



Interventions to improve use of RDTs: evidence from a trial in Northeast Tanzania

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On behalf of

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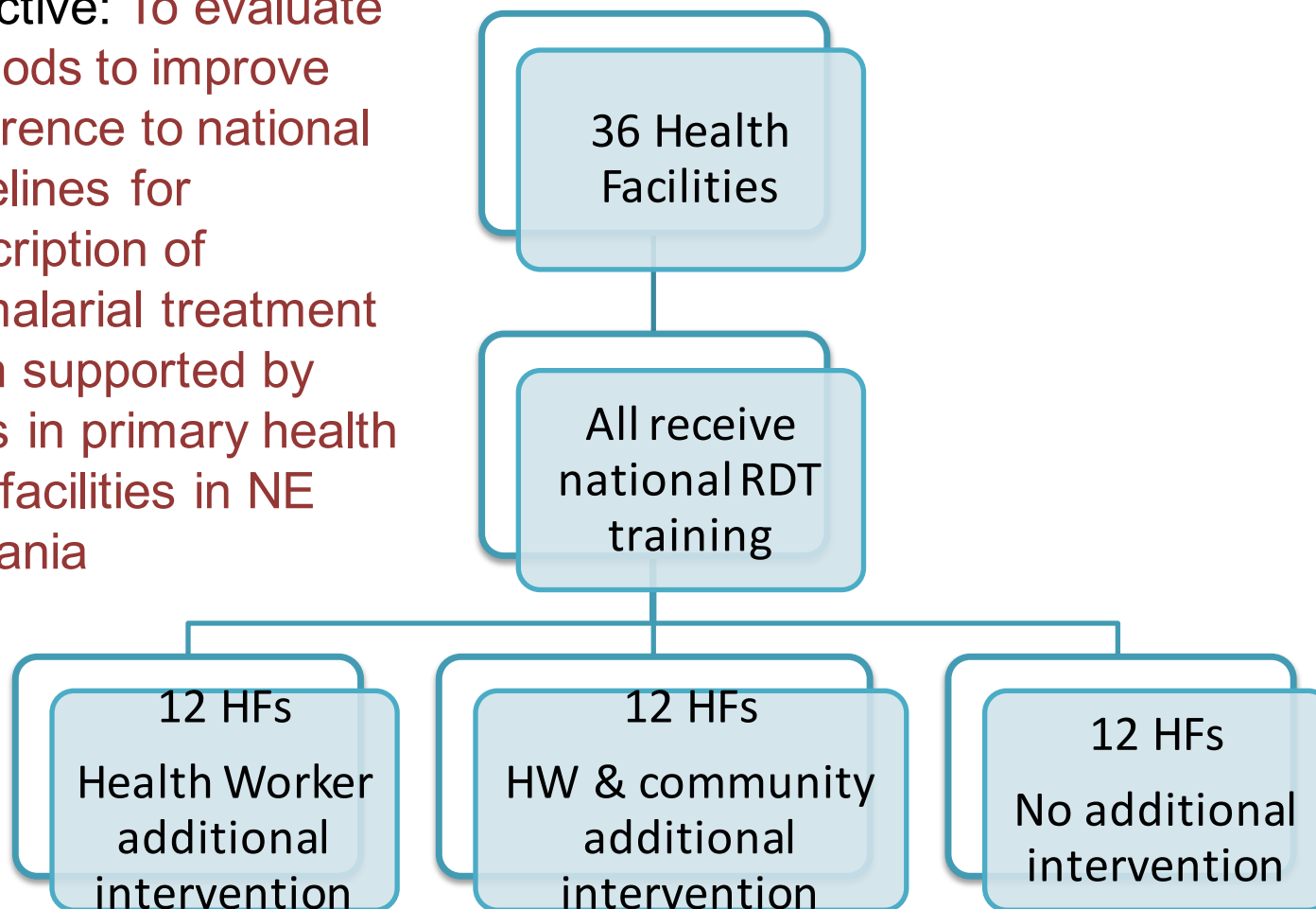
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Outline

1. Introduction of Targeting ACT (TACT) Trial
2. Steps in intervention design
3. Results: impact of intervention
4. Interpretation

1. TACT trial

Objective: To evaluate methods to improve adherence to national guidelines for prescription of antimalarial treatment when supported by RDTs in primary health care facilities in NE Tanzania



2. Steps in intervention design



Formative research fieldwork

- To understand health worker practices in relation to malaria diagnoses and a recent RDT pilot
- To understand community perceptions of malaria testing and RDTs



Review of empirical and theoretical literature and materials



Workshop to define intervention components

- Integrating formative research with empirical and theoretical literature
- Selection based on feasibility, replicability, sustainability, acceptability



Development and pretesting of intervention materials

- Training materials
- Patient information leaflet

2.1 Formative research

"A patient came with all malaria signs but the malaria test was negative. I was in a dilemma. I was tempted to give the patient medication"

leaders

- Key findings:

RDT negatives were common and denial of a malaria diagnosis was common. The expectations of prescribers and patients from the community were not aligned.

At health centres, tensions were resolved by justifying ignoring the results, providing alternative diagnosis and treatment, or persisting in denial of expected medicines eg through giving advice to rest

Community members also sought treatment (and tests) elsewhere

"I tested myself in the dispensary near our home and saw that it was a joke. She took blood, put it on a testing device. Then after discussion for short moment she told me that I don't have malaria though she would give me paracetamol tablets as headache pain killers so that I could feel normal. I was also told to avoid a lot of work and get rest. I truly followed the instructions and my condition got better.[Mhhh...] Maybe it was body tiredness and I felt alright"

"There is a test at the dispensary but it is not trustful because you might be sick or your child is sick and when you go for check up, they will tell you that you don't have malaria. But when you go at the district hospital and get a test you will be told that you have malaria"

2.2 Literature review

Empirical literature

- Reviewed many papers, and others' reviews E.g. WHO (2009) review of studies to improve medicine use in primary care in developing countries 1996-2006
- Findings suggested training ineffective alone, but effect possible in combination with other activities; community-oriented activities could be effective
- Interactive workshops, peer reviews and quality supervision had largest effects
But – evaluation quality was limited, and effects were context specific

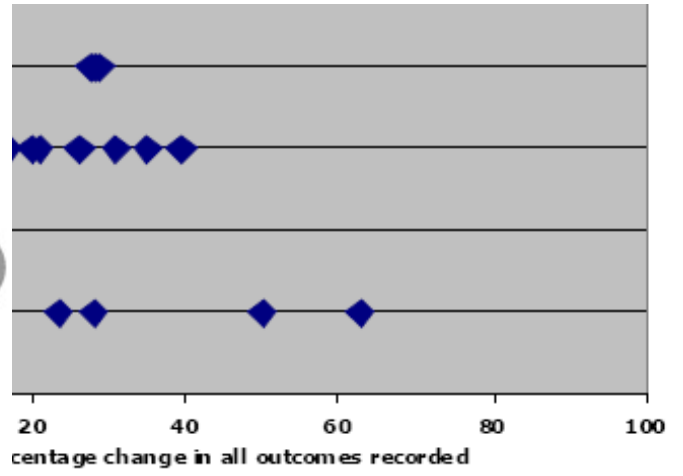
Theoretical literature

- Many competing theories, often cognitive-based (from psychology)
- We felt our formative results, and desired outcomes fitted well with stages-of-change (transtheoretical) models but also with social theories around Communities of Practice (E. Wenger)

Figure 10.6: Median reported percentage change across all study outcomes for prescribing improvement interventions, by type of intervention

Stages of behaviour change

Stage	Description
Pre-contemplative	Unaware of need for change; or aware but not considering change
Contemplative	Considers behavioural change, seeks out information about personal advantages; may be ambivalent about changing
Preparation/decision	Actively makes plans to change, takes steps towards action
Action	Actively modulates behaviour; learns new skills; effects changes in environment to support change
Maintenance	Maintains gains made; requires environmental support for maintenance of change



Median across studies in group

FIGURE ONE: COMPONENTS OF A SOCIAL THEORY OF LEARNING: AN INITIAL INVENTORY. SOURCE: ETIENNE WENGER.

2.3 Interdisciplinary workshop

- Reviewed formative results, empirical evidence and theory
- Made a long (wish) list of potential intervention components
- Refined according to criteria we had made:
 - Likely to be replicable – by routine systems, at low cost, low technology
 - Likely to encourage a sustainable change
 - Successful previously elsewhere/locally
 - Not unsuccessful previously locally
 - Based on theory
 - Likely to be acceptable, given findings of formative research
 - Evaluatable with a cluster RCT design
- Made a final outline of a manageable package to design and deliver

Item from formative results	Goal	How (from literature / theory)
HW perception that patients think they have malaria BUT patient preparedness to be given an alternative explanation and treatment	Change perception of patient expectations: that sometimes they don't think they have malaria	<ul style="list-style-type: none"> -skills and confidence to let patient say what they want= communication skills training? -awareness patients know about RDTs and aren't expecting antimalarials every time = meeting with community?
Lack of trust in test results because it is negative but is positive at lab	Trust test	-encourage to experiment ? with a gold standard test e.g. upgrading a hospital lab or identifying a trustworthy independent lab
Sometimes not using RDT properly / fear using RDT if get it wrong?	Use RDT properly	-train in use of RDT in a smaller group, more practice, allow to ask questions (train supervisor in frequent questions), giving more information about waiting time,
Prefer to carry on with what they have always done	Tackle preparedness to change	<ul style="list-style-type: none"> -meet them, feedback their results, find out what their needs are -use a peer who has already changed (e.g. same age group) to meet with them to discuss
Don't trust research initiatives so reluctant to take up new practice	Trust the intervention	<ul style="list-style-type: none"> -have MoH stamp / use district team -ask what their issues are sincerely

2.4 Design of workshops

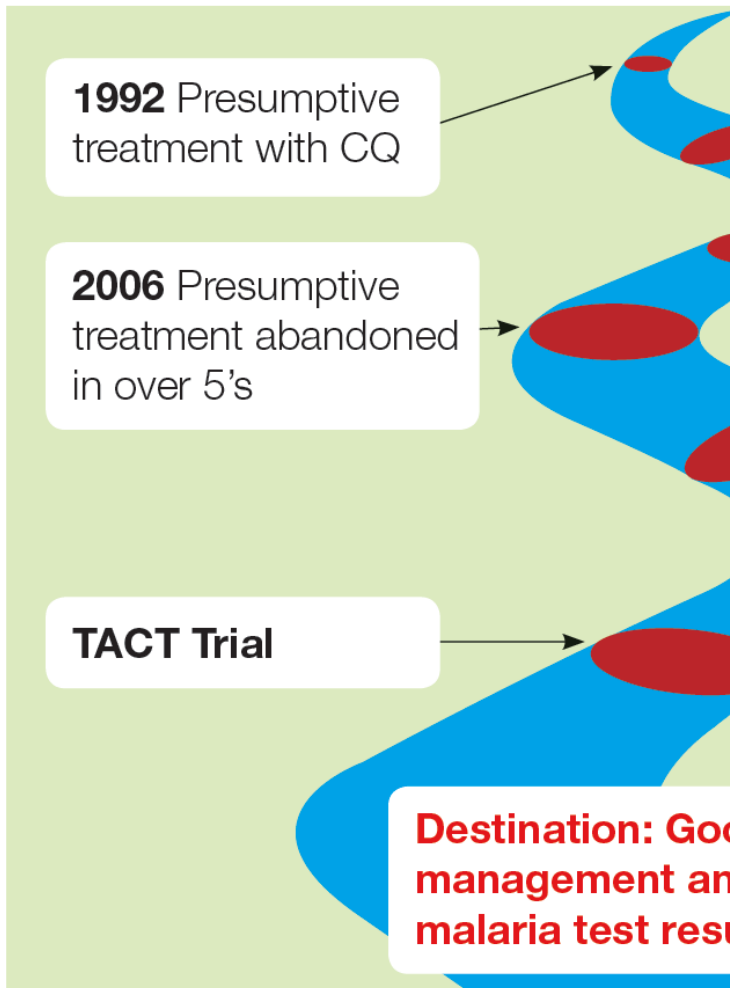
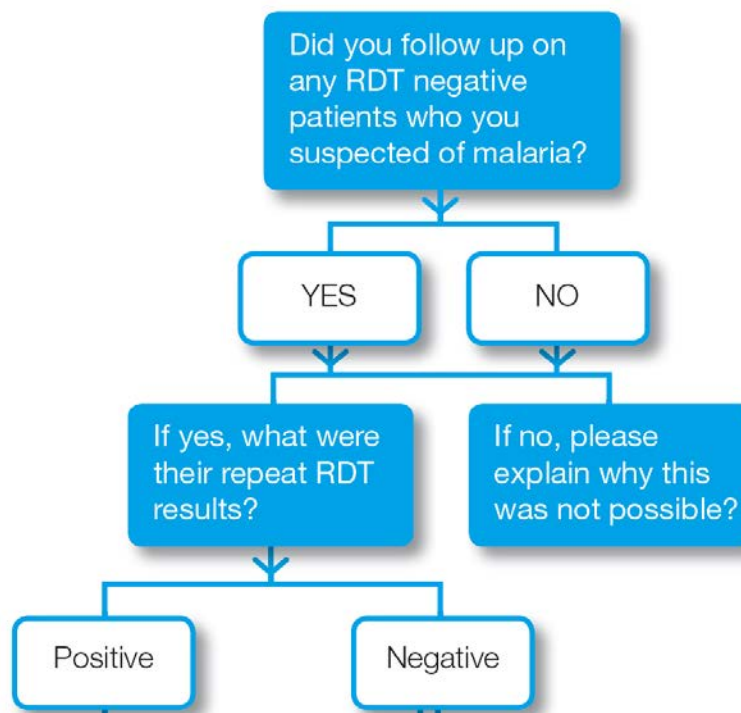
The Malaria Management River Walk

HOMEWORK - MODULE 1

Homework: Module 1 Self Assessment managing mRDT Negative Patients

This exercise is a self assessment when managing mRDT negative patients. Follow up 3 patients who were mRDT negative and did not receive anti malarial treatment then complete the questions in the flow chart below.

Consultation / Patient No.1



2.4 Design of patient leaflet

- **Action research**
- Collaborative endeavor with community members to produce ideas for messages to include in a patient leaflet:
 1. What to do when one thinks s/he or a child has malaria?
 2. What to do when the RDT shows No malaria
 3. How to tell others about RDTs and malaria treatment
- These messages were converted into pictures and revised in groups, pairs and individuals in the communities.



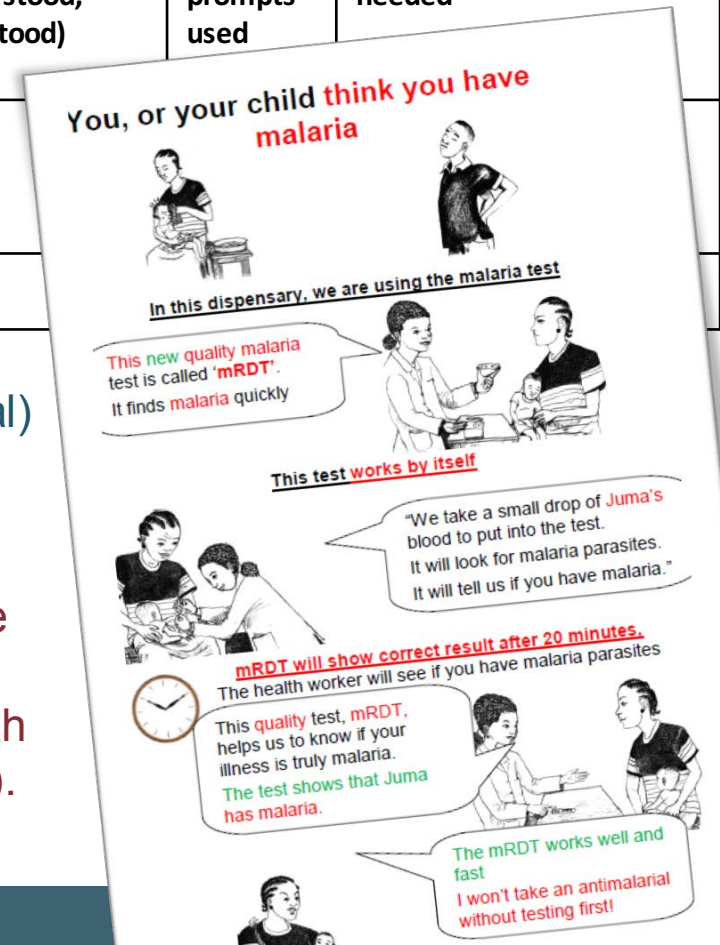
2.5 Pretesting materials

Scores for each component of leaflet

Page	Section	Concept intended to portray <i>Add concepts interpreted by participant</i>	Score (0= misunderstood or not mentioned), 1= partly understood, 2= fully understood)	Number of prompts used	Comment on why misunderstood / prompts needed
1	1	Not all symptoms that feel like malaria are really malaria	2		

Carried out 5 rounds of revisions with 43 pairs (86 total) of participants in 6 villages, representing 20 ethnic groups

Final round of testing of the leaflet showed an average of 97.3% of the 120 pictorial and text items of the leaflet were understood (n=15 pairs) compared with 71.3% of 160 items in the first version (n=12 pairs).



2.6 Final intervention package

Adapting to the change

- Handouts
- Worksheets
- Homework

Practice with Confidence

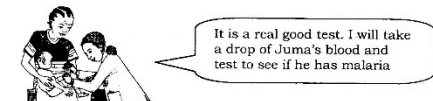
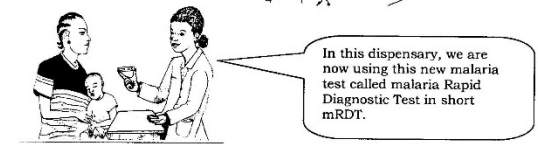
- Handouts
- Worksheets
- Homework

Sustaining the change

- Handouts
- Worksheets
- Homework



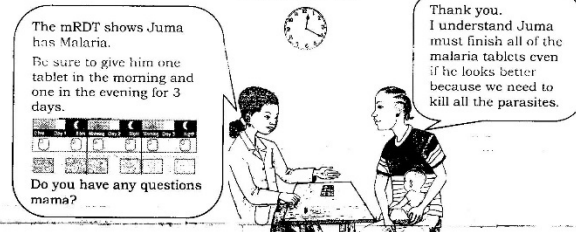
When you think you or your child has malaria.



This is the new malaria test called malaria Rapid Diagnostic Test (mRDT).



In 20 minutes the test will give correct results by itself, to show if there is malaria.



3. Results

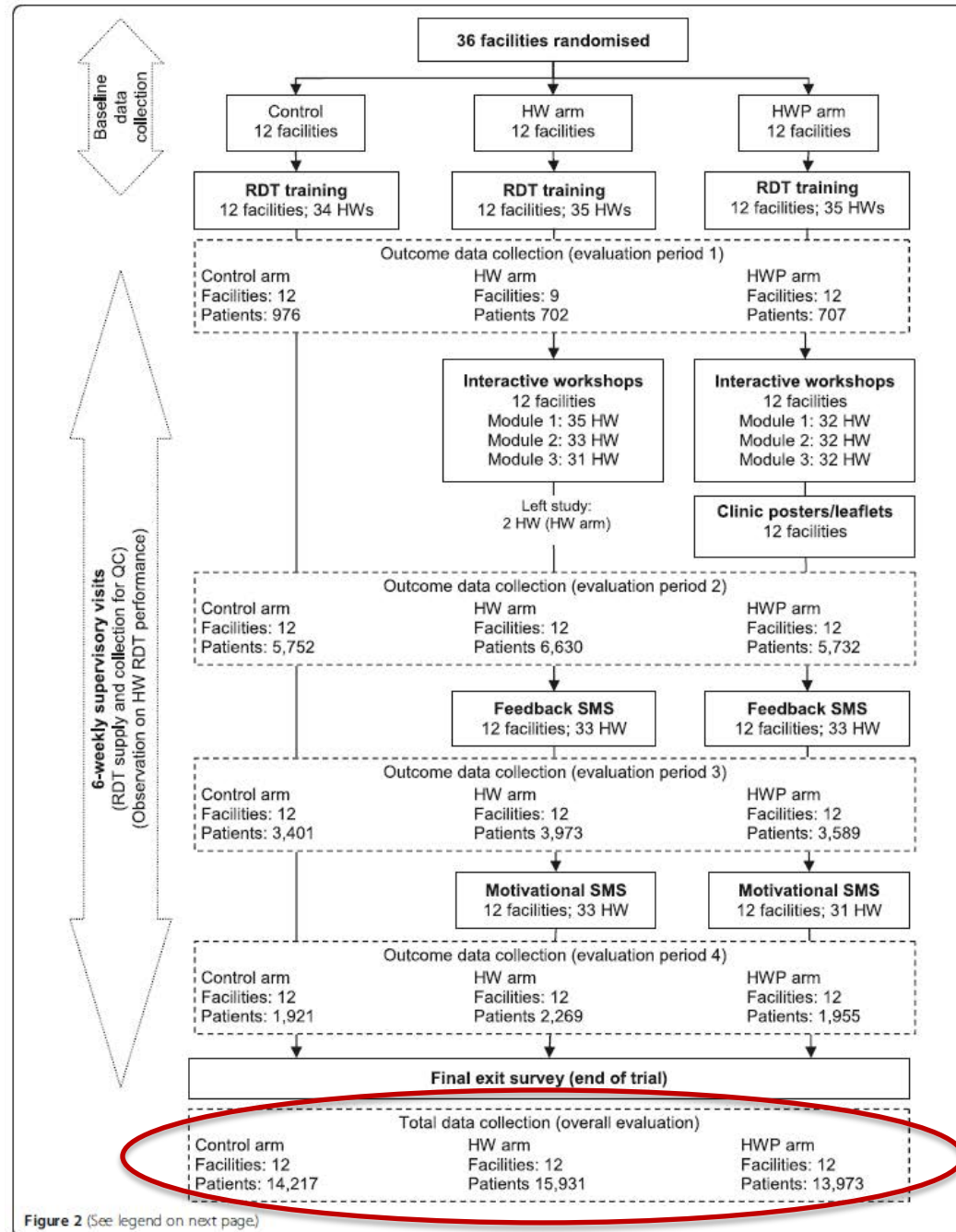


Figure 2 (See legend on next page.)

3. Results, quantitative measures

Effect of interventions on RDT use, antimalarial prescribing and antibiotic prescribing

	Arm	Number of patients	Prevalence n (%)	p-value [‡]		
RDT uptake						
RDT done amongst those eligible for testing (fever and no obvious alternate diagnosis)	Control (RDT training only)	8,241	4544 (55%)			
	Health worker intervention	9,064	5064 (56%)	0.44		
	Health worker & patient intervention	7,292	4833 (66%)	0.01		
Adherence to RDT negative						
RDT negative receiving AM	Control (RDT training only)	4,015	762 (19%)			
	Health worker intervention	4,539	250 (6%)	0.01		
	Health worker & patient intervention	4,330	189 (4%)	0.002		
Adherence to RDT positive						
RDT positive receiving AM	Control (RDT training only)	1,455	1166 (80%)			
	Health worker intervention	1,696	1402 (83%)	0.39		
	Health worker & patient intervention	1,249	963 (77%)	0.69		
Treatment with Antibiotics						
RDT negative receiving ABx	Control (RDT training only)	4,015	2977 (74%)			
	Health worker intervention	4,539	3527 (78%)	0.98		
	Health worker & patient intervention	4,330	3236 (75%)	0.08		
[‡] Effect estimate is risk difference = control – intervention. Control is standard RDT training. Adjusted for facility (stock-out of ACT, stratum, provision of materials), prescriber (age, education, time at facility) and patient (age) characteristics. Treatment outcomes additionally adjusted for facility-level proportion treated with recommended antimalarial (rAM)/any antimalarial (AM) at baseline.						

3. Results: qualitative experiences

- Clinicians took on a self-surveillance role
 - Intervention encouraged techniques of self-experimentation and self-observation

I was feeling very feverish and then I decided maybe to teach myself. I asked the other health worker to test me with the RDT so that I could see how it reacted. So, I was tested and it was negative and I said, 'I have to follow what the training taught so that I can see if it works on me or not.' So, I said, 'so long as it is negative then I will just use the amoxicillin and pain killers,' something like that. So, I rested for five days and the fever went and from there I said, 'No, I should not be taking the antimalarial,' and I have not taken an antimalarial since then.

- SMS texts with individualized feedback demonstrated a system of monitoring and surveillance

Ok, the test said negative, but the patient was complaining about it. I said, 'I will test you again.' He said, 'Usually when I feel like this I take malaria medicine. Without the drugs I am not getting better.' He did not want to take the medicine. I was insisting I should write a prescription for a malaria medication through my phone and I read it. Then I kept insisting to the patient to take the medicine.

Then the patient may come like three or more times again in the same situation and you test and it is negative and so you don't give an antimalarial. Then, the time that you do give an antimalarial is the one when you receive an SMS saying "treat according to the test result" and then you feel like these people are watching me.

3. Results: qualitative experiences

- Clinicians became more accountable to ‘them’ – the state, and donors
 - Recognition that mRDTs were beneficial for government/donor expenditure on ACTs,
 - Recast ‘old’ behaviour as random and wasteful, even dangerous and had ‘destroyed patients’ lives’
 - The use of mRDTs emerged as a moral issue

R: Now we treat patients thoroughly. We don’t prescribe using clinical signs and symptoms as we were previously.

I: And you are happy with that?

R: Yes, because we were using a lot of medicine but now we just use a small amount of Alu [ACT] and this is an economic benefit for our country for all sections all health facilities using that procedure. We were using a lot of drugs unnecessarily.

3. Results: qualitative experiences

- **Clinician-patient relationships reconfigured**

- Some clinicians still felt the need to provide something to patients, mostly in the HW arm

When the patient comes even if it's negative, it has to be dealt with carefully. I give placebo, I can just prescribe paracetamol and B-complex or magnesium so that she or he feels she or he has come from hospital. For example, if we'll do as we were taught in the seminar it has to be - if it is negative no need to prescribe anything - that will really bring conflict especially to us in rural areas. That is that's why we are trying to prescribe placebo like B-complex or paracetamol because such a person is negative and there is no need to give any other drug - unless otherwise she or he is presenting with other symptoms you can either consider piriton and tell him/her how to take it.

- But others, especially in the HWP (most intensive intervention) arm, redirected their accountability away from patients, drawing the state into the consultation through the RDT as an arbiter of medicine access, even describing it as the 'law'

So then I had to use [a] kind of trick that this is the law that is being enforced, that when this device is positive I have to record that it is positive and then I have to give the antimalarials. But for now this one doesn't say that it is positive, then [if] I have to record that I have given you antimalarial so it's kind [of], I'm going to be sued. So, I just try to make the patient understand. So I even told the person, those who are bringing the test are the ones giving the drugs, so they will question me and I won't have the way to explain to them why this happens this way.

4. Interpretation

- **Changing prescribing practice is possible**
 - Context: mRDTs had been introduced already and the tide was already turning towards this style of practice
 - Content: re-fashioning health workers as 'modern'
 - Style: peer-group workshops, physical activities, self-observation and feedback, repeated groups, direct-to-clinician texts (tailored and generic)
- **Need to consider underlying 'message' & consequences**
 - Intervention required a re-orientation of clinicians towards accountability to the state/donors, and in turn away from accountability towards patients. What will this mean for the care patients receive?
 - In a context where care is almost equivalent to provision of medicines, strict adherence to mRDT results may be underpinned by increasing use of other pharmaceuticals or other measures to fulfil patient expectations

Thank you to..

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