

Malaria Social and Behavior Change Communication Evidence Discussion Series III:

Prescriber and patient-oriented behavioural
interventions to improve use of malaria rapid
diagnostic tests in Tanzania: facility-based cluster
randomised trial

Tuesday, August 6, 9:30–10:30 a.m. EDT

Moderator: Bridget Higginbotham, MPH, U.S. President's Malaria Initiative

Presenter: Clare Chandler, MSc, PhD, co-Director, London School of Hygiene and Tropical Medicine
Antimicrobial Resistance Centre



Today's moderator



Bridget Higginbotham, MPH

U.S. President's Malaria Initiative

Discussion overview

- Study overview
- Methods
- Results
- Programmatic implications
- Discussion

Article: <http://bit.ly/2MDA911>

Discussion guide: <http://bit.ly/2ZmtMTh>

Malaria SBCC Evidence Database

HCC3 will also release a report on the literature reviewed for this project.

Country :	Malaria Area :	Communication Intervention :	Study Design :	Audience Segmentation :
<input type="checkbox"/> Bangladesh	<input type="checkbox"/> Case management	<input type="checkbox"/> Interpersonal communication	<input type="checkbox"/> Cluster randomized control trial	<input type="checkbox"/> Caregivers of children under 5
<input type="checkbox"/> Belize	<input type="checkbox"/> Malaria in pregnancy	<input type="checkbox"/> Community engagement	<input type="checkbox"/> Post-assessment only	<input type="checkbox"/> Children
<input type="checkbox"/> Benin	<input type="checkbox"/> LLIN/ITN	<input type="checkbox"/> Provider training	<input type="checkbox"/> Post-assessment only with control group	<input type="checkbox"/> Community mobilizers
<input type="checkbox"/> Burkina Faso	<input type="checkbox"/> IRS	<input type="checkbox"/> Caregiver training	<input type="checkbox"/> Pre- and post-assessment	<input type="checkbox"/> General public
<input type="checkbox"/> Cambodia		<input type="checkbox"/> Mass media	<input type="checkbox"/> Pre- and post-assessment with control group	<input type="checkbox"/> Households
<input type="checkbox"/> China		<input type="checkbox"/> Social marketing	<input type="checkbox"/> Randomized control trial	<input type="checkbox"/> Malaria Tested/Treated/Patients
<input type="checkbox"/> Colombia		<input type="checkbox"/> mHealth	<input type="checkbox"/> Mixed methods	<input type="checkbox"/> Men
<input type="checkbox"/> Ecuador		<input type="checkbox"/> Print media		<input type="checkbox"/> Providers/Prescribers
<input type="checkbox"/> Ethiopia				<input type="checkbox"/> Pregnant women
<input type="checkbox"/> Ghana				<input type="checkbox"/> Other
<input type="checkbox"/> India				
<input type="checkbox"/> Kenya				
<input type="checkbox"/> Liberia				
<input type="checkbox"/> Madagascar				
<input type="checkbox"/> Malawi				
<input type="checkbox"/> Mali				
<input type="checkbox"/> Mozambique				
<input type="checkbox"/> Myanmar				
<input type="checkbox"/> Nicaragua				
<input type="checkbox"/> Niger				
<input type="checkbox"/> Nigeria				
<input type="checkbox"/> Rwanda				

<https://healthcommcapacity.org/malaria-evidence-database/>

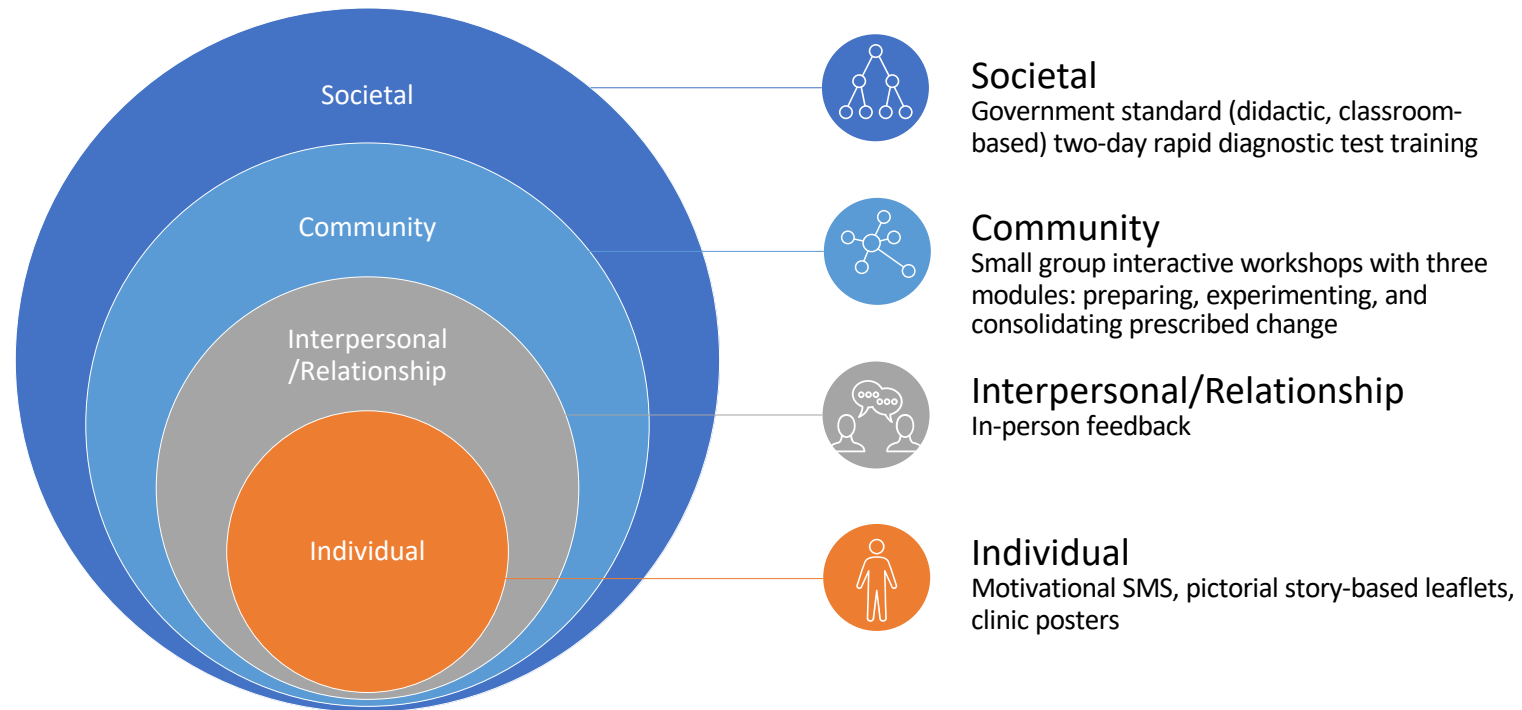
Today's featured presenter



Clare Chandler, MSc, PhD

London School of Hygiene and Tropical
Medicine

Socio-ecological model lens



Study overview

Malaria Social and Behavior Change Evidence Discussion Series

Discussion Questions

July 2019

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Behavioral objectives: Which behaviors did this study interventions set out to influence?

Communication objectives: What knowledge, attitudes, social norms, or environmental factors did study interventions set out to influence, and how were they influenced?

Impact: Which intervention appears to have been more successful? Which behavioral or health outcomes were measured and how were they measured?

Study design: What kind of study design was used (cross-sectional, longitudinal, pre-post, etc.)? What steps were taken to avoid study bias? How representative was the survey sample of the population who received the intense behavior change communication intervention?

Study analysis: How confident can we be that behaviors being practiced are a result of the interventions, and not as a result of confounding factors?

Generalizability: Were the groups surveyed in this study representative of Tanga and Kilimanjara regions as a whole? Can lessons learned in this study be applied beyond the populations studied?



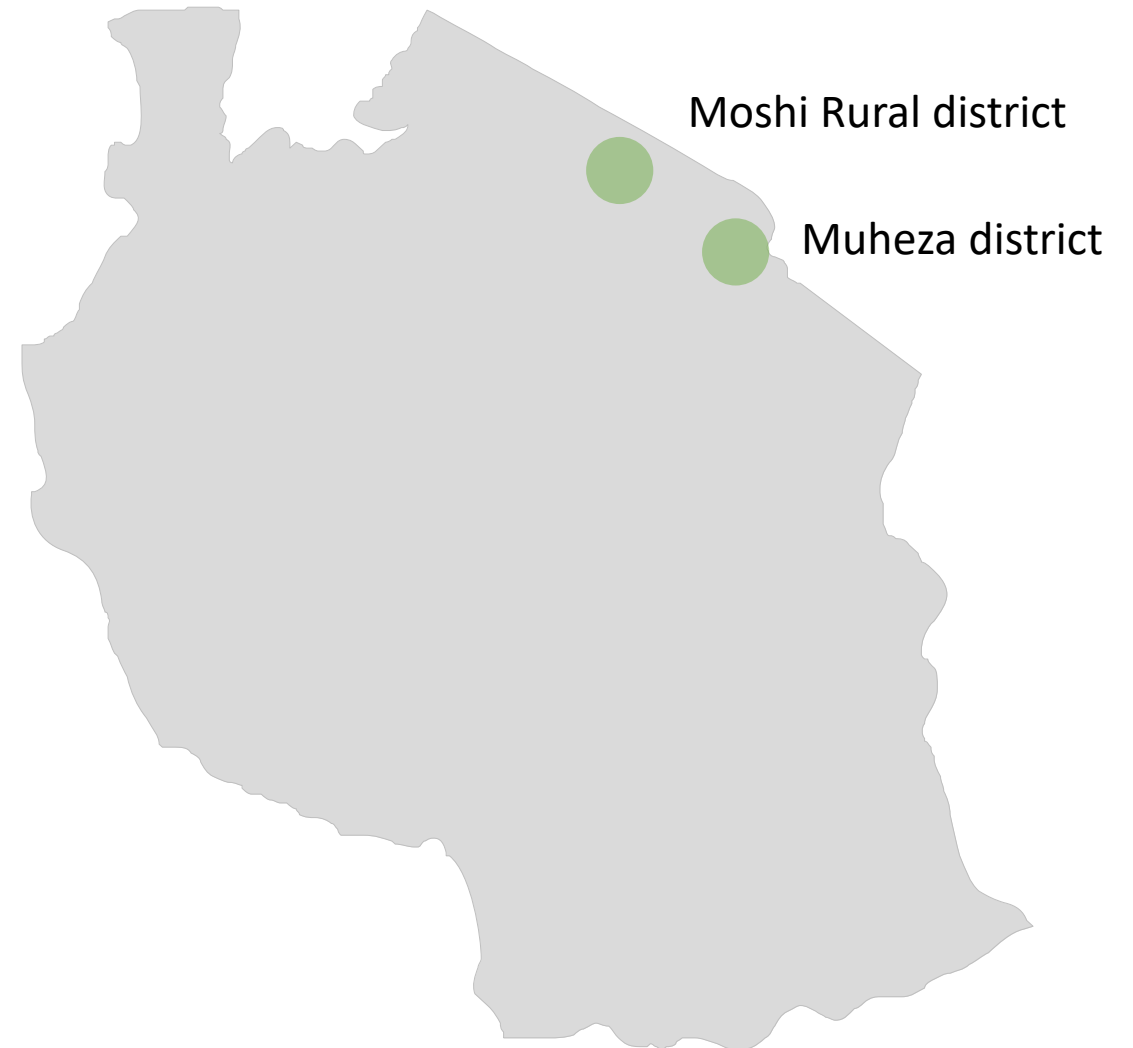
Objectives

The goal was to evaluate methods to improve prescribers' adherence to malaria diagnostic testing protocol

- The primary outcome of interest was the proportion of patients with non-severe, non-malaria illness incorrectly prescribed a recommended antimalarial.
- Secondary outcomes of interest were uptake of rapid diagnostic tests (RDTs), adherence to results, and antibiotic prescribing.

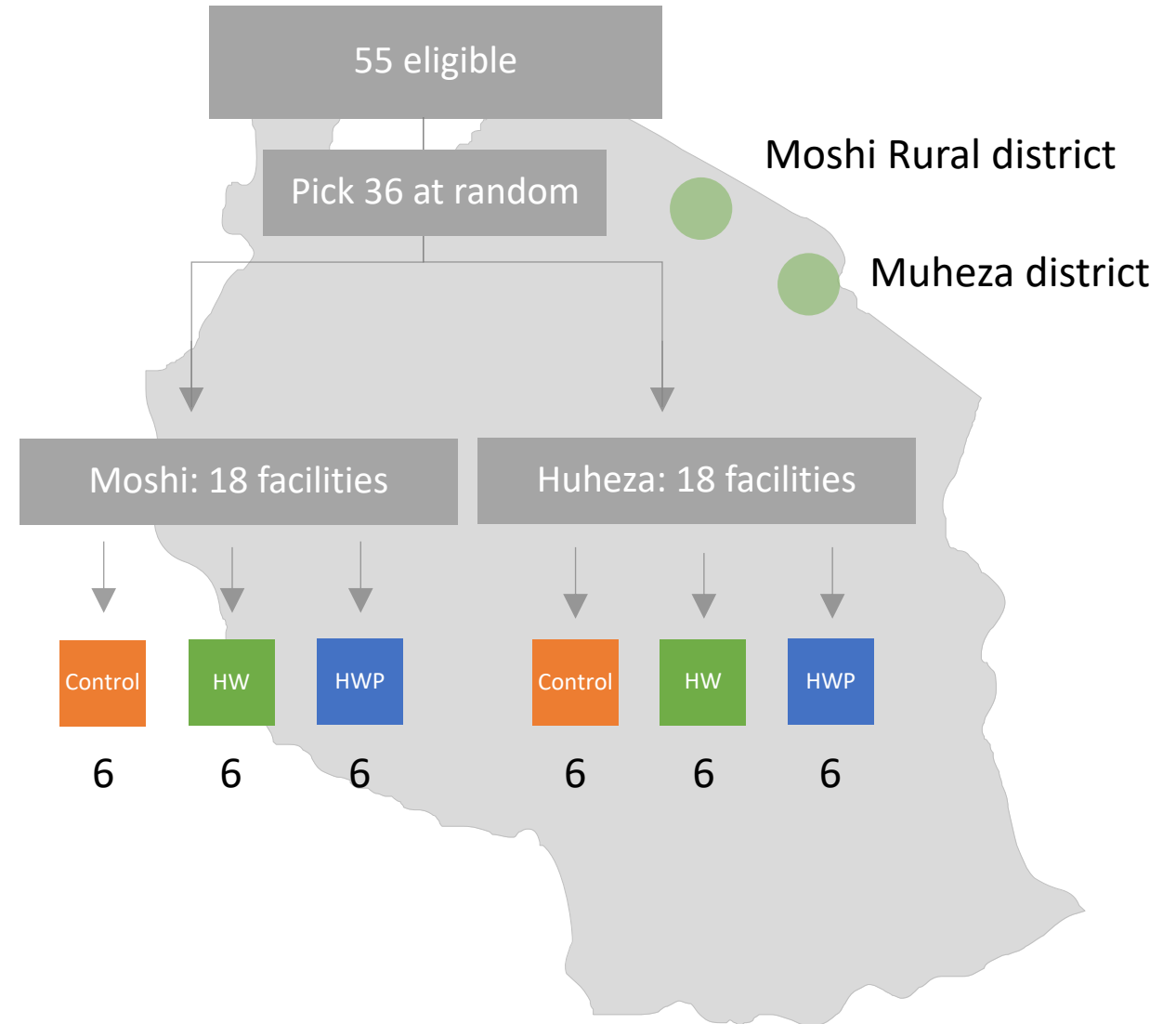
Comparison

- The study was carried out in the Muheza district (Tanga region) and Moshi Rural district (Kilimanjaro region) in Tanzania



Sampling

1. List eligible clusters (55)
2. Randomly select 36 clusters
3. List of all 36 clusters (facilities) within the two districts and rank them according to the population of malaria consultations
4. Split ranked clusters into two equal categories (Moshi and Huheza)
5. Each district and randomly split into control, health worker, and health worker and patient-oriented groups: each with 6 facilities (3 per stratum)



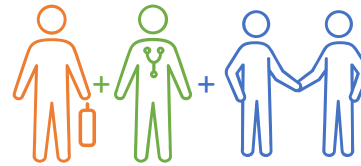
Control

Standard
RDT training



HW

Health
worker training



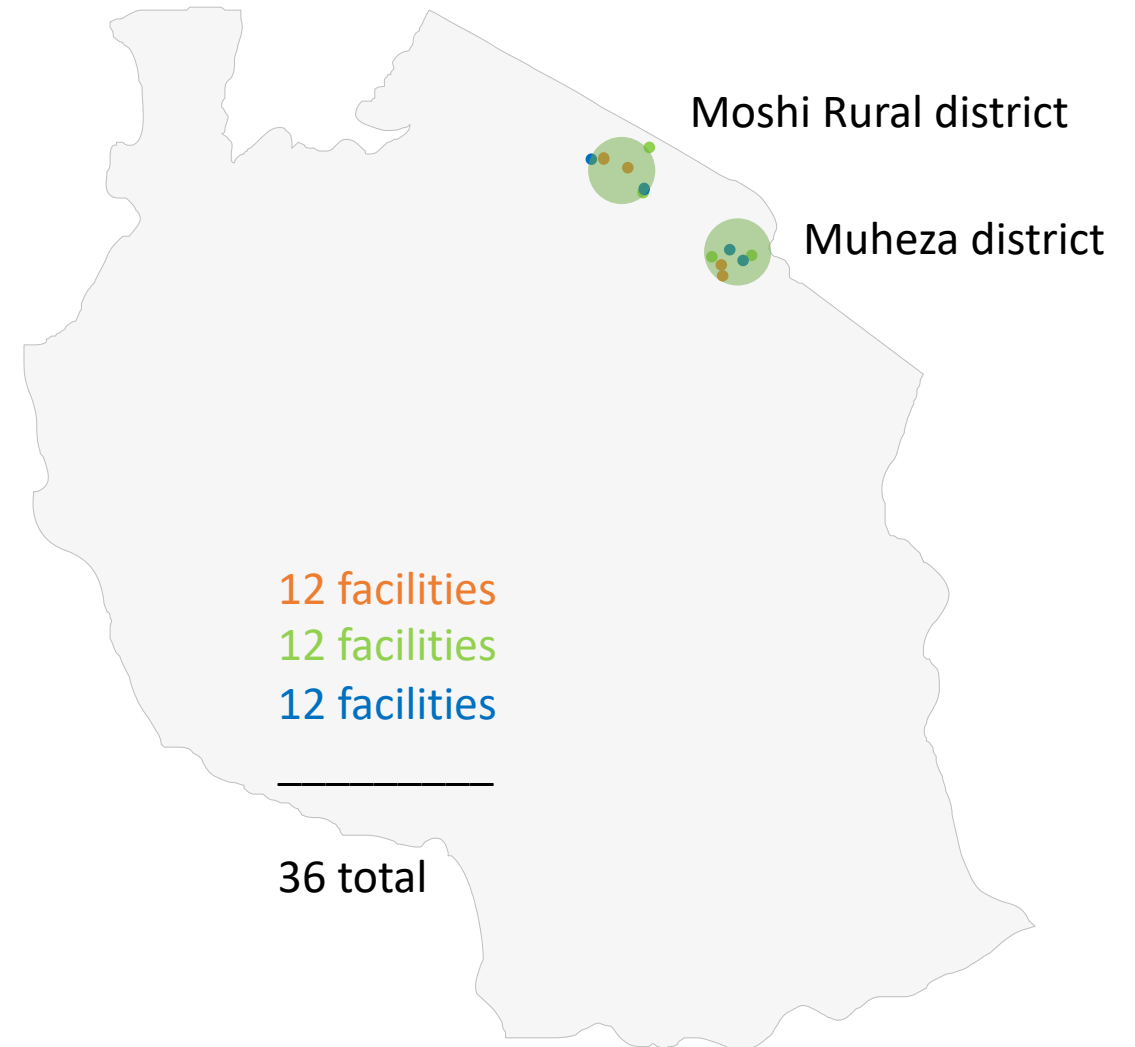
HWP

Standard RDT training + Health worker training
+ patient orientation

Study overview

Compared three approaches:

1. Standard RDT training
2. Health worker training
3. Health worker training + patient orientation



Study overview

Sept. 2010

March 2012



Formative research

Understand HW practices
Understand community perceptions



Review evidence and engagement with theory

Stages of change
Social theories about communities of practice



Piloting and pre-testing

Training materials
Patient information leaflet

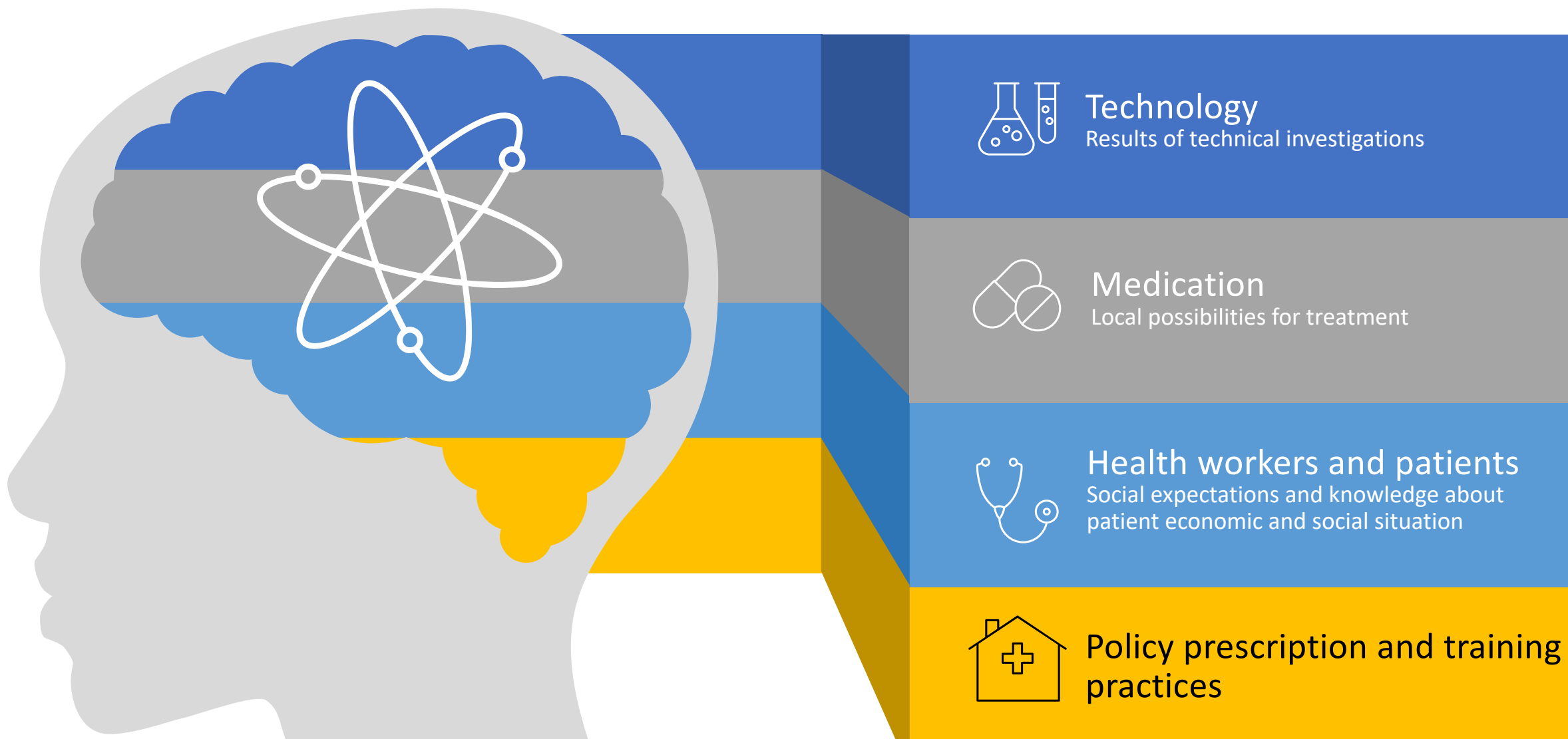


Intervention

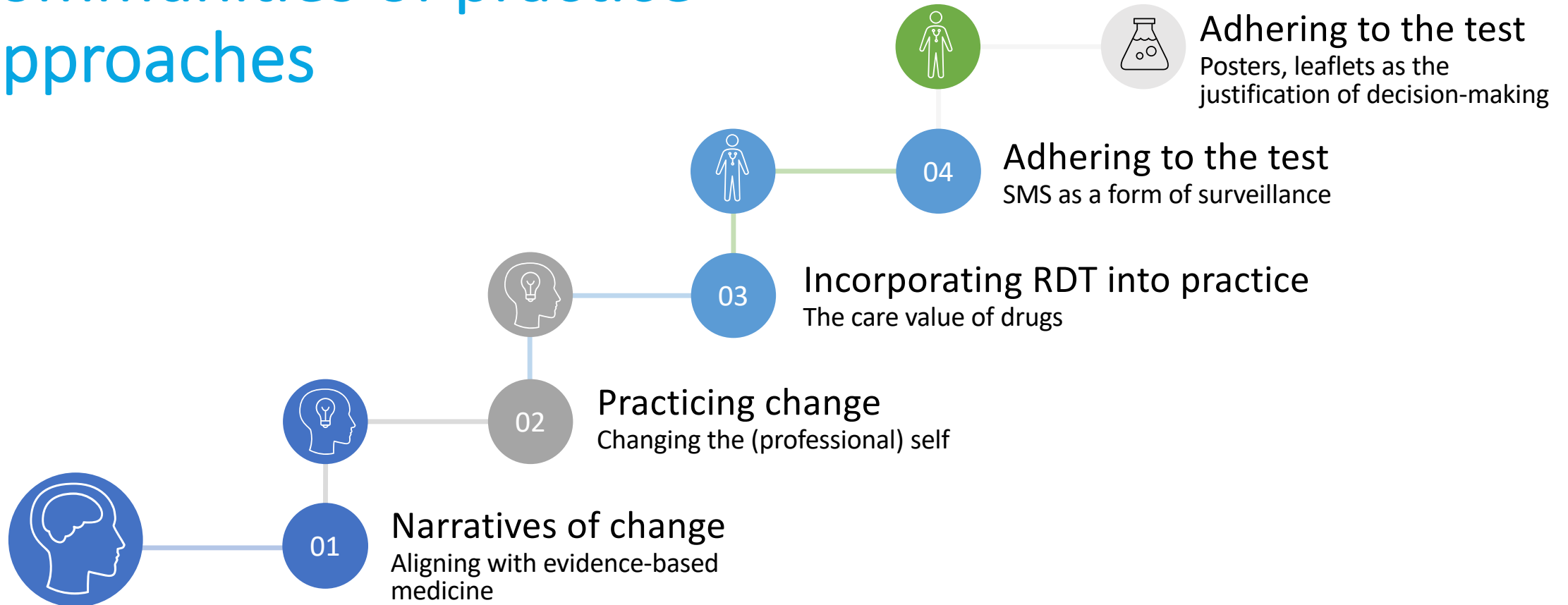


Survey

Formative research findings



Stages of change and communities of practice approaches



Methods

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Generalizability: Were the groups surveyed in this study representative of Tanga and Kilimanjara regions as a whole? Can lessons learned in this study be applied beyond the populations studied?



Study design, intervention, data collection, analysis

Type questions in the chat box and we will discuss them at the end of this section

Methods

- Randomized interviewer-administered patient exit survey
 - Eligible and consenting patients (or caretakers) exiting trial facilities
 - Conducted on randomly varied two days blocks per week by survey staff recruited from the nearby population
 - Prescribers were asked to record the same information as the exit survey as part of the HMIS, which acted as a secondary source to supplement exit survey data
 - Sample size determined percentage of patients with a non-malarial illness who would be treated with an antimalarial in the control arm, and a coefficient of variation between facilities within stratum of .25
- Three intervention arms, two arms intervention, one control

Methods

- Variations between facilities were controlled for using guidelines for stratified cluster randomised trials with fewer than 20 cluster per arm.
- Individual and cluster-level data was used to create cluster-level scores, called risk differences. These scores reflect differing levels of risk between control and intervention arms.

Results

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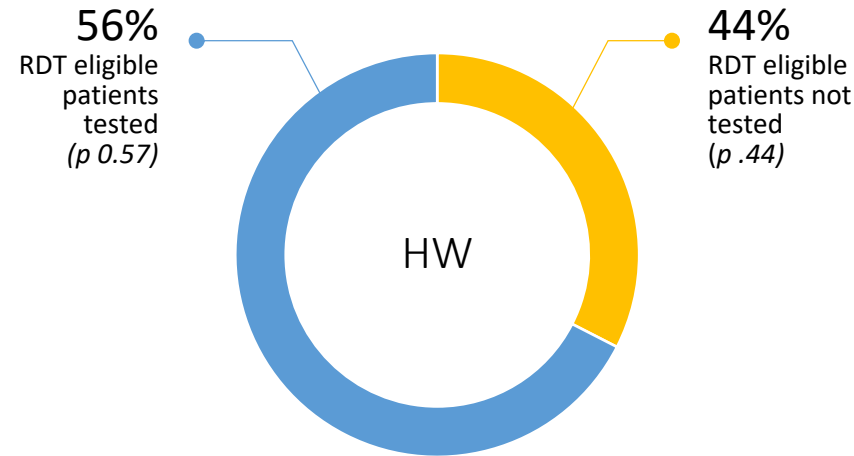
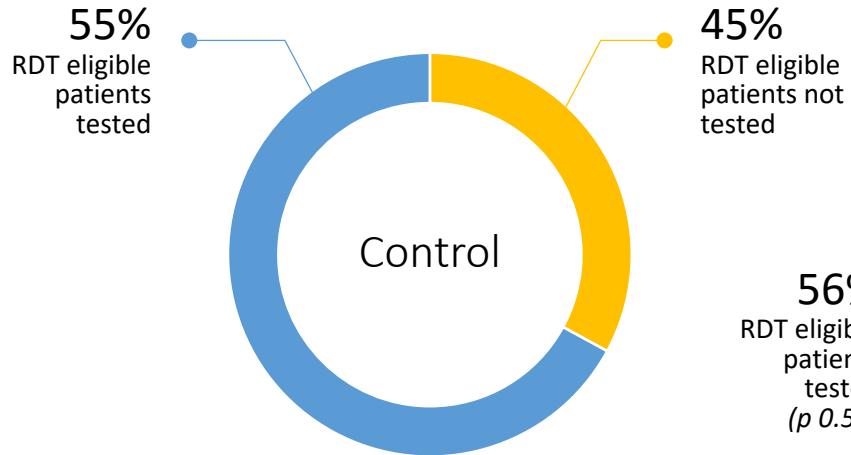


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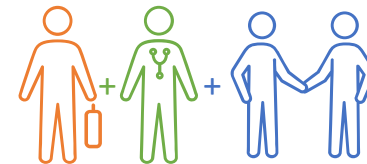
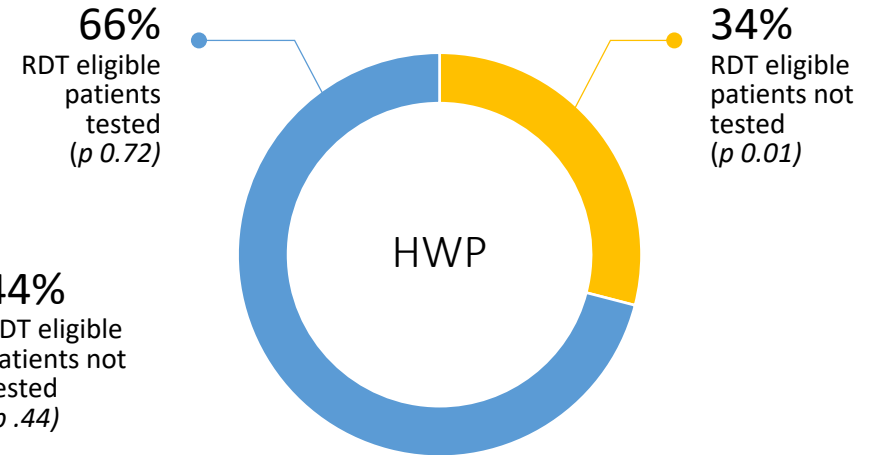
Intervention outcomes

Type questions in the chat box and we will discuss them at the end of this section

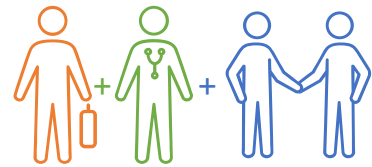
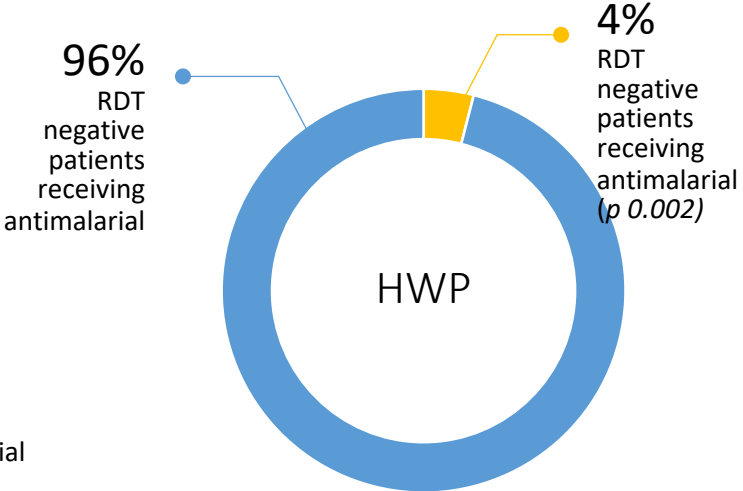
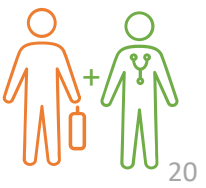
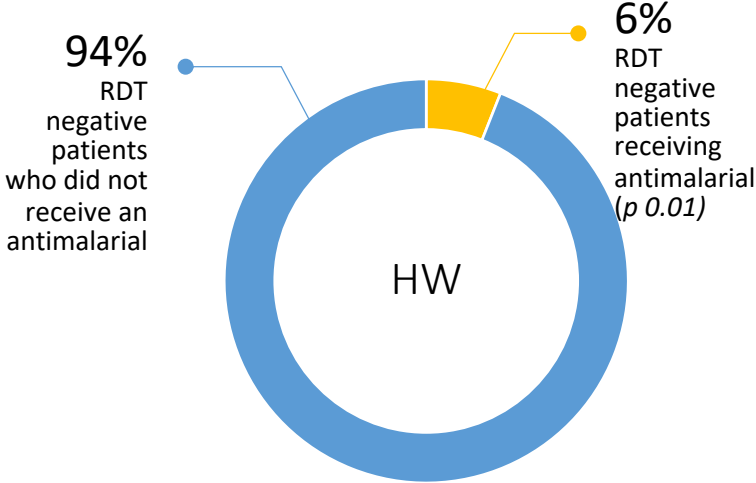
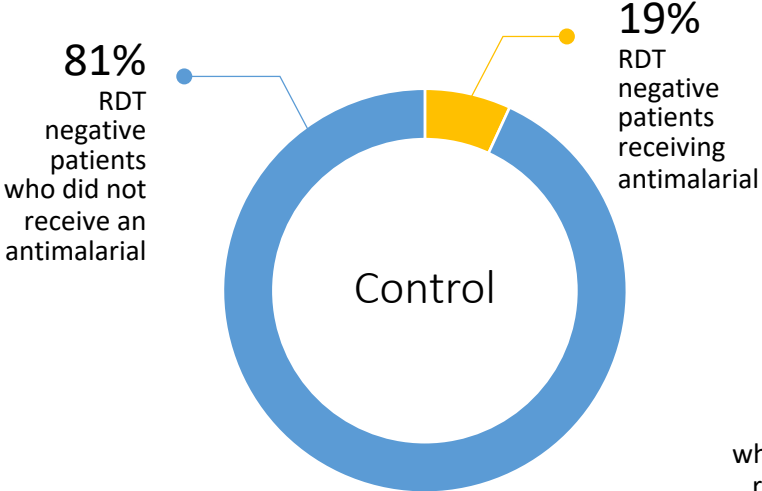
Key results: RDT uptake (among those eligible for testing)



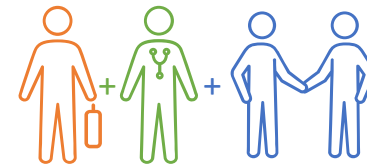
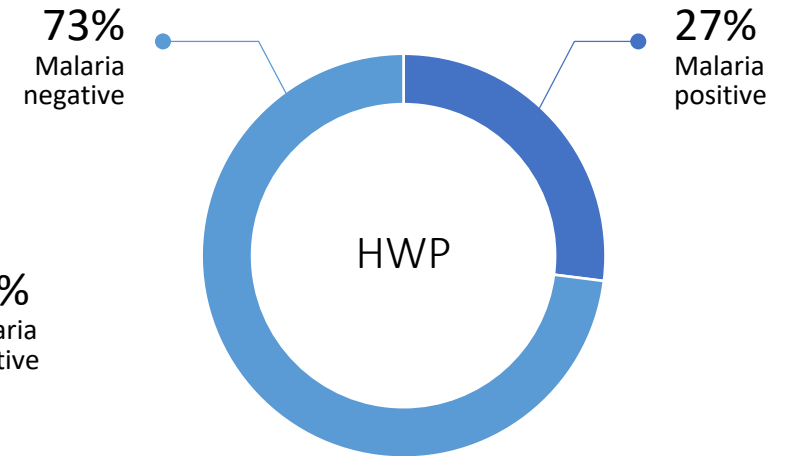
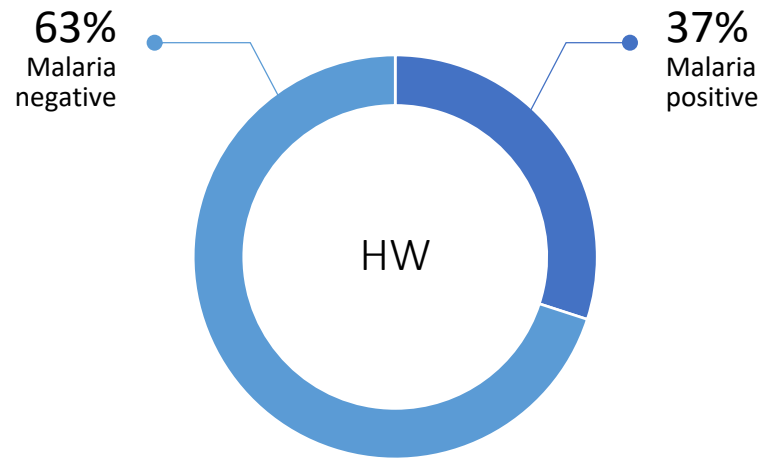
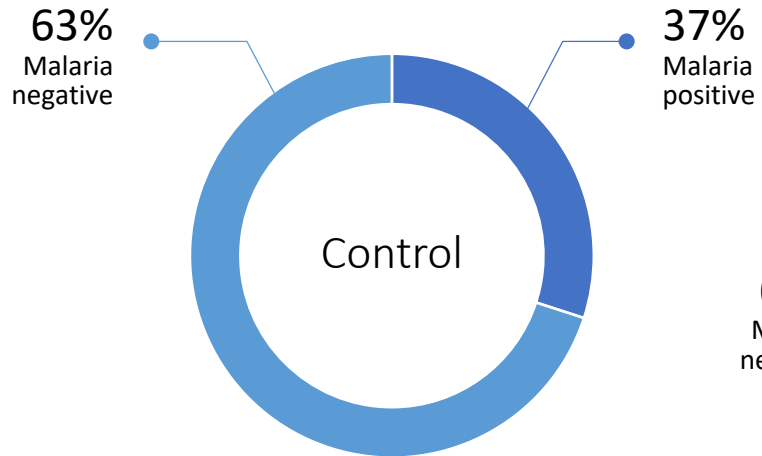
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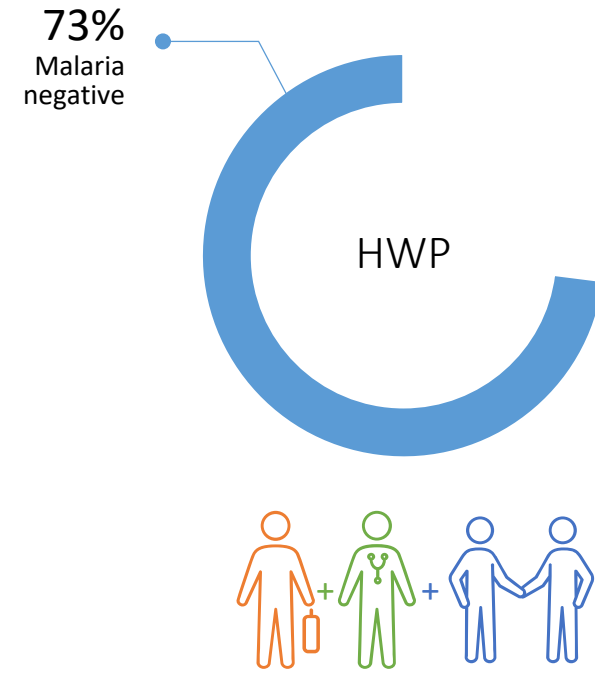
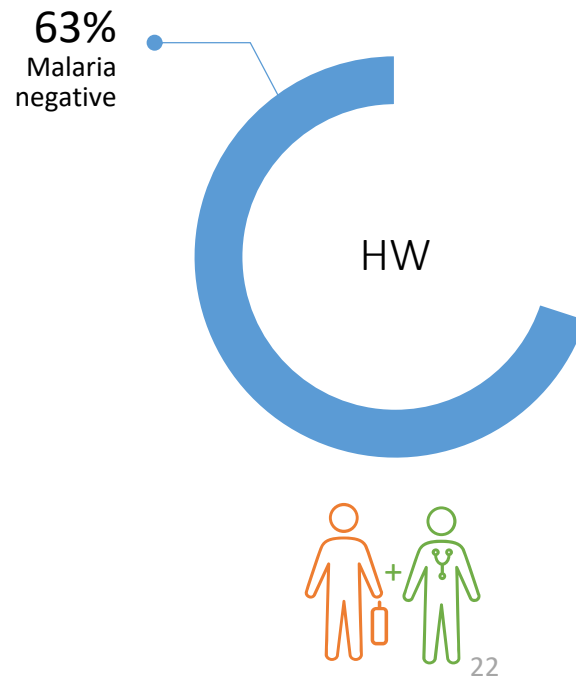
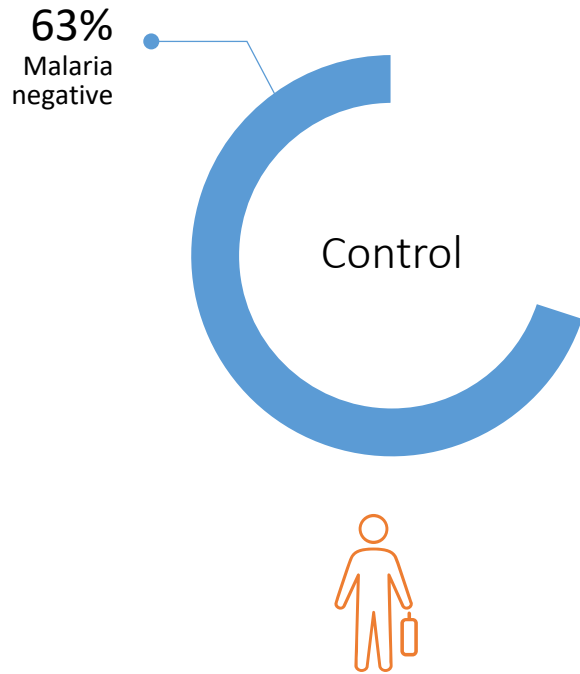
Key results: RDT adherence



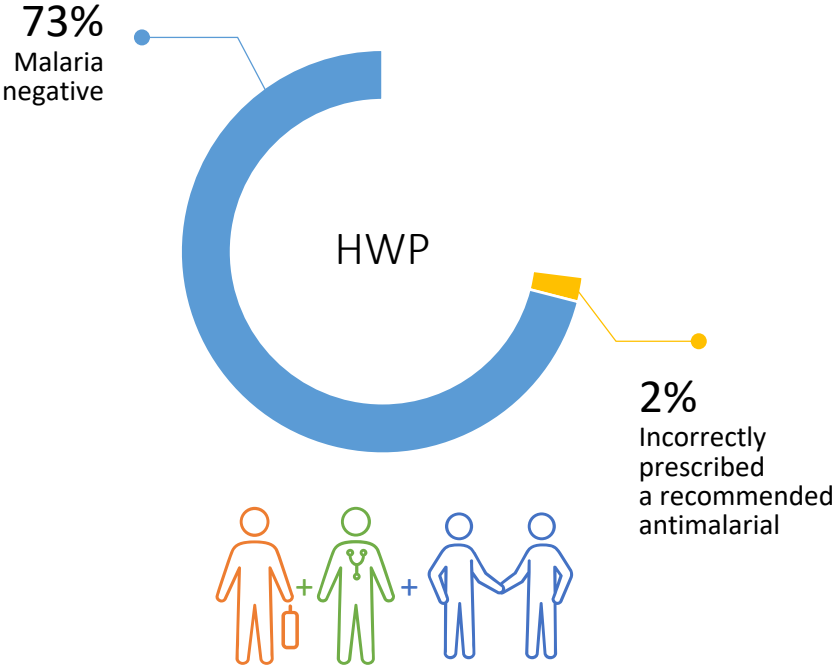
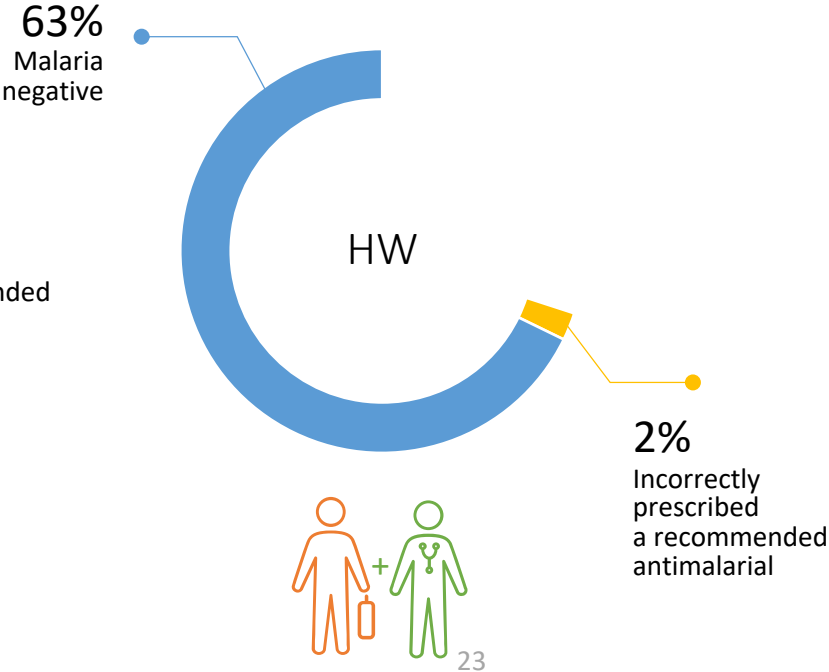
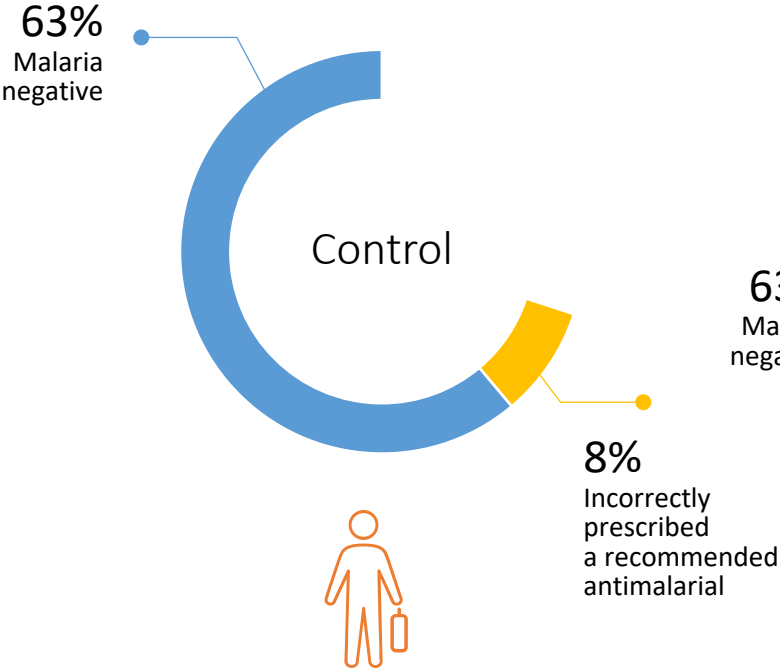
Key results: Treatment of eligible patients with non-malarial illness



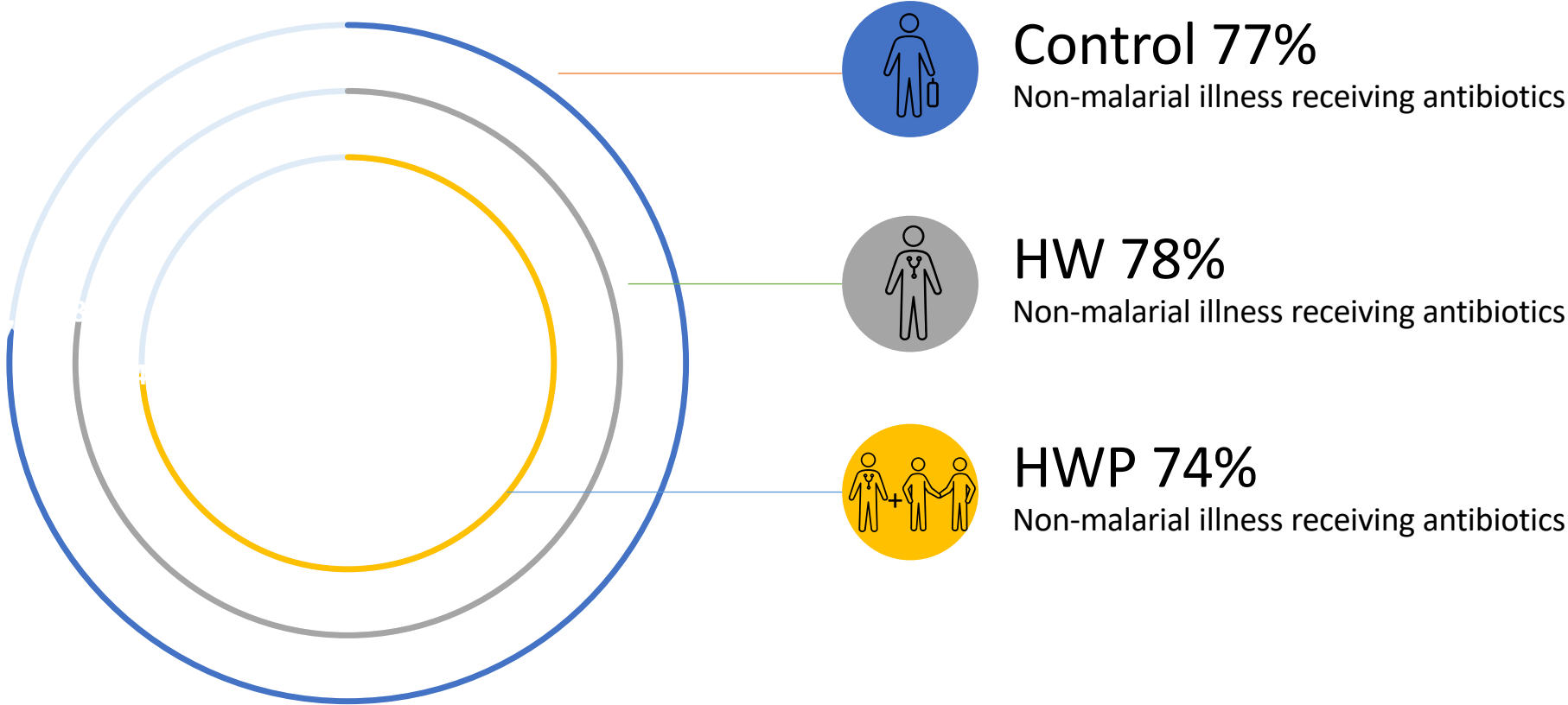
Key results: Treatment of eligible patients with non-malarial illness



Key results: Treatment of patients with non-malarial illness



Key results: Prescribing of antibiotics



Key results: Quality of RDT reporting

- Agreement between known RDT results recorded by patient recall and the MTUHA register was 98% overall.
- Sensitivity of the RDT results recorded in MTUHA register against the research blood slides was 89% and specificity was 95%.

Programmatic implications

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Strengths, weakness, validity, methodological challenges

Type questions in the chat box and we will discuss them at the end of this section

Programmatic implications

- Results were already pretty good, does an 8-2% change matter?
- Patient intervention was fairly cheap and easy, scalable—not sure what that would do on its own.
- Prescriber interventions employed in this study show that a combination of simple and repeatable behavioral interventions can reduce over-diagnosis of malaria to near zero in an area where the majority of antimalarials have been prescribed to those without parasites.

Programmatic implications

Fever is the most common diagnosis in clinics through sub-Saharan Africa—even modest reductions in overdiagnosis can have a substantial impact on reducing antimalaria use (but what to do with the RDT-negative patients).

Programmatic implications

It is possible that the additional benefit of the intervention arms may be attributed to the emphasis on changing practice through a shared experience of the process of change.

Strengths

- Qualitative research conducted before, during, and after the intervention
- Control and intervention group comparison
 - Provides a counterfactual (what happens with no intervention): stronger evidence that change occurred as a result of an intervention
- Cluster randomization
 - Limits bias: stronger evidence that change is not due to confounding factors

Limitations

- Post-intervention survey
 - Does not describe change between two points in time
- Incentivization
 - It is possible that part of the success of intervention arms was due to greater intensity of the intervention, rather than the content itself

Lessons learned


- Changing prescribing practice is possible
 - Use peer-group workshops, physical activities, self-observation and feedback, repeated groups, direct-to-clinician texts to re-fashion health workers as “modern”
- However...
 - If we re-orient clinicians to accountability to state/donors, does this lead them away from accountability towards patients? What does this mean for the care patients receive?
 - In the context where care is seen as almost the equivalent to provision of medicine, strict adherence to RDT results might lead to prescriptions of other pharmaceuticals or other measures to fulfill patient expectations.

Discussion

Q&A with participants

Please type your questions in the chat box


Malaria SBCC Evidence Database: Fact sheets



Impact of Social and Behavior Change Communication on Insecticide-Treated Net Behaviors

	Mix of Mass Media and Interpersonal Communication	Article Strength	Strategic SBCC
Cameroon	A post-assessment study was used to assess the influence of Cameroon's national 40 Patu Nightwatch campaign (SMS reminders, billboards, TV and radio PSAs, music videos, poster materials) on net use of adults and children under five. Those who owned at least one net at home and were exposed to the campaign were 7 percentage points more likely to have slept under a bed net compared to those unexposed (61% exposed vs. 54% unexposed), and 12 percentage points more likely to have their children sleep under a net (88% exposed vs. 76% unexposed). It is estimated that over 500,000 individuals that used a mosquito net to protect themselves from malaria as a result of the campaign. ¹	High	High
Nigeria	A pre-post assessment used repeated cross-sectional household surveys to assess the impact of a multi-channel SBCC campaign in Nasarawa State, Nigeria. Baseline, midline and endline surveys carried out at one-year intervals measured the proportion of nets with observed repairs, and the proportion of nets in serviceable condition. Exposure to the campaign was strongly correlated with increased positive attitudes toward net care and repair, which were also positively correlated with net repairs and the proportion of nets in serviceable condition. Nets that were tied up were 2.7 times more likely to be in serviceable condition at endline, and positive attitudes towards nets were associated with an increase in net lifespan by one full year, when compared to those with negative attitudes. ²	High	High
Zambia	A study used two approaches, PSM and treatment effect modeling, to assess the relationship between exposure to SBCC messages and the use of ITNs the previous night. Findings revealed that, when matched on similar propensity scores, a statistically significant 30 percentage point difference in ITN use was observed between exposed and unexposed respondents. Fifty nine per cent of unexposed respondents reported sleeping under an ITN the previous night, compared to 89% of the exposed respondents. When using treatment effect modeling, there was a smaller but still significant difference of 11 percentage points between exposed and unexposed groups. ³	High	Medium
Tanzania	A household survey used stratified random sampling to assess whether various levels of exposure to the COMBAT project's multi-channel SBCC campaign influenced attitudes and ownership of ITNs in Tanzania. Mediation analysis found change agents, mass media and community messaging were significantly associated with increased attitudes about nets, and positive attitudes about nets significantly increased the odds of universal coverage. ⁴	High	Medium
Nigeria	A post-campaign survey was conducted in 10 states in Nigeria to assess the influence of SBCC messages on net hanging and use. The study found a dose-response relationship between the number of SBCC messages recalled and the number of nets received. All SBCC outcomes showed a significant increase in net use. The number of messages recalled was the strongest predictor of knowledge. Attitude towards net use was positively linked to the number of messages recalled. ⁵	High	Medium

Strength of Article/Strategic SBCC Score




Low Medium High




Impact of Social and Behavior Change Communication on Case Management

	Mix of Mass Media and Interpersonal Communication	Article Strength	Strategic SBCC
Tanzania	A post-assessment study ¹ of the malaria-related components of the "Wasafi Nipevieni" (Love My Parents) safe motherhood campaign in Tanzania, which used mass media, interpersonal communication and community engagement, found women exposed to more campaign messages had about a 23% greater chance of having received two or more doses of SP after controlling for all other demographic variables.	Medium	Medium
Interpersonal Communication and Community Engagement			
Burkina Faso	In a cluster-RCT that assessed a community-based campaign to improve the uptake of IPTp in Burkina Faso ² , 64% of those exposed completed three or more antenatal visits, compared to 45% of those unexposed. Uptake of IPTp-SP (more than two doses) was also significantly higher among those exposed (72%), compared to those unexposed (58%).	High	Medium
Belize	A post-test evaluation of the Belize Vector Control Program ³ , which used volunteer collaborators/personnel and education materials (pamphlet, poster and signpost) to improve treatment-seeking practices, showed a positive impact on fever and malaria beliefs, attitudes and behaviors. Of the mothers who reported a case of fever, 75% of mothers from the intervention villages met the criteria for positive treatment-seeking behaviors, compared to 21% from control villages. Additionally, 84% of mothers who reported a malaria case met the criteria for performing positive treatment-seeking behaviors for malaria, as opposed to 37% in control villages. There was a statistically significant difference between positive treatment-seeking behaviors for fever and exposure to a signpost and poster.	High	Medium
Zambia	A post-test ⁴ assessing job aids and a half-day training for CHWs on ROT interpretation and use in Southern Province, Zambia, found that critical steps were followed 88% of the time at three months and 100% at six and 12 months. Findings demonstrated that appropriately trained and supervised CHWs used ROTs safely and accurately in community practice at least 12 months post-training.	High	Medium
Nigeria	The results of a pre-post assessment study ⁵ looking at the impact of health education on malaria knowledge among caregivers of children under five in North Central Nigeria found that the intervention was associated with improvements in perception, knowledge, prevention practice, first-line treatment option and the type of treatment given to children with fever. Health education positively impacted caregivers' knowledge of malaria, as well as their willingness to access antimalarial treatment when their children had fever.	High	Low
Nigeria	A Nigeria program developed treatment guidelines and IEC materials, and trained "mother trainers" on how to use the guidelines in their communities. In a pre-post assessment study ⁶ of this program, the majority (70%) of the respondents stated that they used the guidelines each time a child was treated for malaria. Findings showed a significant increase in the correct use of chloroquine among those who treated children at home, from 3% at baseline to 52% after the intervention, compared with 4% to 13% in the control arm. Mother trainers were also considered to be effective in influencing adherence to treatment guidelines.	High	Low

Strength of Article/Strategic SBCC Score




Low Medium High



Impact of Social and Behavior Change Communication on Service Provider Behavior

	Mix of mHealth, Interpersonal Communication and Trainings	Article Strength	Strategic SBCC
Tanzania	A three-arm stratified cluster RCT was used to assess a program in Tanzania that trained health workers in ROT use and interpretation by providing ROT trainings to control arms, and facilitating small interactive peer-group training sessions and sending feedback and motivational SMS messages to additional arms. The evaluation found that the SBCC activities in the intervention arms were associated with significant improvements in the prescription of recommended antimalarials. Improper prescribing dropped significantly to 8% among those in the standard training arm to 2% in the intervention arm. There was also a significant improvement in the prescribing practices for ROT negative cases. ¹	High	High
Trainings and Supportive Supervision			
Kenya	Two cross-sectional health facility surveys were used to assess a series of activities used to roll out Kenya's "test and treat" policy, including the development and distribution of case management guidelines and job aids, three rounds of in-service training, and supportive supervision. The assessment found that SBCC activities contributed to significant increases in the administration of the first AC dose at the facility between baseline and endline (32% versus 52% respectively) and provision of advice that all doors should be completed (80% versus 90%). ²	High	Medium
Zambia	A post-assessment study was conducted to assess the effectiveness of three intervention packages to improve ROT use and interpretation among CHWs in Zambia. The intervention included ROT package instructions, job aids and job aids paired with a training. Findings revealed that the more comprehensive SBCC package resulted in higher rates of correct ROT use (82%, compared to 57% for group 1 and 80% for group 2) and ROT interpretation (95%, compared to 54% for group 1 and 80% for group 2). ³	High	Medium
Multi-Country	A two-stage, randomized cluster study of health education programs in Ecuador, Colombia and Nicaragua trained local community health volunteers to deliver malaria prevention community workshops. These interventions led to significant increases in knowledge of the recommended doses of chloroquine (34% in Ecuador, 93% in Colombia) and proper use of chloroquine (26% in Ecuador, 85% in Colombia). ⁴	High	Low
Uganda	A two-stage, randomized control trial study of an SBCC program in Uganda that trained drug distributors to educate mothers about malaria care-seeking and treatment, as well as provide free chloroquine and SP tablets, noted improvements in appropriate dosage (72%) and drug choice (28%). This program was associated with a 14% improvement in the proportion of febrile children completing all treatment steps. ⁵	High	Medium
Cameroon	A 20-week village malaria worker program used pre-post educational surveys conducted in intervention and comparison villages to assess its influence on prevention and control behaviors. Findings revealed that the village malaria workers' service quality and actions for malaria prevention and vector control significantly improved during the scale-up of the W/MW project. The program noted several improvements in interventions villages but not comparison villages, including bednet use and eliminating breeding sites. ⁶	High	Medium

Strength of Article/Strategic SBCC Score



Low Medium High

Thank you!

- Questions, comments, follow-up:
 - Clare Chandler: Clare.Chandler@lshtm.ac.uk
 - Mike Toso: miketoso@jhu.edu
- We will send an email with today's slides and the discussion recording shortly
- Please complete the short post-webinar survey that will appear in your browser



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