subsequently supported the training of an additional 602 health workers in four districts; a total of 123 public health facilities receive routine support and supplies for fever case management.

The lessons in this paper are drawn from this experience. Section 1 discusses the critical training requirements of health workers and what needs to be addressed. Section 2 reviews approaches for the successful integration of mRDTs into health service delivery and how best to support health workers adapt to changes in policy.

Information from key informant interviews were conducted with health workers, district and national health officials in 2011-2012, as part of a larger learning process which included operational research on health worker treatment practices following mRDT results.

*A 2008 survey showed that although 72 percent agreed that "the public health care facility closest to my household is easy to reach," only 33 percent agreed with the statement "the public health care facility closest to my household usually has the medicines we need."

**During the month preceding the survey, over 63 percent of households experienced catastrophic payments related to medicines. About 40 percent of households kept medicines at home.

***The Pioneer project, Comic Relief UK Special Initiative Grant GR002-12417. The Pioneer project is a special initiative working towards systemic change in malaria control in Uganda, implemented by Malaria Consortium from 2009-2013.

Malaria rapid diagnostic tests detect the presence of malaria parasites in the blood
Photo: Tadej Znidarcic



Three critical capacity needs of providers

The use of mRDTs prompts a radical shift in how health service providers practise patient care in remote, lower-level health facilities. Whether these changes are welcome – as they largely were in Uganda – or not, providers need to receive clear guidance on how mRDTs should be performed and incorporated into their management of febrile illnesses.

mRDT training programmes cover a range of elements, including test performance, safe blood handling, reading and recording results, case management of patients with positive and negative mRDT results, and proper storage and handling of mRDTs.

In addition, health workers must also be trained and supported to:

1. Practise an integrated approach to diagnosis and treatment
2. Communicate about the testing process, results, diagnosis and treatment plan to patients and caregivers
3. Organise themselves to manage the new workload and deliver services efficiently

Lesson 1

It's not malaria, now what? Shift to integrated fever case management

mRDTs are relatively easy to use; with proper training, low-level health workers without prior exposure to diagnostic tools are able to quickly learn how to correctly collect a blood sample, perform the test and read the result¹⁰⁻¹³. Provider satisfaction with mRDTs is enhanced by the perception that using a diagnostic tool can add authority and legitimacy to their work. When the result is positive, providers gain confidence in their prescription of antimalarial drugs. The real challenge begins when the result is negative and malaria has been ruled out as a diagnosis. Preparing health workers for mRDT introduction must, therefore, involve empowering them with the skills and confidence to manage cases of fever holistically.

The first edition of the mRDT training manual developed for Uganda, which was subtitled, Use of mRDTs for malaria in fever case management, included a list of clinical signs associated with common causes of fever. Although this approach was comprehensive from the outset, an early training exercise demonstrated that most providers had little experience in taking a patient's history and performing a physical examination.

“During our training in medical school, professors would tell us that any fever is malaria until proven otherwise”

District health officer

Patients at the Kihungya health centre II receive general malaria education while waiting



Following a negative mRDT, it was observed that health workers did not feel confident in their diagnostic skills and tended to treat any and all symptoms independently rather than seek a differential (even symptomatic) diagnosis. In part, this was due to the high proportion of low-level cadres at some facilities, where the majority of trainees were nursing assistants and where many were not qualified to practise clinical case management. Even nurses who are accustomed to many years of simply 'listening, writing, and prescribing', had lost their basic clinical skills. Moreover, at many lower-level health facilities, health workers frequently work alone to manage high caseloads.

“After getting a negative mRDT result, I worry about investigating the possible causes of fever. Sometimes I don't even know where to begin to dig deeper into the problem, since it requires me to go through the history of a patient which, at times, isn't completed. But we rarely go through these procedures because of the overwhelming number of patients.”

*Nursing assistant,
health centre III*

A patient's blood sample is placed on a malaria rapid diagnostic test cassette



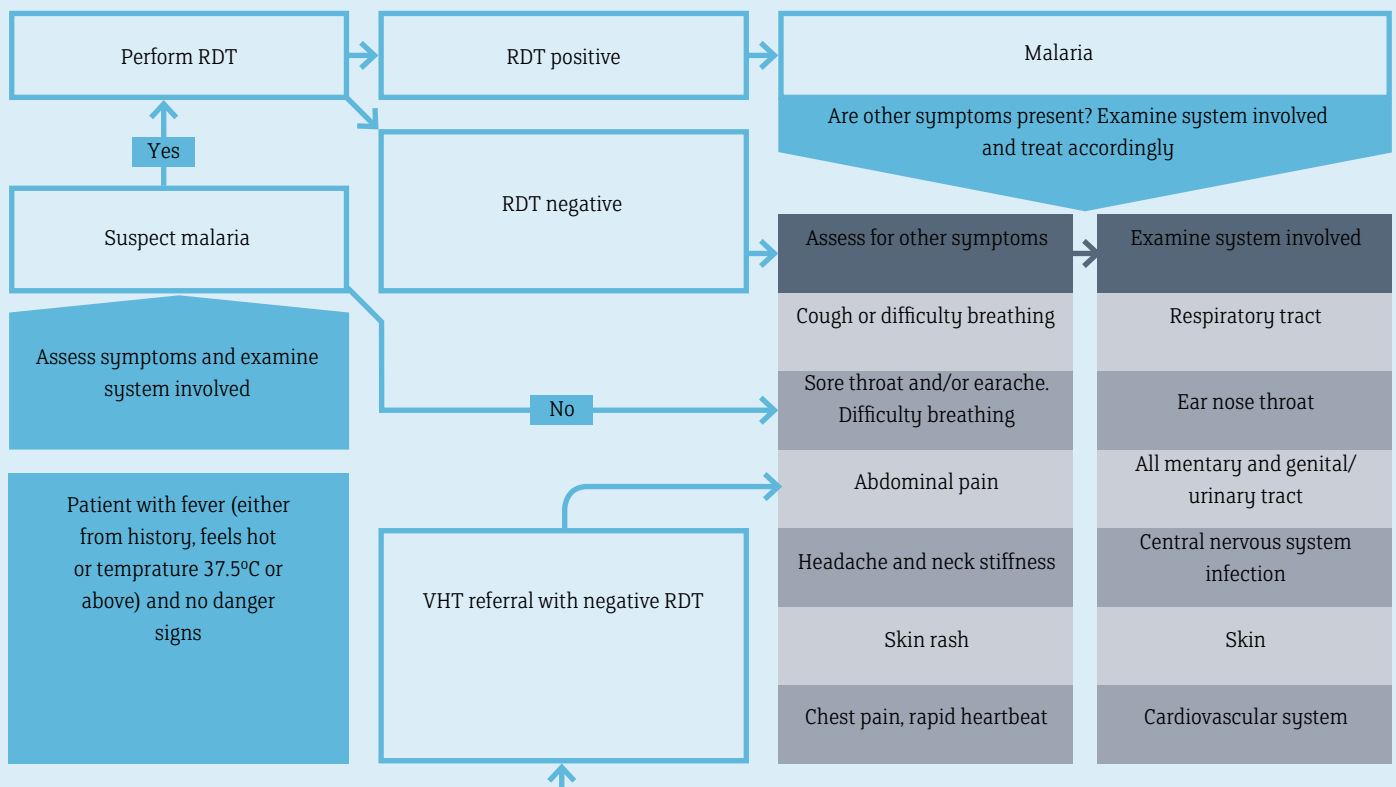
“With the use of mRDTs, you spend more time, especially when the test results are negative since it makes you think wider about the possible cause of fever. This exposes and awakens you to read further to know about other illnesses, and not always think that once you have mRDTs you will always know what the causes are.”

Nurse, health centre III

As training targeted lower-level health facilities, a step by step procedure was developed to provide a simple approach to case management. During the consultative process, the training manual was thus revised to include more complete guidance on taking a patient’s medical history and conducting a physical examination¹⁴. A simple set of charts for system by system evaluation, diagnosis and treatment was also developed to cover the management of common febrile illnesses across all age groups. This was modelled after the integrated management of childhood illness process to ‘assess, classify and treat’. When making a diagnosis, providers were thus able to refer to a table of possible illnesses with corresponding instructions for their appropriate management and treatment.

Still, a major challenge is building health worker confidence to diagnose for other causes of fever. So long as drugs are in stock, providers prefer to prescribe according to a patient’s complaint. Providers also appear to resort to one or two default ‘diagnoses’; they often conclude that, “if it is not malaria causing the fever, it must be a cough.” Indeed, ‘cough equals

Management of non-malarial febrile illnesses



antibiotics' appeared to be an equivalent to the previous approaches of 'fever equals antimalarials'. Early data in Uganda have shown that as much as providers have adhered to negative results and the use of mRDTs has led to a dramatic reduction in ACT consumption, antibiotic prescription has remained startlingly high. A two-month prescription audit at 30 health facilities using mRDTs found that 78 per cent of patients who tested negative for malaria received an antibiotic¹⁵. As Uganda has no policy governing the use of antibiotics, supervisors have limited influence in encouraging health service providers to restrict unnecessary use.

“If the test result is negative for malaria, they just give an antibiotic and maybe a painkiller and that’s it. Sometimes, many patients don’t need antibiotics.”
Supervisor

“At the end of the day, the hardest thing is doing the right thing for the patient and being sure that this person improved because of proper management.”
District health officer



A health worker reviewing patient records at the Kihungya health centre II

Lesson 2

New tool requires new communication skills for patient care

The shift from 'listening, prescribing and dispensing' to 'treating interactively' promotes increased patient-provider interaction. Taking a patient's medical history alone can involve several lines of questioning; the provider then needs to explain the rationale for testing, the test results, the diagnosis and the treatment plan.

Sharing information and engaging with patients to contribute information can help the provider make the correct diagnosis – it has been estimated that over 80 percent of diagnoses are made on history alone¹⁶ – as well as improve patients' perceptions of care quality and their adherence to treatment. During key informant interviews, providers generally reported that the most difficult part of getting a negative mRDT was communicating the result to patients in a way that they accept and are satisfied with the treatment plan. In part, this challenge arises as providers struggle with identifying the alternative cause of fever. If providers fail to make a diagnosis, they may simply tell patients that the test result shows they do not have malaria, but stop short of communicating anything about the actual cause of a patient's illness for which they are being treated for.

“We used not to test and interpret results to patients. I could just clerk a patient and send them to pick up the drugs. But now, after performing an mRDT, you have to inform the patient what the results are and what they mean before you prescribe them the drugs – which we did not use to do.”
Nurse, health centre III

“Before the introduction of mRDTs, patients could just come and mention their illnesses, for example a headache, and I would just prescribe them with Coartem[®]. Now, when somebody comes with symptoms of a fever, I have to do a test first and wait for the results. If the results come out negative, I have to take time to explain the results to patients, convince them that they do not have malaria, unlike in the past where I would just treat them. Now, it takes a lot of time, however, we are no longer misusing Coartem.”
Midwife, health centre III



A mother and her children being seen by a health worker

Providers need to be convinced of the importance of communicating and discussing results, and should be empowered with the necessary interpersonal communication skills. Fostering attitudinal change is an important first step. Providers need to understand that a patient's acceptance depends largely on how they interact with a patient and whether or not they have adequately explained the purpose of testing, the meaning of the mRDT result and the cause of fever.

“Some patients accept, while others say, I came knowing I have malaria; those things [mRDTs] are not working. How can you tell me I don't have malaria?”

*Nurse-in-charge,
health centre III*

“In the past when patients come and are sure that they have a fever but the test result is negative, they complain that we do not want to give them the drugs. Others say that we are selling their drugs and become bitter with us. However, I have tried to explain to them and now they are slowly accepting that having a fever does not mean you have malaria.”

*Nurse-in-charge,
health centre III*

Patients in a waiting room at the Nakitembe health centre II



Training in interpersonal communication skills can include role playing and the use of video, where feasible. During role playing, providers think creatively about approaches that may be most effective for convincing patients to trust the test results. For example, some have found that transparency – showing the test cassette and explaining the result as shown on the cassette – can increase a patient’s confidence in the result.

To facilitate communication, providers can also give general health education to all patients in the waiting area. This can help prepare patients to accept the individual treatment plan that is provided to them later. Another approach being further explored is using mass communication campaigns to encourage patients to ask about their test results, diagnoses and treatment plans.

“It is all about how you interact with patients. If you establish a good rapport, they will accept whatever the result. There are times when we health workers may be in a bad mood... [and some] do not communicate well with the patient. In such cases, if the result is negative, the patient will leave the facility unconvinced. You need to create a good rapport with patients so they accept the results of the mRDT, whether positive or negative. You really need to explain the cause of the fever to patients if it is not malaria.”

Nurse-in-charge, health centre III

Lesson 3

Build capacity on how to best organise care

Conducting patient history and a physical exam, carrying out an mRDT and communicating the test result to a patient are activities that take time. Low-level health workers routinely complain about high workload and poor compensation. Adding mRDTs can be perceived as increasing the burden on health workers and may be demoralising if they are not equipped to communicate with patients.

Health workers' perceptions about workload are important, as even managing fewer patients can feel like more work if the provider is not performing new tasks efficiently. Thus, healthcare providers need clear guidance on how to cope with an increased workload as well as support to rethink the organisation of service delivery in order to ensure both quality and efficiency. This may include options on organising patient flow, triage, health worker roles and division of tasks, and workspace set-up. Although standardised approaches are unlikely to work – for example, a health worker working alone will not use the same system of organisation as a health facility with four or five health workers – some models can be presented both with advantages and disadvantages. These organisational methods should be practised and/or observed during practical training sessions.

Health workers frequently need hands-on support in their own health facility to be able to use new systems and reorganise themselves. As each health facility has its own constraints in human resources and physical space, supervisors can support health workers in determining how best to work within the parameters of the existing structure and develop practical solutions on a case by case basis. This may require an iterative process over multiple supervision visits. For example, at the time of the first mRDT delivery, the supervisor can ask health facility staff how to best organise services in their health facility. Presenting different options and sharing experiences of what has worked well in other health facilities can help health workers decide the best approach for their facility.

Ultimately, addressing these challenges is not only key for health workers' morale and motivation, but also for quality of care. More efficient service delivery may also help to free up health workers' time to focus on patient care, including identifying alternative diagnoses and treatment.

“I still do what I used to, only now I am required to spend more time with the patient because I have to perform the mRDT test, show the results and prescribe drugs. If the patient is negative, that means I am supposed to think of other alternative causes of the fever and treatment options. But truthfully, I don't exactly do that because the turn up of patients is overwhelmingly big...”
Nurse, health centre II

Organisational issues healthcare providers need to address

Learn how to practise triage and organise patient flow. The use of mRDTs should prompt health workers to rethink the entire care process. Prior to mRDT introduction in Uganda, many lower-level health facilities essentially functioned as drug dispensaries – prescribing, recording and dispensing according to a patient's complaint on a first-come-first-serve basis. Adding a diagnostic tool requires a new system, and this is particularly challenging for providers who are working alone. Some opt to 'batch' mRDTs, first taking the medical history of a number of patients and then testing those presenting with fever. Others (generally with lower attendance) may manage a patient uninterrupted from start to finish, including testing. Where patient flow is moderate, performing an mRDT can also offer the provider more time to interact with patients.

Explore the best allocation of human resources. Where more than one health worker is present, it was observed that health workers often shift tasks. For example, providers would rotate between taking medical history and prescribing, performing the mRDT and recording results and dispensing drugs. However, this may not be the best use of the different skillsets of health workers. Facilities should ensure the person with the strongest clinical skills and experience is available to identify patients who require testing and manage patients who test negative. Ideally, in these cases, nursing assistants should be restricted to performing the mRDT. In some health facilities that are short-staffed, community health workers are asked to assist in performing the test.

Clearly delineate space for various activities (clerking, patient examination, testing, dispensing, record-keeping, etc) in order to improve efficiency and ensure that infection control procedures and patient privacy are respected. In one-room health facilities, a separate workspace should be designated for performing mRDTs. Workspace set-up needs to be practical and consider available space and human resources. For example, if a health worker is working alone, it may be more practical to set up an 'mRDT area' within the consultation room, rather than perform mRDTs in a separate room, even where space is available.

“The workload is now too much because I have spent time doing the mRDT, interpreting the results, prescribing and dispensing. When I am on duty alone, it is worse because I have to do everything myself. The time spent with each patient has also increased, especially with patients with negative results because I have to think of other possible causes of the fever.”

*Clinical officer,
health centre III*

Three approaches for supporting health workers

The introduction of mRDTs requires a paradigm shift among policymakers and health workers at all levels to understand and appreciate that not all fever is caused by malaria. To some extent, this shift extends beyond malaria control programmes, as it places renewed emphasis on the differential diagnosis of fever.

Experience from Uganda showed three overarching approaches required for successful implementation:

1.


Use a system-wide approach to ensure that all levels of the health system are similarly oriented and that Ministry of Health actors outside the national malaria control programme are appropriately included.

2.

Understand the knowledge and skills needs of diverse sets of health workers and develop the training methodology in line with their needs.

3.

Remember that building the capacity of health workers is not just a one-off training exercise and plan a multi-faceted approach for changing health worker behaviour over the long term.



A health worker shows a malaria rapid diagnostic test, which can give results in 15-20 minutes

Photo: Vicky Dawe



Immunochromatographic Assay 1 Test

SD Rapid Test

For in vitro diagnostic use only
Store at 1-8°C (34F-15°F) sealed

Manufactured by SD BIOLINE, INC.
www.sdbioline.com

Lesson 4

Use a system-wide approach and build links with other programmes

The introduction of mRDTs is a very specific malaria care intervention with broader implications for health systems and patient care. Typically, it is led by diagnostic specialists within national malaria control programmes. For malaria control programme managers, the priority tends to be on ensuring accurate diagnosis of malaria (allowing us to know the true burden of disease and effectively treat cases), reducing wastage of ACTs, and protecting the most effective antimalarial drugs for as long as possible. However, to improve malaria diagnosis and the functionality of the health system and to promote accurate diagnosis of febrile illnesses – and ultimately lead to improved patient outcomes – a system-wide approach is required.

Policy-makers and implementers should understand and appreciate that the introduction of mRDTs requires talking about the management of non-malaria febrile illness as much as malaria case management. Given the dramatic impact this tool has on health service delivery, taking a broad and inclusive approach from the outset may help to ensure that health workers receive all the support they need.

A system-wide approach should start with the effective dissemination of policies across programmes and to all levels of the health system to build support and uptake for change in diagnostic policy. This should include the sensitisation of all health system actors, including public and private sectors, civil society and beyond. Government, as well as district and local political leaders, should also be targeted to ensure that authorities are fully aware of the policy change and supportive of health workers as they change practice. This can be challenging, as these efforts are often neglected in budgets and implementation plans, or are reduced due to delays in start-up.

National malaria control programmes should build linkages with other programmes to ensure that complementary support is in place. For example, in Uganda, a clear policy to monitor and promote the rational use of antibiotics, particularly in mRDT-negative cases of fever, would provide guidance to health workers and supervisors.

Similarly, a feasible quality assurance system for verifying the accuracy of mRDTs at the point of use

Malaria rapid diagnostic testing kits



“NMCPs continue to focus on malaria alone while in reality, health systems should be prepared and integrated to manage febrile patients. Clear linkages between the various departments within the Ministry of Health must be seen to function. For example, laboratory systems must have the capacity to investigate causes of non-malaria febrile illnesses, there must be well stocked medicines including antibiotics, and training of health workers must include integrated management of febrile illnesses. There must be linkages between reproductive health and child health departments with NMCPs to improve case management of these vulnerable groups.”

*Diagnostic Focal Person,
NMCP, Ministry of
Health*

must be in place before they are introduced. This can help build confidence in the test results and provide health workers with options if they have doubts about its accuracy. Clinical guidelines may also require input from different departments within the Ministry of Health to ensure a common approach for addressing key case management issues in conjunction with routine mRDT use. For example, health workers at each level of the health system will require guidance in recognising invalid mRDTs and managing cases of possible resistance, severe malaria, malaria in pregnancy and referrals from CHWs. To facilitate timely development of training, those issues that need collaborative decision-making should be anticipated early on.

As much as possible, mRDT roll-out should support a common, integrated approach to fever case management at all levels of the health system, making referral systems coherent and effective. The reality is that multiple funding sources, programmatic approaches and implementing partners often result in patchwork implementation. In Uganda, varying access to confirmatory testing could be found within the same geographic area. For example, some higher-level health facilities with functional laboratories may not consistently carry out parasitological testing due to various constraints – for example, high number of patients presenting with fever exceeding the capacity of the laboratory.

Additionally, due to different programmatic timings health workers in some areas received cursory training on mRDT performance as an iCCM trainer, prior to receiving in-depth mRDT training provided at the health facility level. This puts supervising health workers in an awkward position – they reported sometimes referring patients down to community health workers who were better equipped to manage fevers. When community members observe these inconsistencies in care, this potentially undermines health workers' authority and morale, as well as the quality of care the community receives. In some cases, inconsistencies in policy implementation may threaten providers' acceptance of the programme, or influence them to make 'exceptions' to policy, acquiescing to patients' demand for antimalarial drugs.

Policy matters as health workers often cite national policy – for example, explaining to patients, “I'm not allowed to just give out antimalarial drugs.” A unified implementation of policy can empower health workers and supervisors, so that they do not feel they are working against the tide during the initial phases of mRDT introduction.

Lesson 5

Understand the knowledge and skills needs of diverse sets of health workers and design the training methodology accordingly

In line with taking a system-wide approach to mRDT introduction, a comprehensive training plan should be developed for health workers and supervisors for different levels of the health system.

Development of content for the training must be compliant with national policies and current clinical guidelines, taking into consideration the level of care available at targeted health facilities. Content should also seek to address common case management scenarios faced by health workers in routine practice, using concrete examples

Understanding the needs and limitations of trainees

The initial roll-out of mRDTs has focused on expanding access to confirmatory diagnosis in settings where quality microscopy is not available or cannot be effectively supported. These settings tend to be remote, lacking in health system support, and typically

understaffed with health workers who are often underqualified.

As with all training plans, it is important to understand who, in practice, will be using mRDTs. Some health workers will only require skills in performing the mRDT, managing stores or record keeping. Others will require significant training on fever case management. Some early mRDT training efforts focused on preparing only the health workers responsible for test performance. However, all persons involved in the management of patients should be targeted for training. Conducting a basic needs assessment which includes health workers' skills and the organisation of care prior to mRDT introduction can help to identify the target audiences, the proportion of health workers requiring training in specific areas, and how to best group trainees.

In Uganda, one major challenge was determining appropriate training for health workers with different qualifications and levels and how to balance their diverse needs. In this context, a large number of

Health workers in Buliisa are trained in the use of malaria rapid diagnostic tests



underqualified health workers, primarily nursing assistants, frequently provided or were solely responsible for patient care. These health workers lacked the required background to be able to manage an mRDT-negative patient, but the reality was that they were sometimes left to work alone in a health facility. Therefore, they needed to have clear guidelines on how to manage other febrile illnesses, including when to refer. Once the training targets were better understood, the training programme was then adapted to meet the needs of these health workers. Where feasible, grouping trainees according to cadre and years of experience can also help address different needs and learning capacity.

Training methods

Using a cascade training model can offer an important capacity building opportunity for high-level district health workers, enabling them to consolidate their knowledge and skills through teaching their colleagues in lower levels, and empowering them to effectively supervise over the long term. However, the risk involved is that information is lost as it trickles down to the training levels. Experience in Uganda showed that the three-step cascade training model – which is the training of national trainers who subsequently train district trainers who, in turn, train other health workers – can be effective if key elements are in place. These include the selection of qualified trainers, training on 'how to train', development of appropriate facilitators' tools, along with trainee teaching opportunities. Selecting sufficient numbers of competent district-level trainers with the required combination of clinical and communication skills proved particularly difficult in the smallest and most remote districts.

In contexts where higher-level cadres are not available at the district level, it was determined that the cascade model should not be used in order to assure the quality of health worker training. Instead, national trainers were employed to train all health workers directly. Additionally, district-level clinicians and laboratory personnel with the technical expertise often lacked training experience or the ability to become effective trainers.

In addition to the selection criteria, district trainers were carefully evaluated and observed through mock training sessions. Replacements for those trainers who lacked technical competency and teaching ability were

taken from a pool of roving district or national trainers. District trainers were accompanied by national trainers to ensure quality and provide immediate follow-up on any challenging issues.

The original training programme also relied primarily on didactic learning, with limited practical sessions held at nearby health facilities. In addition to training on 'how to train' and developing facilitators' tools based on adult learning techniques, the revised programme proposed to use more practical methods to teach health workers on how to 'do' and build confidence to practise new skills.

The training in Uganda was set over four days for district trainers and two days for those health workers at the lowest level. However, given that mRDTs are new, the volume of information packed into two days may be difficult to absorb. Health providers may also not be able to fully appreciate the importance of clinical case management or acquiring the necessary communication skills until they see negative test results in practice. Although this awareness can be

Health workers learn how to read results of malaria rapid diagnostic tests



achieved through practical sessions, providers are usually focused on test performance at this early stage, and may not get a full idea of the challenges ahead.

Practical sessions are also typically held towards the end of the training programme, with a limited amount of time to regroup and review the experience. Suggested alternative options include planning for an add-on course for those who need more clinical skills, or to conduct refresher or two-stage training, with a second, more targeted training focusing on reinforcing case management skills to take place a month later, once health workers have more experience with negative mRDT results.

Assessing competency

Planning a phased approach to roll-out can ensure that there is some flexibility to make necessary modifications to the training plan before scaling up. Experience in Uganda demonstrated the importance of a continuous improvement process as training is

rolled out. Taking stock of early experiences prompted health system actors to make important changes to both training content and methods, clarifying guidance on troublesome areas. Training was evaluated using standardised pre/post-training assessment tools to measure acquired knowledge and provide immediate feedback to trainers as well as by providing opportunities for feedback beyond the training period and once providers begin to apply what they learned. This included involving front-line healthcare providers in periodic consultative meetings to review implementation.

However, the absence of clear national standards for evaluating health worker competency in relation to diagnostic and clinical management has been a major gap. Current efforts are focusing on developing a set of competency criteria which appropriately weight those elements of care that have the greatest impact on patient outcomes. This will enable trainers and supervisors to effectively evaluate health workers and identify those that need further training and mentorship.

Training malaria rapid diagnostic tests trainers in Hoima, who will later train lower-level health workers
Photo: Tadej Znidarcic



Lesson 6

Use a multi-faceted approach to capacity building and tailor supervision efforts over time

Too often, health workers are simply trained, sent back to their health facilities, and left on their own. Early behavioural changes, however, may not be sustained over time without regular support, as health workers fall back into old habits or become disheartened due to high workloads or low motivation.

Changing health workers' mindsets, therefore, requires a long-term approach, with consistent support provided through multiple channels. In addition to comprehensive training, a multi-faceted approach should include regular supportive supervision, quality control at the point of care, and opportunities for experience sharing, such as discussing cases within a health facility or meetings across health facilities. Steps also need to be taken to integrate the mRDT training curriculum into a national clinical training curriculum, as well as provide continuous medical education opportunities.

“Sometimes I could be reluctant about something but when the supervisors come, you wake up. The advantage is that I get to know that I am not alone and there are other people who are working with us and willing to help us when the need arises.”

Nurse, health centre III

A patient waiting to receive medicines at the Nakitembe health centre II



Supportive supervision

Immediately following up quality training with regular and supportive supervision using a competency checklist that measures expected standards of quality care can have an important impact on building health workers' skills and confidence, as well as on their adherence to policy. While this approach may be costly and time-intensive, the benefits of this investment can be seen in long-term sustainability and long-lasting behaviour change.

It may be difficult to identify sufficient numbers of supervisors who are capable of providing supportive guidance and working together with health workers to identify solutions. As part of the training of trainers, district level trainers should be trained on supportive supervision methods, including how to provide guidance and feedback in a constructive and enabling way, and be assessed for these abilities. Moreover, a key component of mRDT supervision involves the

observation of fever case management, in order to assess health workers' skills in practice. This requires that supervisors have appropriate clinical qualifications and experience. In settings where well-qualified clinicians are limited, they usually must be drawn from other health facilities or activities.

Planning a phased approach to supervision, using a comprehensive tool covering different areas of health worker performance and health facility management, can help supervisors focus on different aspects over time, based on performance and problematic areas identified in previous visits.

Based on experiences in Uganda, regular supervision focused on mRDTs should be conducted for at least a year after introduction. After this, less focused attention may be required and key elements integrated into other supervision activities. There may also be a need

“Once you support, mentor and give feedback to health workers, they tend to improve.”

Supervisor

Alice Katusabe, who is an In-charge at Kihungya health centre II, performs a malaria rapid diagnostic test



Phased approach to supportive supervision utilised in Uganda

Immediate follow-up

- Focused on ensuring correct mRDT performance by all health workers, including safe blood handling practices. This is particularly important as many lower-level health facilities are handling blood for the first time.
- Verification that appropriate waste management systems, storage facilities and separate mRDT workspaces are in place and properly utilised.
- Verification that all health workers at the facility have been trained; identification of health workers for mop-up training and/or provision of on-the-job training.
- Initial assessment of competency.

Six weeks post-training

- Similar focus on ensuring that all health workers are performing mRDTs correctly; verification of proper storage, waste management and record-keeping.
- Follow-up on plans agreed during the immediate follow-up visit, ensuring that organisational issues are being addressed. Some health facilities may require further hands-on support at this stage to organise workspace, manage the store and record results correctly.
- Record review to verify that antimalarial drugs have been prescribed to mRDT-positive patients only; discussion of aberrant prescription practices.
- Where feasible, observation of fever case management, including provider-patient communication. Additional guidance on how to foster patients' acceptance of mRDT results can also be provided.

Quarterly

- Focused primarily on supporting improved case management practices, the organisation of service delivery and attitudinal changes.
- Clinical observation of cases to provide feedback on case management practices and provider-patient interaction.
- Supervision plans adapted to target specific areas of concern. For example, a round of supervision may focus on the management of a particular disease if it is determined that health workers need more support in this area (for example, reviewing acute respiratory infections management with all health workers and guiding health workers on avoiding useless antibiotic treatments).

for ongoing targeted supervision for a longer period focusing on specific problematic areas or health facilities.

Beyond supervision, forums for sharing health workers' experiences – such as meetings to discuss cases within a health facility, peer-to-peer communication and communities of practice – can be important for eliciting providers' viewpoints and identifying effective responses to context-specific challenges. Where issues with patients' acceptance of results are important, provider-patient dialogue meetings may be appropriate mechanisms for improving communication.

Conclusions

Successful implementation of mRDTs promises to minimise the overuse of ACTs, reduce missed diagnoses, and clarify the burden of malaria. Early experiences have shown that at least some of these objectives can be realised¹⁷. However, this requires a strong focus on non-malaria febrile illnesses and significant investment in frontline health workers.

A number of studies have now looked at the cost savings associated with mRDTs¹⁸⁻²⁴. While the potential for cost savings may be substantial in contexts where overuse of antimalarial drugs is high, the entire diagnostic strategy is underpinned by providers' adherence to test results. Policymakers should, therefore, appreciate that introducing mRDTs is not just about financing the commodity. A long-term approach is required for changing health workers' mindsets, and implementers must allow adequate time and provide consistent support through multiple channels. The successful implementation of mRDTs will ultimately be determined by health worker performance – the extent to which providers adhere to test results when deciding on treatment and effectively manage other causes of fever. Initial scale up should not short-change quality training and supervision.

More emphasis is needed on the best methods for supporting health workers to adapt to this paradigm shift. Beyond training and supervision, these measures include creating forums for health workers to share experiences (e.g. peer-to-peer communication, communities of practice) or meetings focused on provider-patient dialogue.

Implementers should look more broadly at how providers assess and manage cases, and specifically how they manage mRDT-negative patients. Monitoring and evaluation plans should include methods that involve asking health workers about their views and experiences. Talking to health workers about how they feel about these changes can also guide the way forward and identify the best means to support them.

A health worker performs a malaria rapid diagnostic test on a child
Photo: Vicky Dawe





Summary of key lessons

Global health partners, donors, international policymakers

- Understand and appreciate that mRDT introduction is not just a quick win, but requires a long-term investment in supporting front-line healthcare providers.
- Push the debate and appropriate research on the best approaches for building low-level health workers' capacity to manage non-malarial febrile illness.
- Understand that measuring success goes beyond adherence to mRDT results. More should be done to understand what health workers actually do in practice and why.

Ministries of health, national policymakers

- Take a broad and inclusive approach from the outset; ensure Ministry of Health and political actors are oriented from the highest to lowest levels
- Ensure clear policy guidelines on the use of antibiotics are in place.
- Acknowledge that mRDT use generally increases workload, and prepare health workers for this accordingly. Lobby for staffing improvements where feasible.

National malaria control programmes

- Ensure clear and consistent communication of the parasite-based diagnostic policy at all levels of the health system; engage political authorities or other influential persons as appropriate.
- Enlist non-malaria specialists in the curriculum development process as necessary. Expertise in provider-patient communication and health service delivery organisation may be helpful.
- Ensure funding and programmatic resources for long-term supervision and quality assurance efforts. Ensure that supervision regularly includes observation of fever case management practices.
- Build links with other programmes. Appreciate that mRDT introduction is about promoting the improved diagnosis of febrile illnesses, not just malaria.
- Give adequate attention to the management of non-malarial febrile illness in the training curriculum. Consider multi-stage or a follow-up training course to allow adequate time for practising clinical skills.
- Provide forums for providers to share experiences.
- Design the training curriculum to include the use of practical and hands-on training methods that will build health worker confidence.
- Train healthcare providers on interpersonal communication skills, to ensure diagnostic and treatment information is shared with patients and facilitate patients' acceptance of mRDT results.



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Reviewing blood samples under a microscope at a health centre in Butemba Sub-county



Malaria Consortium

Malaria Consortium is one of the world's leading non-profit organisations specialising in the comprehensive control of malaria and other communicable diseases – particularly those affecting children under five.

Malaria Consortium works in Africa and Asia with communities, government and non-government agencies, academic institutions, and local and international organisations, to ensure good evidence supports delivery of effective services.

Areas of expertise include disease prevention, diagnosis and treatment; disease control and elimination; health systems strengthening, research, monitoring and evaluation, behaviour change communication, and national and international advocacy.

An area of particular focus for the organisation is community level healthcare delivery, particularly through integrated case management. This is a community based child survival strategy which aims to deliver life-saving interventions for common childhood diseases where access to health facilities and services are limited or non-existent. It involves building capacity and support for community level health workers to be able to recognise, diagnose, treat and refer children under five suffering from the three most common childhood killers: pneumonia, diarrhoea and malaria. In South Sudan, this also involves programmes to manage malnutrition.

Malaria Consortium also supports efforts to combat neglected tropical diseases and is seeking to integrate NTD management with initiatives for malaria and other infectious diseases.

With 95 percent of Malaria Consortium staff working in malaria endemic areas, the organisation's local insight and practical tools gives it the agility to respond to critical challenges quickly and effectively. Supporters include international donors, national governments and foundations. In terms of its work, Malaria Consortium focuses on areas with a high incidence of malaria and communicable diseases for high impact among those people most vulnerable to these diseases.

www.malariaconsortium.org



Malaria Consortium is committed to a practical approach that integrates engagement between the community and health services, and national and global policy makers. It is an approach that is underpinned by a strong evidence base and driven by shared learning within and between countries

A woman has her blood sample taken at a health facility in Masindi District





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