Experience and confidence in health technologies: evidence from malaria testing and treatment in Western Kenya

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Research Article

Keywords: Experience, Confidence, health technologies, malaria testing, Western Kenya.

Posted Date: May 27th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1619500/v1

Abstract

Background

Low adoption of effective health technologies increases illness morbidity and mortality worldwide. In the case of malaria, effective tools such as malaria rapid diagnostic tests (RDTs) and artemisinin-combination therapies (ACTs) are both under-used and used inappropriately. Individuals' confidence in RDTs and ACTs likely affects the uptake of these tools.

Methods

In a cohort of 36 households (280 individuals) in Western Kenya observed for 30 months starting in June 2017, we examined if experience with RDTs and ACTs changes people's beliefs about these technologies and how those beliefs affect treatment behavior. Household members requested a free RDT from the study team any time they suspected a malaria illness, and positive RDT results treated with a free ACT. We conducted annual, monthly, and sick visit surveys to elicit beliefs about the accuracy of malaria RDT results and the effectiveness of ACTs. Beliefs were elicited on a 5-point Likert scale from "very unlikely" to "very likely."

Results

Over the study period, the proportion of survey respondents that said a hypothetical negative RDT result was "very likely" to be correct increased from approximately 55–75%. Controlling for initial beliefs, people who had been tested at least once with an RDT in the past year had 3.6 times higher odds (95% CI [1 1.718 7.679], P = 0.001) of saying a negative RDT was "very likely" to be correct. Confidence in testing is associated with treatment behavior: those who believed a negative RDT was "very likely" to be correct had 1.78 times higher odds (95% CI [1.079 2.934], P = 0.024) of adhering to a negative RDT result (by not taking ACTs) than those who were less certain about the accuracy of negative RDTs. Adherence to a negative test also affects subsequent beliefs: controlling for prior beliefs, those who adhered to their previous test result had approximately twice the odds (OR = 2.19, 95% CI [1.661 2.904], P < 0.001) of saying that a hypothetical negative RDT was "very likely" to be correct compared to those who did not.

Conclusions

Our results suggest that greater experience with RDTs can not only increase people's confidence in their accuracy but also improve adherence to the test result.

Background

In both high and low-income countries, underuse of effective health technologies, such as vaccinations and insecticide-treated bednets, leads to high levels of avertable morbidity and mortality (1). However, little is still known about how people's beliefs evolve as they learn, and incorporate new information, about health technologies. There is some evidence that initial subsidies can encourage future adoption, while other research suggests that people can learn about the value of new technologies from their social networks (2–6).

In the case of malaria, there exist two very effective and accessible clinical interventions that have contributed substantially to reductions in malaria burden: rapid diagnostic tests (RDTs) for malaria diagnosis and artemisinin-combination therapies (ACTs) for malaria treatment. Despite the availability of these tools, however, malaria remains a leading public health problem globally and especially in Sub-Saharan Africa. Approximately 241 million malaria cases were recorded in 2020 globally and malaria killed an estimated 627,000 people in the same year (7).

Early and prompt diagnosis and appropriate treatment is key to preventing these unnecessary deaths. In 2010, the WHO recommended all patients suspected of malaria be tested using either microscopy or RDT before receiving anti-malaria treatment (8). In the last decade, there has been a massive scale up of RDT supply to Sub-Saharan Africa with the number of manufacturer-reported global RDTs sales increasing from less than 100 million in 2010 to approximately 419 million in 2020 (7). This has made the WHO goal on "Test and Treat" much more feasible especially in resource limited settings. RDTs are accurate, require very minimal labor and training, and give results in approximately 15 minutes (9–13).

Despite these advantages, presumptive treatment of fevers with anti-malarials has continued by both clinicians and patients, many of whom still believe all febrile illnesses are malaria (14–16). Treating those without malaria with ACTs leads to delays in appropriate management of the illness, wastage of valuable drugs and potentially increases the spread of drug resistance (17–20). Although Kenya adopted the WHO guidelines on "Test and Treat" a decade ago, studies in western Kenya indicate that presumptive malaria treatment, and lack of adherence to negative RDT results by both clinicians and patients are common practices, especially in areas of high transmission (21–23).

At the same time, there is evidence that many children with malaria do not receive timely treatment with ACTs, drugs that are very effective in reducing morbidity and mortality from the disease (24–27). Individuals' under-estimation about the effectiveness of ACTs relative to older anti-malarial drugs could hamper uptake of the drug. A better understanding of people's beliefs about health technologies such as RDTs and ACTs - including how these beliefs change over time, and how they relate to treatment behaviors - could improve design of interventions to encourage uptake and appropriate use (28).

We followed a cohort of households in a high transmission malaria region in Western Kenya for 30 months during which free RDT testing was provided on request for any self-suspected malaria illness. Individuals with RDT-positive infections were offered free treatment with an ACT. We investigated if individuals' beliefs about RDTs affected their testing and treatment decisions, and how those decisions

subsequently influenced their beliefs about these key health technologies. To our knowledge, this is the first longitudinal study that has investigated malaria beliefs over an extended period.

Methods

Study Setting and Design

This study was part of a larger study that was designed to better understand the spatial scales of malaria transmission events in the Webuye Health and Demographic Surveillance System (HDSS). The Webuye HDSS was established in 2007 to provide reliable demographic, health and economic information for planning as well as provide a platform for health research (29). Our study enrolled a subset of households into a longitudinal cohort using an open cohort design. We selected 12 households each from three villages that are considered malaria hotspots, making a total sample size of 36 households. Two households who were initially enrolled were replaced with neighboring households when the entire household migrated (the migrating households are not included in any of our analyses). The three villages were located within two sub counties (Webuye East and Webuye West Sub-Counties) in western Kenya. This region has had high transmission of malaria throughout the year with small seasonal variations (30). The study setting is described in detail elsewhere (31-33).

Study procedures

We conducted three types of surveys with households. The first type of survey was an “annual survey” conducted at baseline and repeated a year later. At baseline, all members of the 36 households were enrolled in the study. We collected demographic information on household members, as well as details about housing characteristics, household assets and bednet use from a designated household respondent. All adults aged 18 and above were also asked about their beliefs about malaria testing and treatment. This survey was repeated a year later to collect information on any new household members as well as changes in the past year.

We refer to the second type of survey as a “monthly survey.” Every month, participating households were visited by field workers who conducted interviews with all adults in the household. At this survey, we asked each person if they had had a malaria-like illness in the past month. If they did, we collected further information about the treatment steps they took for that illness (including whether they were tested and whether they took an ACT) as well as their beliefs about malaria testing and treatment. The household respondent provided this information for individuals under the age of 18.

The third type of survey is referred to as the “sick visit survey.” During the study period, household members were asked to contact the study team whenever they, or a child, felt unwell with suspected malaria. A trained field worker would visit the household to test the sick individual using an RDT. If the test result was positive, the participant was referred to the nearest pharmacy with a voucher to purchase a free Artemether Lumefantrine (AL) that was paid for by the study (this is the recommended first-line ACT for malaria in Kenya) (34). If the individual tested negative, they were referred for further care at the

nearest health facility. Severe cases were also referred for further management. During the visit, the individual (or the parent/guardian if the sick person was under age 18) was surveyed to ask their beliefs about the likelihood their illness was malaria (both immediately before the test and after receiving their result) as well as their confidence in malaria RDTs and ACTs

Statistical Analysis

Confidence in malaria RDTs and in ACTs was assessed in all three surveys but on different subsets of the sample. In the annual surveys everyone aged 18 and above were asked questions about confidence in malaria testing and treatment. In the monthly surveys, beliefs were elicited only for those who reported having a malaria illness in the past month. Lastly, in the sick visit surveys, people requesting and receiving an RDT from the study team were asked about confidence in testing and treatment.

We examined the relationship between 1) confidence in RDTs and the decision to be tested/adherence to the test result 2) the decision to test/test adherence and subsequent reported confidence in RDTs and ACTs 3) how individual beliefs changed over time in relation to cumulative experience with testing (long-term trend) and 4) how beliefs about an illness are updated in response to information from a test in real-time.

We used data from the most recent monthly survey or annual survey to examine how prior confidence in testing affected an individual's decision to be tested for a malaria-like illness and also their adherence to the test result. We also used the monthly surveys to assess how adherence to an RDT result was associated with subsequent confidence in malaria RDTs and ACTs. The monthly surveys were also used to observe trends in ACT and RDT confidence over the study period.

To examine how experience with RDT testing affects people's confidence in testing and treatment, we combined data from the annual surveys with the sick visit data. The annual surveys assessed individuals' confidence in malaria RDTs and ACTs regardless of whether they were tested for malaria, and therefore we could analyze changes in these beliefs between the two annual surveys based on testing experience. We used the sick visit surveys to determine whether the individual was tested with an RDT from the study team between the two annual surveys and the number of times tested.

Lastly, we used data from the sick visit surveys to determine whether people used information from their RDT results to update their beliefs about the likelihood that their illness is malaria.

Beliefs about RDT accuracy were assessed using the question "If you have a fever and your malaria RDT is negative, how likely is it that the test is correct?" (with similar framing for a positive test result). For beliefs about ACT effectiveness, we asked "If you have malaria, and you take AL, how likely is it that you will be completely better in 3 days?" Lastly, for questions about the likelihood that their illness is malaria, we asked "How likely is it that the illness is malaria?" For all beliefs questions, responses were given on a 5-point Likert scale from "Very Likely" to "Very Unlikely." As in other studies (21, 35), in order to simplify the analysis and interpretation of the results, we dichotomized these beliefs into a binary variable that

consisted of “Very Likely” compared to all other responses. In the case of children under the age of 18, we used the responses of the household respondent. We defined adherence to the test result as taking an ACT if they tested positive for malaria, and not taking an ACT if they tested negative for malaria.

We first conducted a descriptive analysis and present summary statistics on the sample in terms of proportions and means/medians. We then conducted analyses of the associations between beliefs and behavior using logistic regressions. We adjusted our standard errors for clustering of the outcome by household. We conducted both bivariate analyses as well as adjusted regressions that include village fixed effects as well as controls for age, gender, education (less than primary versus primary or more), whether they slept under a bednet the previous night, whether they own more than an acre of land, and whether they get water from a protected source. The last two variables were included as measures of socio-economic status that varied within the sample. In most cases, we present and discuss the adjusted results in the text. All analyses were conducted using STATA 15.1 (36).

Results

Sample characteristics

The sample included 36 households, which consisted of 280 individuals (60 of whom were added over the course of the study period). The median age of the household respondent, who provided information for children under the age of 18, was 42 years (IQR=23) and 15 (42%) were female. 21 respondents (58%) had at least a primary education (table 1- Panel A).

Of the 280 individuals in the sample (including the household respondent), 151(54%) were female, and 110 (39%) were aged 18 or above. Among the 110 individuals aged 18 or older, 67 (61%) had at least a primary level education. At the baseline survey, 92 (88%) had previously heard of RDTs, and among those who had, 85 (94%) also had previous experience with an RDT (table 1- Panel B).

At baseline, confidence in RDTs and ACTs was low, in spite of high levels of awareness and experience with this technology. Although 82 individuals (92%) believed that a positive RDT results was “very likely” to be correct, only 55 (63%) believed that a negative RDT result was “very likely” to be correct. In addition, only 60 (60%) believed that Artemether Lumefantrine (AL)—the type of ACT frequently used in this area—was “very effective” in treating malaria (table 1-Panel B).

We conducted 5,617 household surveys between June 2017 and December 2019 (including both monthly and annual surveys). In those surveys, 909 people (16%) reported having a malaria-like illness in the past month and 638 (70%) of those were tested with an RDT (from either the study team or elsewhere). 337 (53%) of those tests were reported as being positive for malaria. While 323 (96%) people adhered to a positive test result, only 182 out of the 300 (61%) who reported testing negative adhered to their test result (table 1-Panel C).

Table 1: Sample characteristics

Panel A: Household Characteristics (N=36)	
	Median (IQR) or N(%)
Age of Household Respondent	41.5 (33.0, 56.0)
Household Respondent is Female	15 (41.7%)
Education Level of Household Respondent	
Less than primary	15 (41.7%)
Primary education or more	21 (58.3%)
Main source of drinking water	
Piped/protected source	26 (72.2%)
Unprotected source	10 (27.8%)
Owns more than one acre of land	16 (44.4%)
Household size	5.0 (4.0, 7.5)

Panel B: Individuals (N=280)	
	N(%)
Female	151 (53.9%)
Adult 18 years or older:	110 (39.3%)
Among Adults 18 years or older:	
Education	
Less than a primary education	43 (39.1%)
Primary education or more	67 (60.9%)
Heard of RDTs	92 (87.6%)
Previously had an RDT (among those who have heard of RDTs)	85 (94.4%)
Beliefs about Malaria at Baseline	
Believe positive RDT very likely correct	82 (92.1%)
Believe negative RDT very likely correct	55 (62.5%)
Believe AL very effective in treating malaria	60 (60.0%)
Reported malarial illness over study period	227 (84.7%)
Number of study RDTs received	

0	56 (20.0%)
1	41 (14.6%)
2	27 (9.6%)
3 or more	156 (55.7%)

Panel C: Monthly Surveys (N=5617)

	N (%)
Reported malaria illness in past month	909 (16.2%)
Had RDT for malaria illness	638 (70.2%)
Tested positive for malaria	337 (52.8%)
Adhered to positive test result	323 (95.8%)
Adhered to negative test result	182 (60.7%)

Notes: The household respondent provided information on malarial illnesses for children under the age of 18. Their beliefs were also used for children under the age of 18.

Confidence in Malaria Testing and Treatment Behavior

Table 2 shows the association between confidence in malaria RDTs and two key malaria treatment behaviors: whether an individual is tested with an RDT when they have a fever or malaria-like illness and whether an individual who is tested adheres to a negative RDT result. We focused on adherence to a negative test because adherence to a positive test is already very high. Compared to those with lower confidence in RDTs, those who believed a negative RDT was “very likely to be correct” were not more likely to get tested with an RDT (aOR=1.31, 95% CI [0.866 1.976], P=0.203), but, when they were tested with RDT, had 78% higher odds of adhering to a negative RDT result (aOR=1.78, 95% CI [1.079 2.934], P=0.024).

Table 2: Association between Confidence in Testing and Treatment Behavior

	Tested with RDT		Adhered to negative RDT result	
	(1)	(2)	(3)	(4)
Coefficient on:				
Believes Neg. RDT very likely correct prior to malaria illnesss	1.45 (0.29)	1.31 (0.28)	2.21** (0.54)	1.78* (0.45)
Mean of outcome in ref. group	0.67	0.67	0.48	0.48
Number of observations	863	863	295	295

Notes: Beliefs are those of the household respondent if the individual was under the age of 18. Results are from logistic regression models and coefficients are expressed in terms of odds ratios. Columns 2 and 4 include the following controls: age and gender of the individual, education level (of the respondent if the individual was under 18), whether the individual slept under a net the previous night, the main source of household drinking water, whether the household owns more than one acre of land and village fixed effects. *p<0.05, **p<0.01

Experience with Testing and Confidence in Testing and Treatment

Over the 30-month study period, monthly beliefs data collected from all individuals who had a malaria-like illness, regardless of whether they were tested, show that confidence in both RDTs and ACTs increased steadily over time (Figure 1). For RDTs, the proportion of people who said they believed a negative RDT was “very likely” to be correct increased from approximately 55% to 75%. The proportion of people who believed an ACT was “very likely” effective in treating malaria increased from approximately 75% to nearly 95%.

When we compare those who were tested for malaria with those who were not tested, we find further evidence that testing experience is associated with higher confidence in RDTs. Those who had any study RDT over the first study year had approximately three times higher odds of believing a negative RDT was “very likely” to be correct at the end of the year, controlling for their beliefs at the start of the study period (aOR=3.63, 95% CI [1.718 7.679], P=0.001). We find no evidence, however, that the *number* of tests people had over this time period was associated with their confidence in RDTs (Figure 2).

We also don’t find strong evidence that the results of the test influenced changes in beliefs; those who received at least one positive RDT over the first year had slightly higher odds of strong confidence in RDTs at the end of the year but this association did not hold in the adjusted model and was not observed among those who had received at least one negative RDT during that time (Table 3).

Table 3: Association between Testing Experience and Confidence in Test

	Outcome: Believe Negative RDT very likely correct at second annual survey					
	(1)	(2)	(3)	(4)	(5)	(6)
Coefficient on:						
Any RDT	3.44**	3.63**				
	(1.40)	(1.39)				
Negative RDT result			1.86	2.10		
			(0.65)	(0.82)		
Positive RDT result					2.40*	2.30
					(1.07)	(1.12)
Believes Neg. RDT very likely correct at study start	2.68	4.30	2.59	3.90	2.40	3.79
	(1.96)	(3.92)	(1.91)	(3.50)	(1.82)	(3.70)
Mean of outcome in ref. group	0.539	0.539	0.650	0.650	0.617	0.617
Number of observations	179	179	179	179	179	179

Notes: Beliefs are those of the household head if the individual was under the age of 18. Information on whether the individual was tested and the test result is based on sick visit surveys by the study team. Results are from logistic regression models and coefficients are expressed in terms of odds ratios. Columns 2, 4, and 6 include the following controls: age and gender of the individual, education level (of the respondent if the individual was under 18), the main source of household drinking water, whether the household owns more than one acre of land and village fixed effects. *p<0.05, **p<0.01

Lastly, we did not find any statistically significant association between having been tested with an RDT and the odds of saying that AL was “very likely” to be effective in treating malaria at the end of the first year (Appendix Table A1).

Treatment Behavior and Confidence in Testing and Treatment

In Table 4 we show how adherence to the test result affects individuals’ subsequent confidence in RDT testing. We find that those who adhered to their previous malaria test result had approximately twice the odds of saying that a hypothetical negative RDT was “very likely” to be correct compared to those who did not adhere to the previous test result (aOR=2.20, 95% CI [1.661 2.904]. P<0.001]. When we split this out by adherence to a positive versus a negative test result, we find little effect of adherence to a positive test result (aOR=1.07, 95% CI [0.316 3.594, P=0.918), but a significant difference in confidence from those who adhered to a negative test result relative to those who did not adhere (aOR=2.09, 95% CI [1.403 3.116], P<0.001).

Table 4: Association between Adherence to Test Result and Confidence in Testing

	Outcome: Believe Negative RDT very likely correct after illness					
	(1)	(2)	(3)	(4)	(5)	(6)
Coefficient on:						
Adhered to RDT	2.17**	2.20**				
	(0.31)	(0.31)				
Adhered to Positive RDT			0.89	1.07		
			(0.56)	(0.66)		
Adhered to Negative RDT					2.07**	2.09**
					(0.43)	(0.43)
Believes Neg. RDT very likely prior to illness	1.30	1.19	1.44	1.31	1.26	1.16
	(0.22)	(0.20)	(0.33)	(0.31)	(0.39)	(0.40)
Mean of outcome in ref. group	0.48	0.48	0.71	0.71	0.46	0.46
Number of observations	619	619	324	324	295	295

Notes: Beliefs are those of the household head if the individual was under the age of 18. Results are from logistic regression models and coefficients are expressed in terms of odds ratios. Columns 2, 4 and 6 include the following controls: age and gender of the individual, education level (of the respondent if the individual was under 18), whether the individual slept under a net the previous night, the main source of household drinking water, whether the household owns more than one acre of land and village fixed effects. *p<0.05, **p<0.01

We also find some evidence that those who adhered to a positive test result were more likely to subsequently say that AL was “very effective” in treating malaria compared to those who did not adhere, however our results are not statistically significant (Appendix Table A2).

Updating beliefs with test result

Figures 3 demonstrates that individuals use the information from the test to update their beliefs about the likelihood that their (or their child’s) illness is malaria. For example, we find that for individuals who tested positive on their RDT, 87% said it was “very likely” their illness was malaria before the test, compared to nearly 100% after the test result (P<0.001). For those who tested negative, 61% said it was “very likely” their illness was malaria before testing, compared to only 14% after the test result (P<0.001).

We also find evidence that the degree to which people update their beliefs based on the test results depends on their prior confidence in testing (Appendix Figure A1). Those who had said that a hypothetical negative RDT was “likely” or “very likely” to be correct, were more likely to revise downwards their belief that an illness was malaria after a negative test result, compared to those who said that they were less confident in a negative RDT result (P<0.001).

Discussion

This study finds three main results. First, we show that people's beliefs about malaria testing affect their treatment behavior. In particular, we find that those who have higher confidence in RDT testing are more likely to adhere to a negative test result. We do not find that confidence in testing affects whether an individual gets tested, similar to a previous study (37). However, as in that study, the bar to testing was very low for participants: the RDT was free, a member of the study team would come and test at the household, and participants could get a free ACT if they tested positive for malaria. Our results differ from Maffioli et al (2020) however, in that they do not find that beliefs predict adherence to the test result, possibly because individuals had less experience with RDTs at that time.

Second, we find evidence that treatment experiences also affect people's subsequent beliefs about testing. For example, we show that those who had an RDT during the first year of the study period had higher confidence in RDTs at the end of the year than those who were not tested during that time (controlling for their initial confidence in testing). Moreover, we also show that those who adhered to a negative test result were more likely to express high confidence in a hypothetical negative test at the next survey than those who did not adhere (once again controlling for their initial confidence in a negative test). These results suggest that people learn from their experience with testing and treatment. Our results are consistent with findings from population-level studies that show that greater access to testing increases people's confidence in malaria testing (37) and can reduce inappropriate use of ACTs (22, 38). Unlike a previous study (39) however, we do not find any statistically significant effects of testing experience on confidence in AL, perhaps because confidence in AL was higher compared to confidence in RDTs, and adherence to a positive RDT was close to 100%, thus limiting the scope for learning about ACT effectiveness.

Lastly, we demonstrate that people are using the information from the test to update their beliefs in the way that we would expect. Those who tested positive revised upwards the likelihood that their illness was malaria, while those who tested negative revised downward their beliefs about the likelihood that their illness was malaria. This suggests that the information from malaria testing could play an important role in people's treatment decisions.

There are several limitations in this study. Given that our study was conducted with 36 households in Western Kenya, it is possible that prevailing pre-conceptions among that group may not translate widely to other settings. Moreover, when considering individual-level beliefs, we do not account for the fact that household members could also learn from each other's testing and treatment decisions (for example, a parent/guardian could learn from their own test results but also from those of their children). We do adjust our standard errors for clustering by household to account for the fact that observations within households are not independent from each other. Third, even though we control for initial beliefs as well as other demographic factors, it is likely that those who chose to be tested with an RDT are different from those who did not in unobservable ways.

Nonetheless, our study design also has several strengths. Since we follow the same people over time, we can see how individual beliefs change because of testing and treatment decisions, rather than focusing simply on population-level changes as testing becomes more available. Furthermore, we collect beliefs at multiple time points: before testing, after testing, and after treatment. This allows us to observe how beliefs change at each treatment step.

Conclusions

Overall, our results suggest that people's beliefs have an important role in treatment behavior but also that treatment behavior can in turn influence those beliefs. In terms of policy implications, our results suggest that lowering the barriers to testing would not only increase access to malaria RDTs thus potentially improving appropriate use of ACTs, but could also be beneficial in terms of community learning about the value of these new treatment technologies. Strategies for increasing uptake of RDTs (and other new health technologies) could include large subsidies (40–42), and making them more convenient and accessible such as at local drug shops, (43, 44) or through community health workers. (22, 45, 46). With lower barriers, people can experiment with the technology thereby gaining confidence in its value, and promoting further uptake and appropriate use.

Abbreviations

ACT- Artemisinin-Combination Therapies

AL -Artemether Lumefantrine

HDSS -Health and Demographic Surveillance Site

RDT –Rapid Diagnostic Test

Declarations

Ethics approval and consent to participate

The study was approved by the ethical review boards of Moi University (2017/36) and Duke University (Pro00082000). All study participants provided written informed consent or assent (for children). All methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication

Not applicable. All data used has been anonymized and de-identified.

Availability of data and materials

The data is currently still in use by colleagues who are writing up on other aspects of the main study. However, these datasets used and/or analyzed during the current study can be availed by the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests

Funding

This work was supported by the National Institute of Allergy and Infectious Diseases (R21AI126024 to WPO and R01 AI146849 to WPO and SMT).

Authors' contributions

J.N.M, I.S, S.T and W.P.O designed the study, conducted the experiments, analysis and wrote the manuscript. L A and A. O designed the experiment, conducted the experiments and contributed to the writing of the manuscript.

Acknowledgements

We thank the study households for their participation in this study. We also are appreciative of the study implementation skills of project manager and field technicians in Webuye and Eldoret: J. Kipkoech Kirui, I. Khaoya, L. Marango, E. Mukeli, E. Nalianya, J. Namae, L. Nukewa, E. Wamalwa, and A. Wekesa.

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Figures

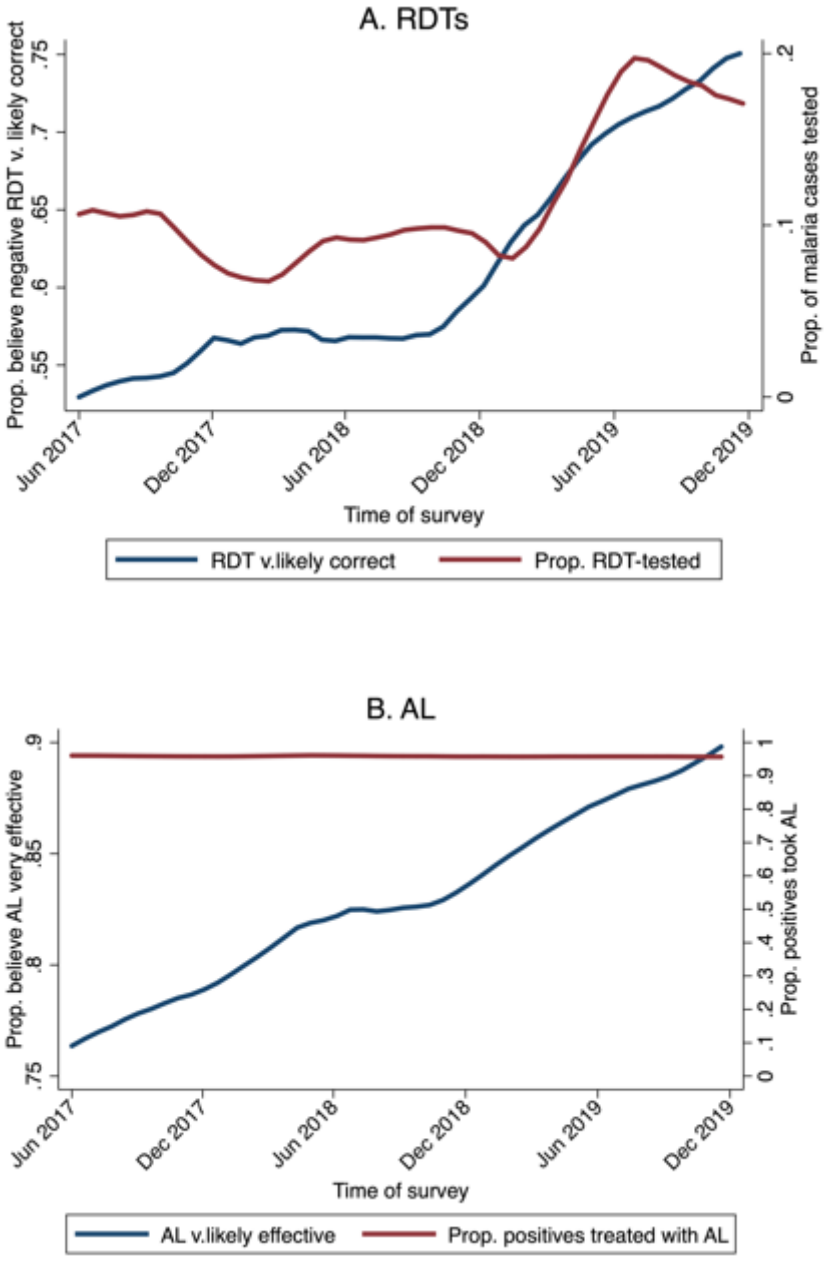

Figure 1

Confidence in RDTs (blue line, Panel A) and in AL (blue line, Panel B) over the survey period.

Notes: Red lines indicate the proportion of illnesses tested with an RDT (Panel A) and the proportion of RDT-positives treated with AL (Panel B) over the same time period. Data is from monthly surveys and therefore only includes people who reported a malaria illness in the past month. Beliefs are those of the respondent for children under 18.

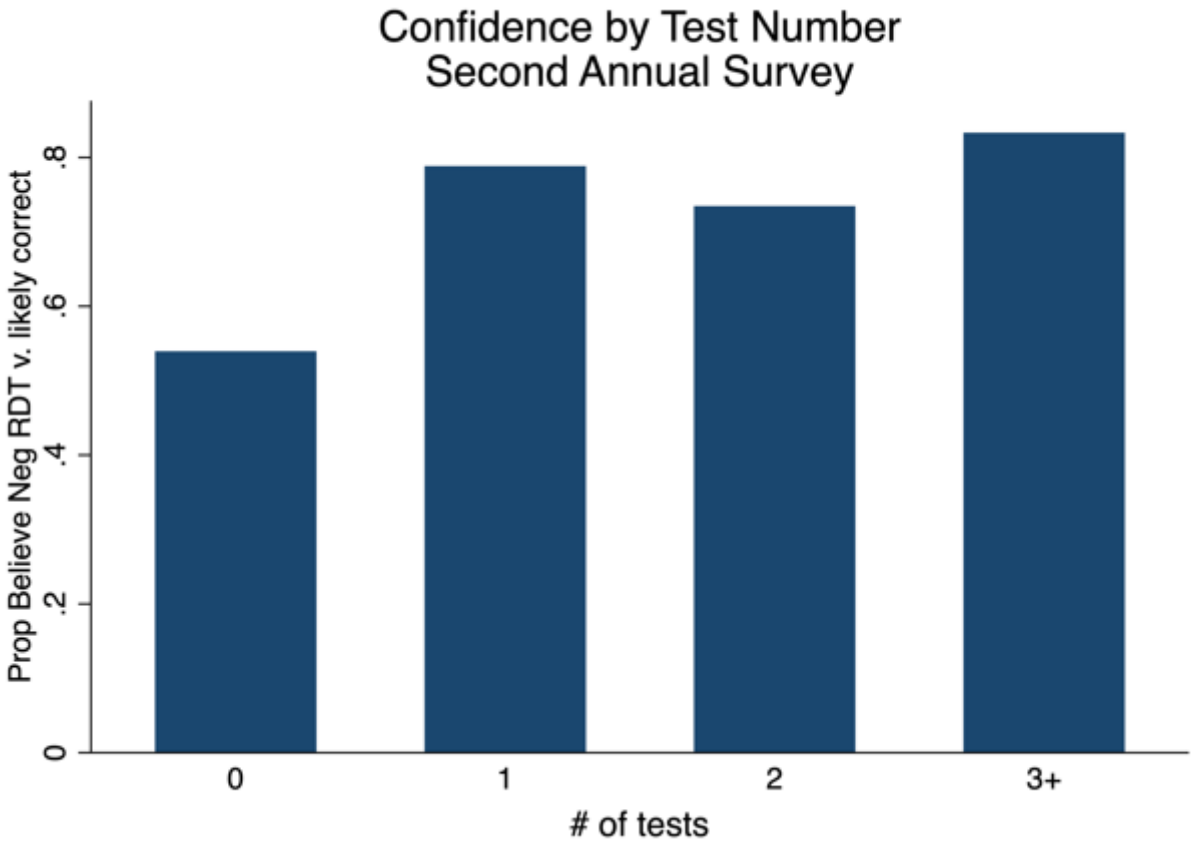

Figure 2

Confidence in RDTs by the number of tests an individual had over the first year of the study.

Notes: Number of tests are limited to those that were performed by the study team. Beliefs are those of the respondent for children under 18. The difference between no RDTS and 1, 2, or 3+ RDT categories is statistically significant at $P<0.05$, none of the other pairwise comparisons are statistically significant.

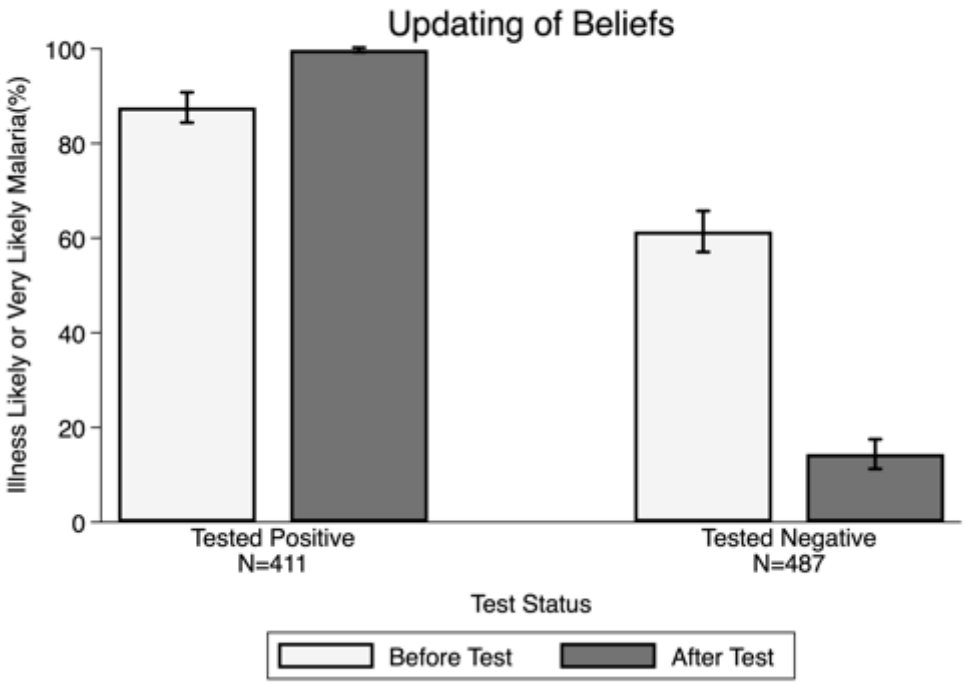

Figure 3

Beliefs about whether the illness is malaria before and after the test result. Data source is sick visit surveys. Beliefs are those of the respondent for children under 18.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- mRDTConfidencepaperSupplementarymaterials.docx