

Breakthrough ACTION

SBC Flow Chart: Nigeria Malaria Spotlight

January 2021



RESEARCH QUESTIONS



*How might we encourage **health care providers** to **test all clients with fever** (or a history of fever) for malaria and **only treat those who test positive** with antimalarial medicines?*

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Breakthrough ACTION and do not necessarily reflect the views of USAID or the United States Government.

BACKGROUND AND CHALLENGE

Catalyst

Fever is a common sign of malaria. Although national guidelines require test-based confirmation before prescribing antimalarial medicines, many providers in Nigeria prescribe antimalarial medicines to clients with negative malaria test results.

Challenge

Appropriate diagnosis and treatment of fever is essential to reducing morbidity and mortality and to the appropriate use of medicines. Providers who mistakenly assume their clients have malaria may overlook illnesses like pneumonia that are among the leading causes of child mortality in Nigeria. Giving antimalarials to clients with other illnesses results in fewer medicines being available to clients who could actually benefit from their use. Provider distrust of rapid malaria diagnostic tests (RDTs), cumbersome clinic processes, high client volumes, and providers' overconfidence in their ability to detect malaria can reduce provider adherence to fever management protocols.

Objective

We sought to improve fever case management in Nigeria.

Working closely with national, state, and local government and non-government agencies, as well as facility-based providers, the project designed solutions to address the behavioral drivers of non-adherence to case management guidelines, with the intention of making it easier—psychologically and practically—for providers to follow guidelines.

METHODS

In Nigeria, an iterative and user-centered process was used to gain new insights into the contextual and cognitive factors driving provider non-adherence to the national testing and treatment guidelines, and to design solutions targeting those factors. Our approach was informed by the contributions of health care providers and their clients, and solutions were designed collaboratively with non-government partners and government representatives from the national, state, and local levels.

Problem definition

To understand the current state, as well as the role of all actors and how they interact.

Ideation

To generate ideas for solutions to the key barriers to behavior, drawing from evidence-based literature.

Behavioral mapping

To identify possible influences on behavior, using literature from behavioral economics and other social sciences.

Prototyping and user feedback

To create tangible expressions of those solutions and revise them based on testing with user groups.

Diagnosis

To gather evidence about which of the influences are key barriers to the desired behavior.

Piloting

To validate the solutions in facility settings, to ensure they are feasible to implement and useful for providers.

KEY INSIGHTS

Hectic work environments

- 1.1 *Client volume leads to long wait times*
- 1.2 *Providers feel pressured to rush through consultations to see all the clients*
- 1.3 *Testing adds additional steps to the consultation process*

Distrust of test results

- 2.1 *Providers have heard many anecdotes about RDT kits failing*
- 2.2 *Because of malaria's prevalence, providers expect to see lots of malaria cases*
- 2.3 *Providers overestimate the likelihood that test kits yield false-negative results*

Provider identity and beliefs

- 3.1 *Providers felt that RDTs should complement their own initial diagnoses*
- 3.2 *Providers overestimate their ability to diagnose malaria without tests*
- 3.3 *Providers with high levels of training and many years of experience are more likely to be set in their ways: they find it difficult to update their practices in response to new guidelines*

Insight: Hectic work environments

The volume of waiting clients and cumbersome client flow creates pressure to rush consultations

High client volume leads providers to experience time **scarcity**. They then **tunnel** in on the need to see clients as quickly as possible, which may lead them to neglect guidelines during consultations.

This is compounded by inconveniences in the client flow process, especially the fact that providers need to see clients before and after testing. These hassles can lead well-meaning providers to choose not to test for malaria, or to disregard test results when treating clients. They may instead **satisfice**, which means they decide that just their clinical assessment is sufficient.

Some providers also feel pressured by clients to prescribe malaria medicines. Providers believe that clients wait until they are severely ill to seek care and are particularly attuned to the prevalence of malaria in their communities. Providers express a strong **aversion to risk** and are concerned about the consequences of a missed malaria diagnosis.



At times, you can't be thorough with the patients because of the number.

Doctor

Here we lack manpower, the workload is too much. You know you're not doing the right thing, but it's the workload. Patients won't wait for you, they'll be on your neck.

Nurse

We don't gamble with human life up here [...] You know the main killer in Africa is this malaria.

Doctor

How might we help providers make better case management decisions, and more quickly?

Insight: Distrust of test results

Providers believe that the likelihood of inaccurate test results is high

Providers express distrust of RDTs and believe that the likelihood of inaccurate test results is high. Interviews with providers suggest that these perceptions may be rooted in the fact that early RDTs were far less sensitive to malaria than those currently used, the inability of RDTs to detect different strains of malaria, or concerns about the test kits being old or past their expiration date.

Providers' interpretation of RDT results is also prone to **base rate neglect**; since malaria is endemic in the region, providers focus on the many cases of malaria around them, overlooking the fact that RDTs have a very small probability of presenting false negative results. Instead, providers treat suspected malaria cases with **confirmation bias**, interpreting symptoms in ways that support their prior expectations of a positive malaria diagnosis.



It is very common for the RDT not to pick up parasites.

Extension Worker

We find a lot of false negatives, where you have a patient with symptoms of malaria with no other condition to explain other than malaria. All other tests are negative [...] Most of the times in this case, we go with the conclusion it's a different form of malaria.

Doctor

How might we convince providers that malaria test kits are unlikely to yield false-negative results?

Insight: Provider identity and beliefs

Providers base diagnostic and treatment decisions on flawed expectations

Providers described an approach to testing that suggests they hold a **mental model** in which RDTs are considered useful for confirming their own clinical assessments rather than as an independent diagnostic tool.

Providers' descriptions of the accuracy of their clinical assessments and RDTs suggest that they may be overconfident in their ability to accurately identify malaria in clients without reviewing test results. In addition, providers' stated opinions about RDTs suggest that they may experience **status quo bias**, finding that changing their usual, practiced approach to malaria case management in accordance with new guidelines is difficult. This is more prevalent amongst more experienced providers, those who received job training from senior colleagues, and in secondary health centers where providers have received more specialized training.



The lab test only confirms diagnosis; it is not diagnosis in the first place.

Pharmacist

There are some that won't believe the result because of their experience and clinical acumen.

Doctor

Truth be told, we are not really following the guidelines [...] I'd rather go with my clinical judgement when there's a discordance.

Doctor

How might we leverage providers' identity as experts to elevate the use of malaria tests in diagnostic decisions?

SELECTED SOLUTIONS

To help providers navigate the behavioral barriers we identified, Breakthrough ACTION–Nigeria piloted a suite of interventions designed to make it easier—cognitively and practically—for providers to follow guidelines.

Distrust of test results

SOLUTION A

Group discussions correct providers' misconceptions about the reliability of malaria rapid diagnostic tests and establish shared norms and expectations.

Provider identity and beliefs

SOLUTION B

A tracking poster and supervision visits give periodic feedback on how much providers adhere to guidelines.

Hectic work environment

SOLUTION C

Facilities **offer malaria tests to patients with a history of fever during intake/triage**. This ensures that malaria test results are available by the time patients see their provider and are factored into the initial diagnosis.

SOLUTION D

To make it easier for providers to consider illnesses other than malaria, we provided a simplified version of the **WHO Integrated Management of Childhood Illness Assessment Tool** for providers to fill out during every patient visit.

SOLUTION E

Counseling tools help providers navigate client demand for malaria medicines.

Facilitated discussion
to correct
misconceptions
about malaria risks
and inaccurate tests

A



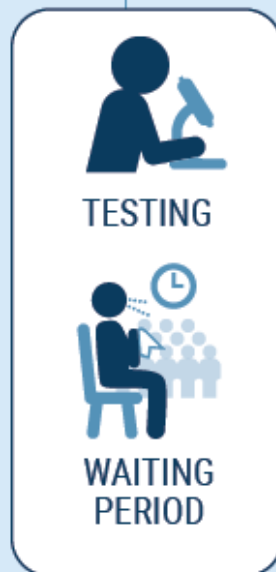
B

Adherence tracking poster raises provider awareness of the frequency with which they stray from guidelines and builds a shared sense of accountability in facilities

CORRECTING PROVIDER MISCONCEPTIONS ABOUT CASE MANAGEMENT AND PROVIDER BEHAVIOR

Testing before consultation
integrates malaria testing into intake processes, ensuring providers have results for consultations by reducing the time and steps required for testing

C



D

Integrated consultation aids help providers conduct comprehensive examinations and consider alternatives to malaria

E

Fever care counseling
guide clients on when to seek further care, and to make follow-up visits less burdensome by assuring returning clients of priority status



STREAMLINING THE CASE MANAGEMENT PROCESS TO MAKE ADHERING TO GUIDELINES EASIER

Solution

IMPLEMENTATION AND SCALING

Implementation

The solutions were piloted in three states, Akwa Ibom, Kebbi, and Nasarawa, over three months. Twelve health facilities were selected for the pilot, including one hospital and three primary health centers (PHCs) in each of the three states.

For monitoring purposes, facilities' adherence to guidelines was calculated as the ratio of artemisinin-based combination therapies prescribed to the number of positive malaria test results recorded at a facility.

Monitoring and Evaluation

By the month 1, only 2 facilities had achieved the target range of 90–100 adherence (variation: 9 to 188). By month 3, all primary health facilities had done so (variation: 91 to 110). Improvement was observed among hospitals though they were likely to have more clients testing positive without getting treatment (variation: 42 to 122).

Providers demonstrated improvements in knowledge and attitudes toward malaria rapid diagnostic tests. For example, the percentage of providers reporting that their peers trust negative test results rose from 61% (n=207) during the pretest to 76% (n=127) in the posttest.

Scaling

While the pilot was conducted in a very small number of facilities, the improvement in knowledge, attitudes, and behavior suggests that the solutions were able to improve case management practices. Hospitals had poorer adherence levels at the outset and more complex operating environments. They are, therefore, likely to need more supportive follow-up and monitoring than primary health centers.

After the pilot, the solutions were revised to incorporate feedback from providers and stakeholders, and scaled by implementing partners to Cross River, Ebonyi, and Oyo states. Additional scale-up is also expected in Bauchi and Kebbi states.

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