

Breakthrough ACTION Guyana

Using Human-Centered Design to Improve Malaria Outcomes in Regions 7 and 8



Acknowledgments

Breakthrough ACTION Guyana would like to acknowledge the Ministry of Public Health partners, in particular the Vector Control Services team (Dr. Horace Cox, Dr. Neil Trotman, Dr. Helen Imhoff, Dr. Michael Marks, Dr. Dexter Browne, Mr. David Williams, Ms. Charmaine Semple, Ms. Nathalie Griffith, and Mr. Royan Teixeira) and the Public Relations and Health Promotion Unit (Mr. Terrence Esseboom, Ms. Nickishaw Khan, and Ms. Shivhana Bruce). We would also like to thank Dr. Quacy Grant.

We greatly appreciate the support and participation of the United States Agency for International Development, in particular Ms. Rebecca Minneman. We would also like to thank the organizations that participated in the Design & Test Workshops, including the Pan American Health Organization, the National Mining Syndicate, the Guyana Geology and Mines Commission, and the Guyana Women Miners Organization.

Last, but certainly not least, our heartfelt thanks goes to the miners, camp managers, and malaria testers in Regions 7 and 8 who provided their invaluable time and feedback, making this a true co-creation process.

This report is made possible by the support of the American people through the United States Agency for International Development (USAID) under the Breakthrough ACTION Cooperative Agreement #AID-OAA-A-17-00017. Breakthrough ACTION is based at Johns Hopkins Center for Communication Programs (CCP). The contents of this report are the sole responsibility of Breakthrough ACTION and do not necessarily reflect the views of USAID, the United States Government, or Johns Hopkins University.

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Acronyms

GGMC Guyana Geology and Mines Commission

SBC Social and Behavior Change

HCD Human-Centered Design

SMS Short Message Service

HMW How Might We

TOT Training of Trainers

LLIN Long-Lasting Insecticidal Net

USAID United States Agency for International Development

M&E Monitoring and Evaluation

VCS Vector Control Services

MOPH Ministry of Public Health

SBC Social and Behavior Change

PAHO Pan American Health Organization

PCL Participants, Content, and Logistics

PR/HPU Public Relations/Health Promotion Unit

RDT Rapid Diagnostic Test

1. Executive Summary

Executive Summary

Breakthrough ACTION Guyana is the United States Agency for International Development's flagship social and behavior change (SBC) project designed to improve malaria outcomes among priority populations. The project uses innovative SBC approaches to address key behaviors related to malaria testing and treatment.

In Guyana, malaria is an issue in Regions 1, 7, 8, and 9, particularly among gold mining populations. In response, the Ministry of Public Health (MOPH), the Pan American Health Organization, and the Global Fund to Fight AIDS, Tuberculosis and Malaria have introduced malaria rapid diagnostic tests (RDTs) to provide services in hard-to-reach areas. To support this initiative, Breakthrough ACTION is collaborating with MOPH to address the following question: How might we improve malaria outcomes in these regions?

During the Define phase, two research teams conducted qualitative research in Regions 7 and 8 to better understand care-seeking behaviors around malaria testing and treatment among miners. Eleven insights were developed from the initial findings, which were used to inform the Design & Test phase.

The Design & Test phase was a highly iterative process that translated problems into solutions through idea generation and prioritization, prototyping, user testing with key audiences in context, learning, and improving. More than 790 ideas were initially generated from a cross section of stakeholders. These ideas were ultimately categorized into eight broad concepts under which various low-fidelity prototypes were developed and tested with 145 people in Regions 7 and 8.

Rapidly building and testing tangible, low-fidelity versions of each concept provided valuable, early user feedback that helped to refine or abandon design ideas. This resulted in savings in time and money on solutions that did not meet the needs of users or deliver on intended outcomes.

Five design prototypes (right) that showed the most merit during user testing will be reviewed for a pilot and then considered for implementation in the Apply phase.

Final Prototypes

1

***Little Mosquito, Big Problem* SBC Campaign**

A multichannel SBC campaign that targets mining camps and communities in malaria-endemic Regions 7 and 8.

2

Rapid Counseling Cards

A handy and attractive stack of cards to be used by volunteer testers and health care workers to provide rapid, tailored and effective counseling to clients on malaria.

3

Branding Malaria Testing and Treatment Services

A trademark meant to raise the visibility and quality of free MOPH-approved malaria testing and treatment services under the ministry's Rapid Diagnostic Testing and Treatment program.

4

Innovations in Treatment Adherence

Two unique and complementary products—a tablet strip and a wristband—help miners remember to complete their treatment regimen as prescribed and understand why it is important.

5

Participants, Content, and Logistics Approach

The Participants, Content, and Logistics (PCL) approach aims to diagnose and address gaps in the current RDT program related to PCL in order to ensure that it can meet the demands that its complementary interventions will generate.

2. Project Background

Breakthrough ACTION Guyana

Overview

Malaria remains endemic in Guyana, but significant gains have been made in the fight against the disease, with a 42 percent decrease in the total number of confirmed cases reported in 2000 (24,081) versus 2017 (13,936). Seventy percent of reported malaria cases come from Regions 1 (Barima/Waini), 7 (Cuyuni/Mazaruni), 8 (Potaro/Siparuni), and 9 (Upper Takatu/Upper Essequibo). The reduction may be due to the decreased level of mining activities because of low gold prices in 2014 as well as increased control measures such as the distribution of long-lasting insecticidal nets (LLINs) (WHO, 2016; PAHO, 2016a).

To expand access to testing and treatment in the most affected regions, the Ministry of Public Health (MOPH), the Pan American Health Organization (PAHO), and the Global Fund to Fight AIDS, Tuberculosis and Malaria are working together to introduce rapid diagnostic tests (RDTs) and treatment for malaria into mining camps. Stable workers in and around mining camps (e.g., cooks, security guards, and shopkeepers) volunteer as trained testers who can administer RDTs and provide free medication. Through training and MOPH supervision, these testers help bring free, quality health care services closer to remote mining communities.

With the support of the United States Agency for International Development (USAID), Breakthrough ACTION Guyana is working together with MOPH Vector Control Services (VCS) and the Public Relations and Health Promotion Unit (PR/HPU) to use innovative, evidence-informed and theory-based social and behavior change (SBC) approaches to address key behaviors related to malaria testing and treatment. The team is using a human-centered design (HCD) approach to improve malaria outcomes in the country.

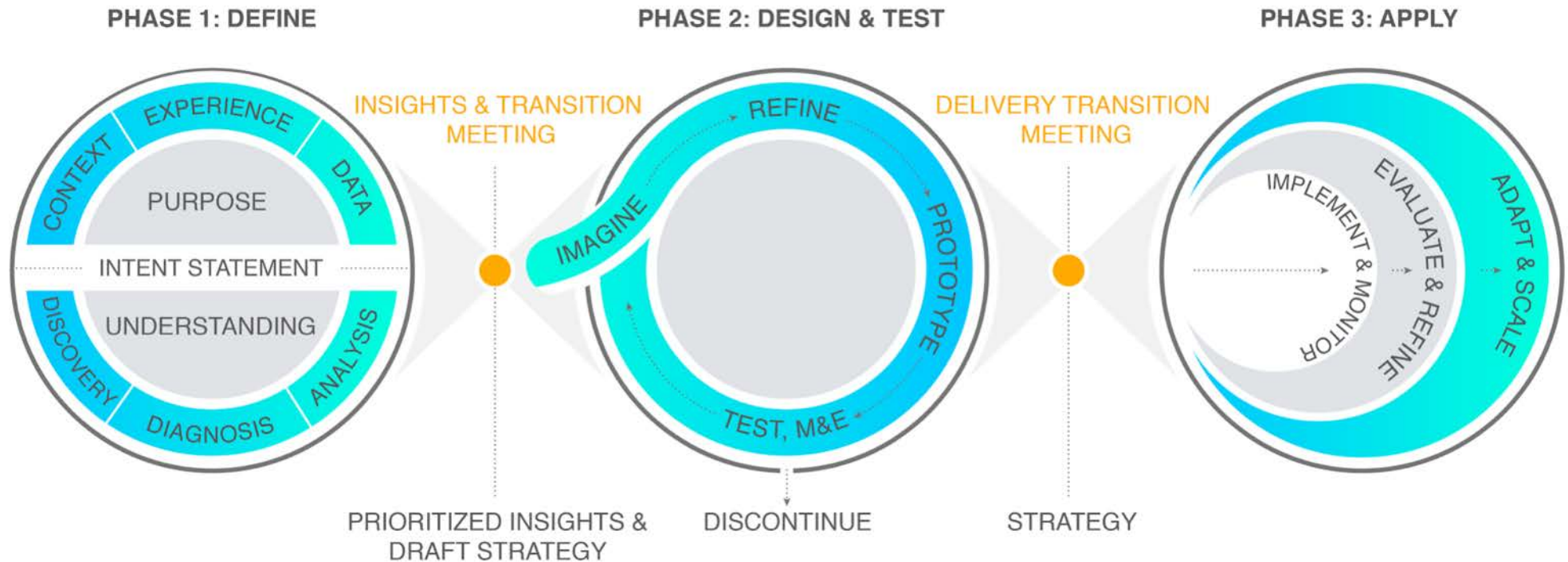
Project Objectives

- 1 Targeted, innovative, and effective solutions to high-priority social and behavioral challenges designed and implemented.
- 2 Increased capacity of Guyanese institutions to coordinate, design, implement, and evaluate high-quality SBC programs.

Priority Behaviors

- Individuals with signs and symptoms of malaria seek prompt and appropriate care
- Trained malaria testers appropriately test, treat, and counsel clients
- Clients adhere to malaria test results and treatment regimen
- Individuals sleep under an LLIN

SBC Flow Chart



Breakthrough ACTION's SBC design process integrates research, behavioral sciences and economics, HCD, communication, and community capacity strengthening into a cohesive, flexible approach. In Guyana, Breakthrough ACTION uses the following components: HCD, communication, and community capacity strengthening.

The SBC process involves divergence and convergence, iteratively exploring broadly and then deciding how to act. This process has three key phases: (1) Define, (2) Design & Test, and (3) Apply. These phases are linked by transitional stages in which the strategy is developed and refined.

Phase 2: Design & Test

The second phase of the SBC Flow Chart is a cyclical and iterative process that focuses on generating and refining ideas to suit a specific target audience and context. This phase involves four steps:

Imagine

Generate new ideas based on new findings and results of testing our assumptions. Reflect on what was learned the previous day, and decide how that will impact the ideas in development.

Refine

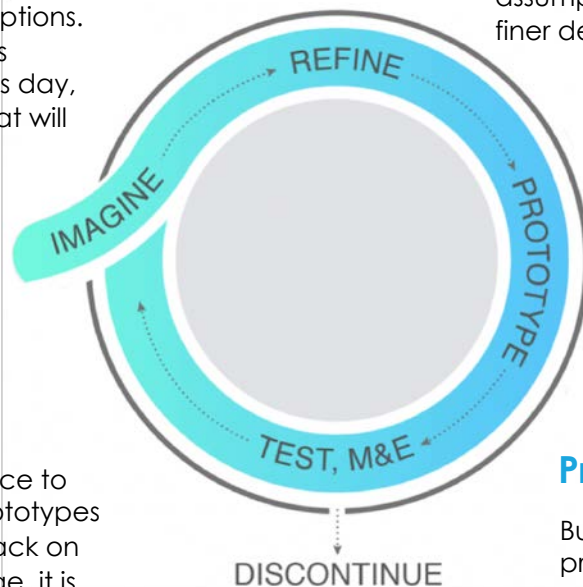
Develop the ideas into something we can build by identifying assumptions and designing the finer details of the concept.

Test, M&E

Give users the chance to interact with the prototypes and provide feedback on the idea. At this stage, it is possible that some ideas will be identified as undesirable, unfeasible, or inappropriate, and will be discontinued,

Prototype

Build ideas into tangible prototypes that can be taken and tested with communities.



Prototyping Principles

1. The greatest value should be created for the user with the smallest input of resources.
1. Prototypes should be put in the hands of the user (for testing) as quickly as possible.

Geographic Scope



Since the roll-out of the RDT program by VCS, Breakthrough ACTION has focused on mining communities in Region 7 (Cuyuni-Mazaruni) and Region 8 (Potaro-Siparuni) in Guyana.

A Region 7: Cuyuni-Mazaruni
Teams based in Puruni

B Region 8: Potaro-Siparuni
Teams based in Mahdia



Geographic Scope

Region 7: Cuyuni-Mazaruni

Region 8: Potaro-Siparuni

Project Intent at a Glance

DESIGN CHALLENGE

How might we improve malaria outcomes among mining communities in Regions 7 and 8?

The Challenge

Malaria cases are still prevalent among migrant populations, primarily miners, loggers, and stable Amerindian communities in the most highly endemic areas of the hinterlands (known as the “backdam” or “interior” in Guyana).

Scope

Breakthrough ACTION Guyana focuses on understanding the experiences and perspectives surrounding malaria in mining communities in Regions 7 and 8. Promising behavioral interventions that are prototyped and tested in Regions 7 and 8 will be refined and rolled out in a broader scale throughout these regions with possible uptake in Regions 1 and 9.

The project will focus on the following behaviors:

- Individuals with signs and symptoms of malaria seek prompt and appropriate care
- Trained malaria testers appropriately test, treat, and counsel patients
- Clients adhere to malaria test results and treatment regimens

Project Intent at a Glance

DESIGN CHALLENGE

How might we improve malaria outcomes among mining communities in Regions 7 and 8?

Our Approach

Within the framework of Breakthrough ACTION's SBC Flowchart, this project follows a HCD approach. The objectives of the Breakthrough ACTION Guyana malaria activity are to:

- Establish a shared vision for the activity's intent, challenges, opportunities, and future success.
- Strengthen the capacity of the in-country team to apply HCD principles and conduct HCD activities.
- Develop a deep understanding of the knowledge, attitudes, beliefs, and behaviors of people belonging to mining communities in Regions 7 and 8.
- Design and implement innovative solutions to SBC challenges.

Desired Future State

Short term (1 year):

- Increased availability of timely and appropriate access to testing and treatment services
- Improved knowledge and awareness about malaria transmission and management

Medium term (2–3 years):

- Reduction in self-treatment and improved adherence to malaria treatment in mining communities
- Sustained behavior and attitude change in recommended prevention practices

Long term (5 years):

- Diminished malaria rates to low- or no-risk levels across the country
- Greater coordinated collaboration between stakeholders

3. Research Findings

Key Insights Overview

The full Insights Report from the Define phase, which includes the methodology, full insights, and supporting quotations can be accessed [here](#). Additionally, through the Design & Test fieldwork, some of the insights have been updated with additional quotes and observations. These additional insights are denoted with “+”.

- 3.1 Risk perception**
Malaria is seen as routine and commonplace; it is not considered a major health risk in many communities.
- 3.2 Malaria knowledge and preventive behaviors +**
Many contradictions exist around what people know about malaria and how they behave.
- 3.3 Adherence and nonadherence to correct treatment +**
Undesirable medication side effects cause some miners to stop treatment as soon as they feel better; for others, the need to get back to work and be able to keep working motivates them to follow the regimen.
- 3.4 Self and traditional malaria treatment**
Commonly accepted practical solutions to diagnose and treat malaria, which differ greatly from official recommendations, are preferred due to convenience and personal experience with these treatments.
- 3.5 Testing+**
The role of volunteer testers in providing free malaria testing and treatment services is not fully understood or appreciated by miners and clients.
- 3.6 Job motivation**
Miners and camp workers often prioritize financial/economic gain over their health concerns.
- 3.7 Mining camp environment +**
Strong and respectful relationships exist between miners and their camp managers because they need each other to be successful at their jobs.
- 3.8 Health care sources**
Health facilities are a desired option for health care services, but people will access other sources if necessary due to transportation, time, distance, and cost limitations.
- 3.9 RDT training +**
The RDT training provided by MOPH is effective; however, testers would like to be trained to provide additional health services.
- 3.10 Communication +**
Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.
- 3.11 Coordination and communication gaps +**
A lack of coordination and communication between stakeholder groups reduces the effectiveness of the National Malaria Program.

+ Insight updated or supplemented after Design & Test fieldwork

3.1

Risk perception

Malaria is seen as routine and commonplace; it is not considered a major health risk in many communities.



"If you want to prevent malaria, don't come to the bush."—Miner

3.2

Malaria knowledge and preventive behaviors

Many contradictions exist around what people know about malaria and how they behave.



"You could get bitten by a mosquito before you go to bed. The nets aren't going to prevent malaria."—Miner

3.2 +

Malaria knowledge and preventive behaviors

Many contradictions exist around what people know about malaria and how they behave.

Additional findings that emerged throughout prototype testing:

- **Malaria as incurable:** Some miners were not aware that malaria can be completely cured or that parasites could be entirely eliminated from the body. Many believe that once you have malaria, it is always in your system and can “rise up” when triggered. Some believe malaria can be suppressed by specific reagents.
- **Immunity:** Some miners believe they are now immune to malaria, often due to repeated exposure or an alternative treatment they had at some point years ago.
- **Emphasis on environmental cleanliness:** Cleaning your environment is one of the (if not the) most commonly mentioned ways to prevent malaria—yet it is not one of the strategies recommended by WHO/PAHO. Confusion may come from this strategy being recommended for combating other vector-borne diseases.
- **Human role in transmission:** The mosquito was frequently cited and understood to be a carrier and cause of disease. However, the role humans play in malaria transmission was less understood.
- **Mosquito net concerns:** Miners understood that nets are important for malaria prevention, but they had some confusion about how to take care of them. For example, some did not know that nets need to be aired out for 24 hours before use, and others were washing and drying nets inappropriately.

“Malaria might stay with you for 5 years in the liver—I’ve heard it before but I’m not sure if it’s true.”

“Some people believe if you drink a beer, malaria will show up [on the test].”

“You could get tested negative one day and next day test positive. It could flare up.”

“I had malaria plenty times. I can’t count. I feel like I’m getting it right now. But the regional supervisor when she test me, it don’t show up.”

“I’m probably immune to malaria now. 10 years I don’t get malaria.”

“I’m immune to malaria. I don’t sleep under a net, mosquitoes bite the hell out of me, and I don’t get sick.”

“Help me understand. If one person is infected, you is a carrier? If one person got it, it can spread?”

“Do you still do fogging? Is that still happening?”

“If you use one a lot, what do you do with the old one? You’re washing it a lot, drying it a lot. How do you know if it’s expired?”

“I can be a carrier now and go home and my daughter is home and she can get it. I never saw it like that before. I could be a carrier.”

“People should be more aware of the environment. Open containers, fires. You need to get away bush around camp.”

3.3

Adherence and nonadherence to correct treatment

Undesirable side effects of the medication cause some miners to stop treatment as soon as they feel better, while the need to get back to work and be able to keep working motivates other miners to follow the regimen.



"I feeling good, so I stop [taking malaria treatment]."
—Miner

Additional findings that emerged throughout prototype testing:

- **Efficacy of treatment:** Given that some miners believe malaria remains in their system forever, they did not feel that completing treatment was necessary. They felt that treatment would only address symptoms.
- **In-depth understanding leads to intention:** People were surprised to learn that malaria could be cured. When they realized how the medicine slowly decreases the number of parasites in their bodies until no parasites remain, they normally expressed the desire to take the full treatment.

"If malaria is always with me, then the treatment is really only to fix the symptoms. Once I feel better, that is as much as this treatment can do for me, so there is no reason to keep taking it."

"Adherence is very effective. You don't get paid if you go home."

"We [pharmacists] encourage them to complete their treatment, but it's up to them."

"If you have the machine [tests] and tablet, people will do it. People want to feel better."

"No tablet don't really taste good but you would want to take it [to feel better]."

"People keep suppressing it rather than curing it. Some take painkillers. People drink antibiotic thinking it cures malaria."

3.3 +

Adherence and nonadherence to correct treatment

Undesirable side effects of the medication cause some miners to stop treatment as soon as they feel better, while the need to get back to work and be able to keep working motivates other miners to follow the regimen.

3.4

Self and traditional malaria treatment

Commonly accepted practical solutions to diagnose and treat malaria, which differ from official recommendations, are preferred due to convenience and personal experience with these treatments.



*"I use herbal treatments for malaria if there is no access to a health facility."
—Miner*

3.5

Testing

The role of volunteer testers in providing free malaria testing and treatment services is not fully known, understood, or appreciated by miners and clients.



"I didn't realize that testing and treatment is offered for free."—Miner

Additional findings that emerged throughout prototype testing:

- **Logistical challenges:** Testers and regional vector control staff highlighted logistical challenges that prevent the successful implementation of the RDT program. Some of these challenges include availability of malaria testing and treatment supplies.

3.5+

Testing

The role of volunteer testers in providing free malaria testing and treatment services is not fully known, understood, or appreciated by miners and clients.

“When you train more testers, you need more drugs. That’s why we’re not training more.

We have the budget, it’s ready to submit to RHO, but I don’t think we can provide RDTs and treatment to everyone.”—Regional VCS staff

“The rapid testing is a good thing. But you gotta make sure treatment is readily available. We are out of one type of medication now.”—Camp manager

“I haven’t being here in a while. I’m frustrated that there are no active testers in the region now” — Regional VCS staff

“I went there (to the hospital) to get supplies, they were out, so I stopped going there” —Tester

“They are volunteers, we can’t ask much of them, or they quit” —Regional VCS staff

3.6

Job motivation

Miners and camp workers often prioritize financial and economic gain over their health concerns.



3.7

Mining camp environment

Strong and respectful relationships exist between miners and their camp managers; they rely on each other to be successful at their jobs.



"During work or at the landing you gotta look out for each other because we're from the same country."
—Camp manager

Additional findings that emerged throughout prototype testing:

- **Treatment adherence responsibility:** Field testing confirmed the supportive role that camp managers play to encourage treatment adherence among miners. Some camp managers communicated the responsibility they felt for miners, while others recognized that miners are still responsible for their own health.

"I try to be like a father to them to make sure they take their treatment, at least the first three days. Everybody is full-grown mature adults. We all are big men."

"You can't spoon feed. You can't force horse to eat grass. It's their own responsibility."

"They feel like I'm overprotecting. But I tell them when they're at my camp they're my responsibility. Once I'm around they can't drink liquor."

"You can't beat them with a whip and say drink the tablet. At the end of the day, you're responsible for your own health."

"Even it means being out of work two to three days more, I will ensure they use the treatment because you can endanger others."

3.7+

Mining camp environment

Strong and respectful relationships exist between miners and their camp managers; they rely on each other to be successful at their jobs.

3.8

Health care sources

Health facilities are a desired option for health care services, but people will access other sources if necessary due to transportation, time, distance, and cost limitations.


*"Best thing is to go to the hospital."—
Miner*



3.9

RDT Training

The RDT training provided by MOPH is effective; however, testers would like to be trained to provide additional health services.



"I want to learn more about malaria and other health care."—Tester

3.9 +

RDT Training

The RDT training provided by MOPH is effective; however, testers would like to be trained to provide additional health services.

Additional findings that emerged throughout prototype testing:

- **Lack of training take-home materials:** The training and resources received from VCS do not provide testers with information on appropriate treatment regimens for different malaria strains or situations. The laminated pocket guide provided during the RDT training shows steps for conducting the test, but it does not contain guidance on the different treatment regimens. A tester showed the field team the worn notes she refers to frequently. Testers need additional support to refresh their knowledge of recommended treatments.
- **Visibility of services:** Testers are not provided with any signage to indicate the availability of free testing and treatment services. Miners often do not know when or where these services are offered.
- **Drug supply:** Additional workflow challenges to training more testers and supply of drugs were present, which limited quality care available.

“When she brings drugs, I’ll do testing.”—Tester

“If I know where they have free test I wouldn’t pay for the other one.”—Miner

“I went to the hospital and asked for a sign to put on my shop, they only had this book.”—Tester

“When you train more testers, you need more drugs. That’s why we’re not training more. We have the budget, it’s ready to submit to RHO, but I don’t think we can provide RDTs and treatment to everyone.”—Regional VCS staff

3.10

Communication

Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.

WHAT IS MALARIA?

MALARIA is a disease caused by the presence of very small parasites in the blood. It is spread by the female 'anopheles' mosquito.

IN GUYANA THERE ARE 3 TYPES OF MALARIA:

1. FALCIPARUM

2. VIVAX

3. MALARIAE

AND MIXED INFECTIONS - ANY COMBINATION OF THE THREE TYPES

Mosquito bites a miner / logger infected with malaria and takes in the malaria parasite



The infected mosquito bites a healthy miner / logger and infects them with the malaria parasite



"More public awareness is needed about testing in remote areas."
—Community health worker

SIGNS & SYMPTOMS

- Ague
- Chills
- Headache
- Body pain
- Fever
- Sweating
- Loss of Appetite



If a sick miner / logger does not seek treatment, drink all of his tablets or takes the wrong tablets, he will PASS THE DISEASE TO OTHERS and may even DIE



A smart miner / logger seeks reliable treatment from a trained "medic" or nearest health facility

The healthy miner / logger becomes ill with malaria

3.10+

Communication

Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.

Additional findings that emerged throughout prototype testing:

- **Available media channels:** Most miners had access to signals for their smartphones for social media, apps, phone calls, and short message service (SMS). They also had radios. Depending on the camps, televisions were sometimes available. In a few of the camps, internet connections were made available to miners after work hours.
- **Quality of existing communication materials:** Several communication materials the field teams reviewed were text heavy, in English, and too information heavy for low-literacy populations whose first language was not English.

"I can handle that, but it depends on the patient's ability to read."—Tester

"I saw a newspaper and I went and steal it."—Miner

"I don't even remember what it [health poster at her shop] is about."—Tester

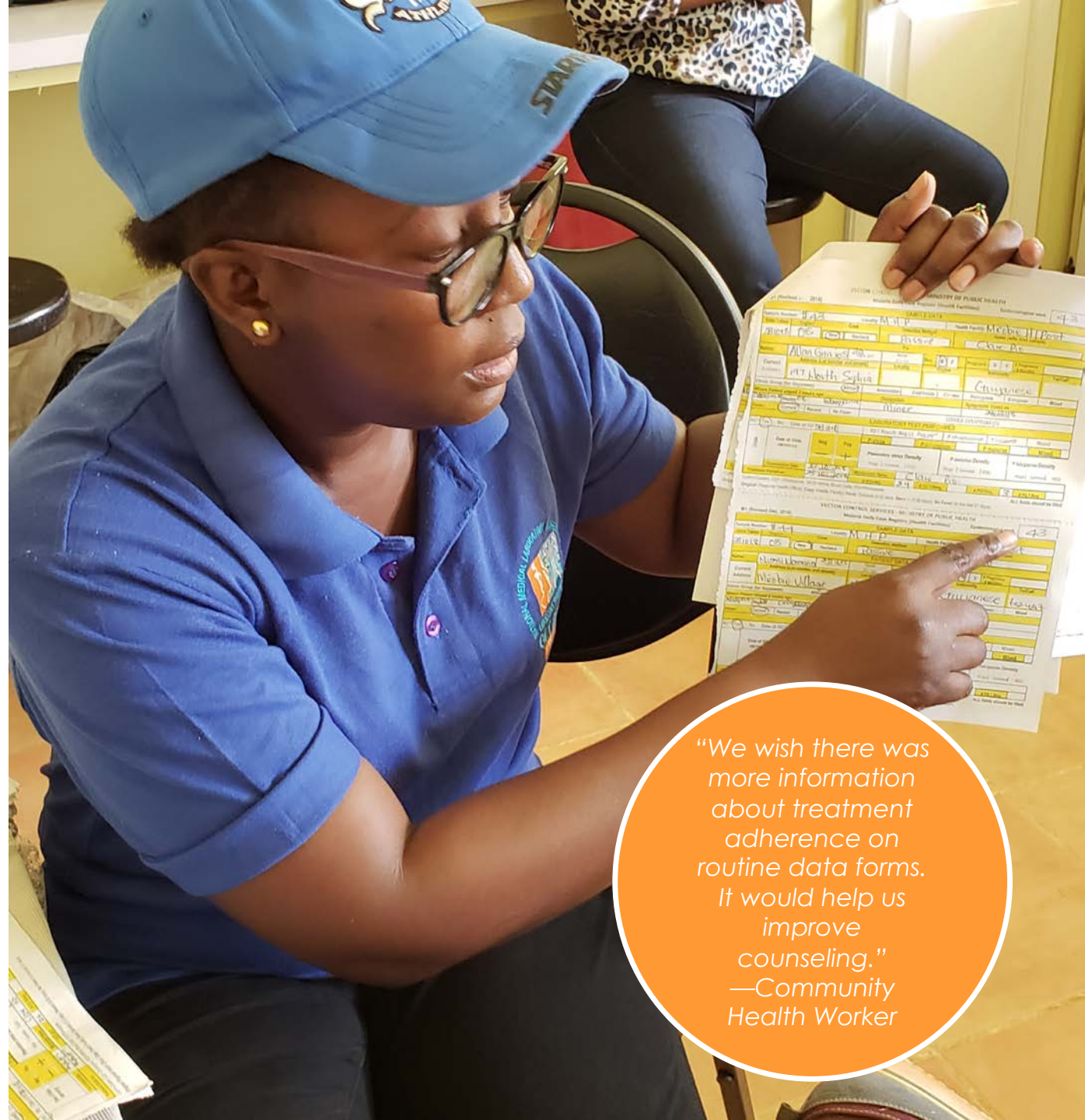
"It's all about Facebook, it is really growing."
—Camp Manager

"We read nothing over here, everybody is on their phones all the time."—Miner

3.11

Coordination and communication gaps

A lack of coordination and communication between stakeholder groups reduces the effectiveness of the National Malaria Program.



"We wish there was more information about treatment adherence on routine data forms. It would help us improve counseling."
—Community Health Worker

Additional findings that emerged throughout prototype testing:

- **RDT Program Diagnosis:** Based on an RDT program diagnosis completed in Region 7:
 - Testers do not always have direct access to regional VCS staff or supervisors. They often do not know whom to look for in case of an emergency or when they have doubts.
 - No official documentation/system exists to verify whether testers are still in place and/or functioning.
 - Testers often have to make the trip or send someone to the hospital for RDT supplies and/or to submit reporting forms. Some testers use their money to pay for transportation to/from the hospital and their location.

3.11 +

Coordination and communication gaps

A lack of coordination and communication between stakeholder groups reduces the effectiveness of the National Malaria Program.

"She been asking y'all for a phone very long to communicate with you."—Shopkeeper talking about a tester

"I don't know what to do! I don't know who to call. Everybody gives me different information"—Shop owner

"People won't do anything for you around here if you don't pay"—Tester about transportation

"It should be weekly, but happens monthly, when it does"—Regional VCS staff, about report

Empathy Tools

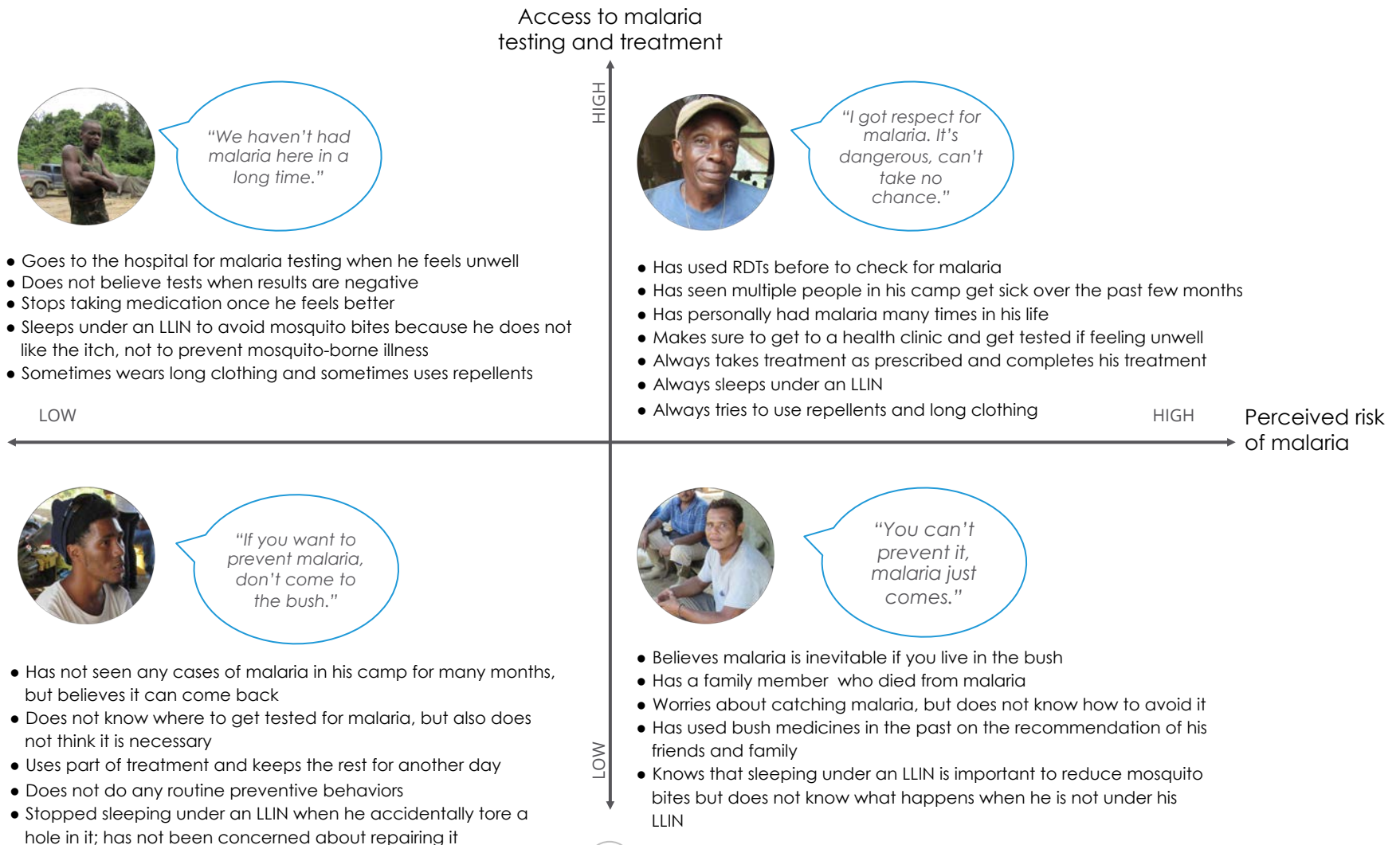
A few examples of empathy tools developed from the Discovery fieldwork are provided here. Note that this list is not exhaustive. To see all the empathy tools, please see Breakthrough ACTION Guyana's [insights report](#).

Personas: In short, personas are vehicles for design. They are not a simple segmentation of the market or a catalog of all the roles within an ecosystem. Acting as stand-ins for real people, personas are tools that help guide design teams in asking the right questions, generating insights, and ultimately making decisions about the functionality of a solution. They also serve an essential function as a tool for the continuation of empathy and allow us to remember the human element of the people with whom we are working.

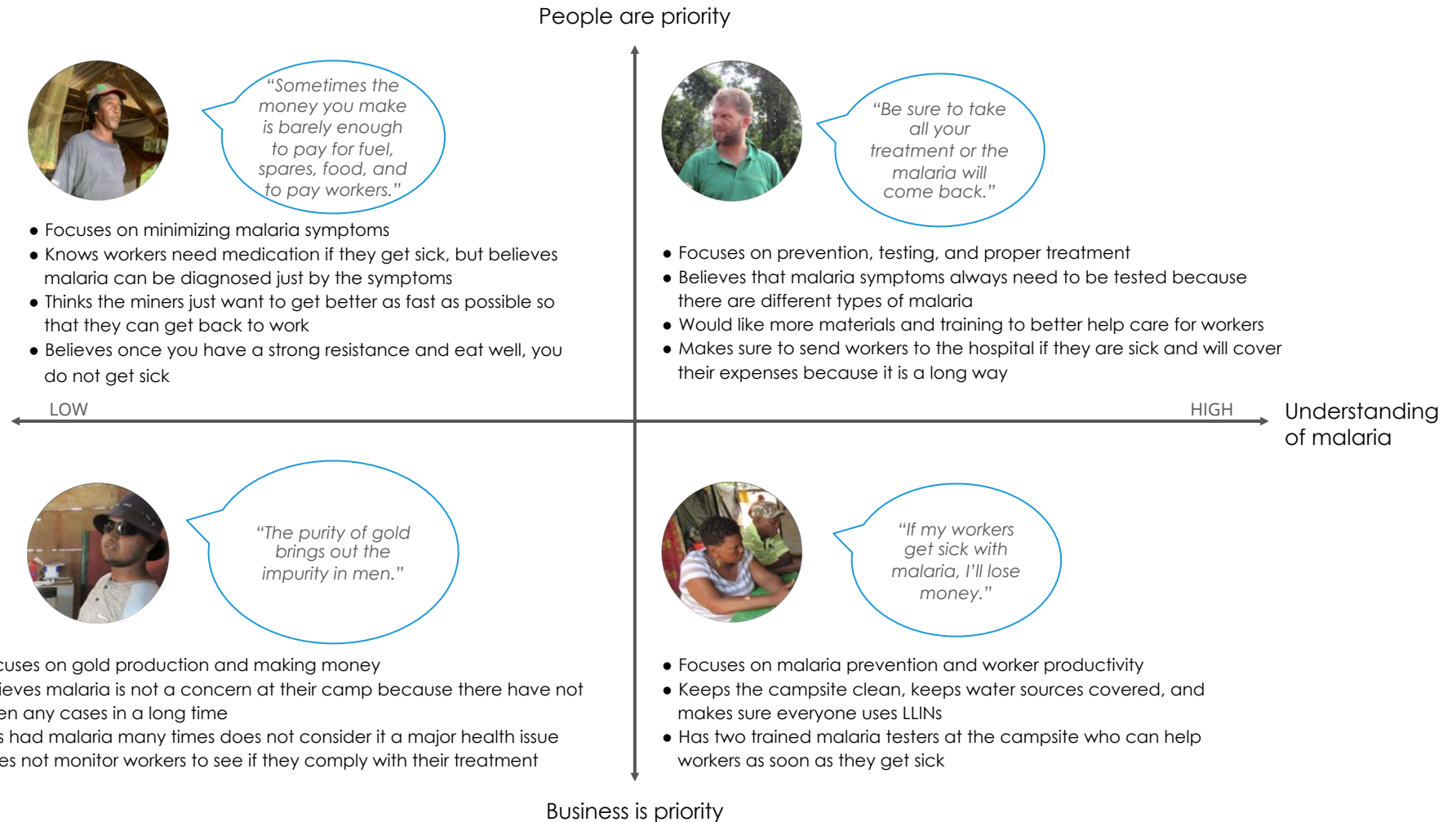
Multiple personas were identified for each of the stakeholder groups. Three complete personas are provided as examples in the following pages. For a complete overview of the nine personas developed, please see the Breakthrough ACTION Guyana Insights report from February 2019.

Journey maps: Journey maps illustrate the experience pathway or “journey” of a persona from their individual perspective, allowing us to highlight pain points and opportunities for intervention. Journey maps tell the important stories of our personas in a way that places them within a broader ecosystem of interactions between people and systems; they help us to consider our personas within their unique context, rather than in isolation.

Audience segmentation: **Miners**



Audience segmentation: **Camp managers**



Victor Williams

Archetype:
The model miner



“I got respect for malaria. It’s dangerous, can’t take no chance.”

PERCEIVED RISK OF MALARIA



ACCESS TO TESTING AND TREATMENT



BIO

Victor moved to the interior in search of better work opportunities in his early 20s. He enjoys working in the mines, and through extensive experience, he has earned the respect of his fellow workers.

Victor does not have a wife or children but makes a trip back to his family once or twice per year.

He has personally experienced malaria many times throughout his life, and he now tries his best to avoid catching it again. He is familiar with the symptoms, but he knows that there are different types of malaria, so he always makes sure to get tested if he feels feverish in order to determine the right treatment.

He uses traditional preventive practices to supplement recommended protective behaviors.

His camp has trained testers, and Victor has gone to them twice in the past year when he felt unwell.

He knows that many of his workmates are not as vigilant about preventing malaria as he is, but Victor does not see anything he can do to change that.

CHALLENGES AND FRUSTRATIONS

- Observes others in his camp getting sick from malaria due to carelessness in spite of his advice
- Has workmates who only believe in alternative, traditional, and bush medicines to prevent and treat illnesses
- Occasionally gets sick with malaria even though he takes the recommended precautions

GOALS AND VALUES

- Wants to be able to work as much as possible and earn money
- Wants to avoid catching malaria in the future
- Trusts the information he receives about prevention and treatment practices

NEEDS AND REQUIREMENTS

- Support to continue practicing the recommended prevention and treatment behaviors
- Have workmates be more proactive about reducing their risk of catching malaria

AGE 28

OCCUPATION Miner

EDUCATION LEVEL Primary

LOCATION Bacchus Camp, Region 7

RELEVANT INSIGHTS

1.1

3.1

7.1



Journey map: Victor Williams

Archetype: **The model miner**

STAGES

SELF-PROTECTION

ONSET OF SYMPTOMS

NEGATIVE TEST RESULTS

FOLLOW-UP TEST

TREATMENT ADHERENCE

When I started working as a miner, I often got malaria. I know how bad it can be and how it keeps me from doing my job and earning a living. I have also seen how dangerous it can be—I know someone who died from malaria, so I don't take chances. I sleep under a bed net every night and try not to go out when the mosquitoes are active. I also make some bitter tea to drink once or twice a week because it can help your body fight off the malaria if you are bitten by an infected mosquito.

Last week I got a headache and started to feel feverish. Those are signs that you might have malaria, but it could be something else. You can't be sure without a test. Even if it is malaria, I can't tell what kind just from the symptoms, so I go get a test to be sure and to get the right kind of treatment. Our camp doesn't have anyone who can give the test, but there is a shop down the road, so I went there. There is also a health post in town where I can get a test, but it takes longer to get there. But wherever I have to go, I always get a test.

The tester at the shop told me that the test was negative, but that sometimes the tests can be wrong. She asked me if I ever had malaria before, when the symptoms started, and if I had been taking any self-treatment that could affect the results of the test. I told her that I drank bitter tea about a week ago. She gave me a dose of Panadol for the headache, but asked me to come back for another test if I wasn't feeling better in 24 hours.

The next day, I still had a headache and fever, so I went back to the shop. The test that day was positive. The tester explained that there are two types of malaria and that each requires a different treatment. She said that the kind I had required 14 days of medication and that it was important to follow the treatment all the way to be sure I was cured.

I had to take the long treatment before, and I don't like it. You feel worse before you feel better, but you have to do it or the malaria doesn't really go away. When I got back to the camp I told my friend that I had to take the medicine every day. We are busy in the camp and sometimes I am lazy or forgetful, so I asked him to remind me to take my dose every day until it was gone, even after I started to feel better.

THOUGHTS

- I'm scared of malaria; I've seen what it can do.
- I'm pretty confident that I can take care of myself.

- Uh-oh...here we go again.
- I wonder what kind of malaria it is...or if it's malaria at all.

- I don't always trust the test results.
- It's complicated to get the answers you need.

- I feel good that the tester can explain what is really happening.

- I don't like the taste of the medicine.
- I don't like how the medicine makes me feel
- I have to stick with it if I want to be healthy

PAIN POINTS

- I like this job and I need the money; I don't want to risk losing it.

- I can't afford to lose time on the job; I need to take care of this right away.

- How long will it take to figure out what's wrong with me?
- Can I afford another day off the job?

- Fourteen days is a long time to have to take medicine...I need to get back on the job right away.

- Fourteen days is a long time.
- What if I forget to take a dose?

OPPORTUNITIES

How might we help more miners feel confident in their ability to prevent and treat malaria?

How might we make it easier for miners to get tested right away at the first sign of fever?

How might we ensure that the relationship between miners and testers is strong in order to build confidence in testing and treatment?

How might we help all testers be this good at explaining things to their clients?

How might we reinforce treatment adherence in the camps, especially for the longer *P. vivax* regimen?



“People in surrounding communities don’t know that I’m a trained tester.”

OPPORTUNITY TO PROVIDE TESTING



WILLINGNESS AND MOTIVATION



BIO

Claire moved to the backdam in pursuit of a better income. She did not want to become a miner, but she knew there were other ways for her to benefit from the mining industry.

She is married to a dredge owner and manages a small shop that sells basic supplies, food, and drinks just two kilometers from the mining site.

Claire signed on to become a volunteer tester because she knows how important it is to identify malaria quickly and wanted to do something in her spare time.

CHALLENGES AND FRUSTRATIONS

- Not many people come to her for testing, even though she knows malaria is a challenge. It is possible that people do not know that she provides free testing
- She is willing to provide more tests but is worried she is forgetting how to do it properly due to lack of practice.

GOALS AND VALUES

- She wants to feel like she is contributing to the health and wellness of the community through testing services.

NEEDS AND REQUIREMENTS

- Additional training and support from regional VCS team to refresh what she initially learned
- Greater opportunities to administer RDTs and complete supporting documentation
- Increased awareness of her role as a trained tester in the local community
- Sense of being acknowledged, valued, and appreciated by clients and the community

RELEVANT INSIGHTS

AGE	37
OCCUPATION	Shop owner
EDUCATION LEVEL	Secondary
LOCATION	Mahdia

5.2
5.3
9.1
9.2



Journey map: Claire Thomas

Archetype: **Eager tester**

STAGES

BEFORE TRAINING

ADMINISTERING RDT

DETERMINING THE RESULT

PROVIDING TREATMENT & ADVICE

PROVIDING TREATMENT & ADVICE

REPORTING & FILING

I heard about the RDT training program and seized the opportunity to provide the service since I know the importance. I don't have experience in doing RDTs or other testing. I wanted to do something in my spare time.

A miner who works for my husband's dredge came to see me a few weeks ago. It was the first time I was seeing someone since being trained eight months ago. I didn't ask him many questions just if he had a fever and for how long he was sick.

I was nervous to prick his finger since I had only done it once during the training. It seemed like the miner sensed my nervousness because he asked me if I was sure about what I was doing.

The test was negative, but the miner did not believe it. He was certain that he had malaria and he asked me to give him treatment anyway.

I told him to come back the next day to repeat the test or that he should go to the hospital. He was frustrated and insisted that I give him malaria treatment; however, I told him I could only sell him medication for his fever and pain. When he returned the next day to repeat the test, it was still negative so I told him to go to the hospital.

I tried to fill out the necessary report, but I wasn't sure if I was doing it correctly.

THOUGHTS

- I don't know why I was selected to become a tester.

- This is my first client in eight months.
- He only knows that I'm a tester because he works for my husband.

- I'm scared I pricked his finger too deeply.
- I hope I remember everything that I have to do.

- I don't know why the test was negative.
- I hope I didn't do anything wrong.

- I don't know what else I can tell the miner.
- I can't remember what I learned in the training about what to do with negative results.

- I hope I filled out this report correctly.

PAIN POINTS

- I have no experience with RDTs or any related medical field.

- People aren't aware that I can provide free malaria testing and treatment.
- I don't often get to practice/improve my skills since being trained.

- I don't feel confident conducting the RDT yet.
- I may not remember everything I have to do.
- Suppose more people come for testing, what will I do?

- The miner did not believe his negative result.
- What else can I say to him about his negative result?

- I am unable to provide any other tests for miners.
- How can I give him medication with a negative result?

- I don't feel confident filling out the report either.
- I can't find the contact information for the VCS staff who conducted the RDT training.

OPPORTUNITIES

How might we improve the selection criteria for trained testers?

How might we make miners aware of testers in their surrounding communities?

How might we help testers feel confident in their skills when they have few opportunities to test?

How might we encourage miners to accept negative RDT results?

How might we better enable testers to advise and support persons with a negative RDT result?

How might we help testers keep their skills when they have few opportunities to test?
How might we provide more effective monitoring for testers?

Adam Anthony

Archetype:
Unwilling tester

“I am only doing testing because my family has business here.”

OPPORTUNITY TO PROVIDE TESTING



WILLINGNESS AND MOTIVATION



BIO

Adam is originally from Linden. He decided to go into the interior with his family in hopes of establishing a better standard of living for himself, his wife, and their two children. He manages a shop that is in close proximity to many dredges.

Adam was selected to be a malaria tester because he runs a shop. However, he says that the testing can interfere with him managing the shop since people are sometimes unwilling to wait to be tested. He is also not interested in RDT refresher training or learning any new health-related skills.

Adam has sometimes run out of test kits when he has gotten more clients than anticipated. He also is not in regular contact with the regional VCS team so he sends his reports out when someone is traveling to Bartica.

CHALLENGES AND FRUSTRATIONS

- Prioritizes his shopkeeping duties over his testing responsibilities when these conflict with each other due to client demands/impatience
- Sometimes does not have sufficient tests for clients
- Does not have regular communication and supervision from VCS

GOALS AND VALUES

- To provide a better standard of life for his family
- To ensure the well-being of his family

NEEDS AND REQUIREMENTS

- Improved supervision and support from regional VCS
- Sense of being acknowledged, valued, and appreciated by clients and the community



AGE 38

OCCUPATION Shop owner

EDUCATION LEVEL Secondary

LOCATION Puruni

RELEVANT INSIGHTS

5.1

5.3

8.2

11.2



Journey map: Adam Anthony

Archetype: **Unwilling tester**

STAGES

INITIAL CONSULTATION

ADMINISTERING RDT

DETERMINING THE RESULT

PROVIDING TREATMENT & ADVICE

REPORTING & FILING

Weekend nights are usually busy for me at the shop, especially Friday and Saturday nights when the gold has been "washed down." One Friday night when things were really busy, a miner came and said that he was feeling very unwell and asked to be tested.

I told him to have a seat while I continued attending to my customers and then I would be able to assist him. The miner started to raise his voice, demanding that I attend to him right away. He also offered money thinking that would make me serve him faster. I attended to another customer and then went to him.

I went to get the RDT kit and my papers together and remembered that I only had one test kit remaining. I used that last kit to do his test.

I was able to perform the test for the miner quickly since I have done many tests before.

While I waited for the result of the test, I returned to serving my customers.

The result was positive for Vivax malaria. The miner felt vindicated and said to me, "I told you I was very sick."

I gave him the two-week treatment for Vivax malaria and explained to him how to drink the medication.

I didn't say anything more to him because I wanted to continue attending to the other customers at the shop. Besides, I'm not really trained to deal with difficult clients. The miner left without saying thank you.

I filled out the report form as I always do and made a note to call the regional VCS team on Monday to inform them that I had run out of RDT kits.

THOUGHTS

- Weekends are when I make the most money.
- My shop is my first priority.
- Offering me money will not make me attend to you faster.

- I will not be able to assist anyone else this weekend or until I get more RDT kits from VCS.
- I was told that the other tester did not have test kits either.

- He is lucky that the kit was not damaged and he got the correct reading since that was my last test kit.
- At least I can conduct my shopkeeper duties without having to stop to do tests.

- I have many customers waiting to be attended to.
- I don't monitor anyone to ensure they use out their medication.

- I have not heard from the regional VCS team for a while now.

PAIN POINTS

- Some miners need to understand that I am a volunteer and I'm not being paid for this RDT work.
- If you don't want to wait, then you can go.

- Suppose my family members or I need to be tested before I get additional kits. What will happen to us?

- If it is not malaria, you have to go to Bartica since I am not trained to test for other health-related illnesses.

- I don't like to keep my paying customers waiting for too long
- Some miners don't appreciate the work that I'm doing

- I'm not sure I will see VCS soon, especially since the roads are in terrible condition.

OPPORTUNITIES

How might we help persons to understand the role of the malaria testers?

How might we enable regional VCS to work with trained testers to prevent stock-outs?

How might we motivate malaria testers?

How might we help testers feel appreciated for the RDT work they are doing?

How might we improve the regional VCS supervision and communication with testers?

4. Co-Design Approach

Co-Design Approach

Throughout this project we have adopted a co-design approach. This approach allows all partner organizations, as well as members of the target audiences, the opportunity to meaningfully contribute. It also simultaneously harnesses the wealth of expertise and experience that they bring to the table. Workshop activities were typically run in group settings, and participants were regularly given the chance to share their thinking and outputs with the rest of the room.

To ensure the right people were involved throughout the project, in workshops and within regional teams, we utilized the Four Voices model. Including these four voices in a meaningful way throughout the project will help to ensure that all critical perspectives are involved and have ownership of the project outcomes.

The co-design approach also allowed us to build capability among the project teams. In particular, participants were able to learn through applying the following skills:

- Generating broad ideas and refining them
- Defining the objectives and hypotheses of ideas to be tested
- Engaging in low-fidelity prototyping of ideas
- Testing ideas with target audiences without bias
- Iterating ideas based on feedback, observations, and insight

Voice of Intent

This voice is typically the sponsoring agency, or the entity that will be accountable for delivering the project outcomes. Guyana MOPH and USAID provide the voice of intent.

Voice of Expertise

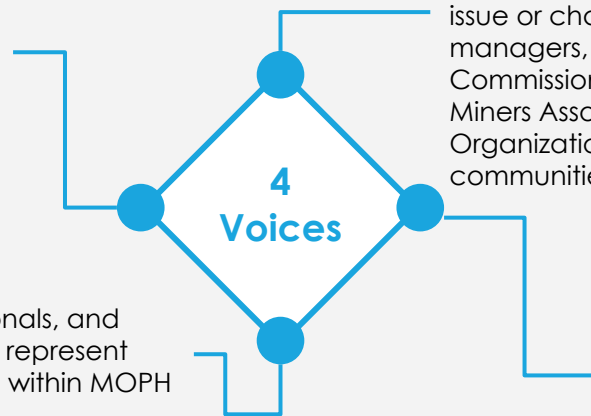
Subject matter experts, professionals, and academics in the project space represent this voice. It is provided by areas within MOPH such as VCS.

Voice of Experience

This voice is that of the end user, community, or citizens that ultimately experience and live with an identified issue or challenge. This included miners, camp managers, trained testers, Guyana Geology and Mines Commission (GGMC), Guyana Gold and Diamond Miners Association, Guyana Women Miners Organization, health workers, members of the mining communities and the National Mining Syndicate.

Voice of Design

This voice is impartial, putting the focus on innovation, while facilitating the perspectives of the other voices. Breakthrough ACTION and its implementation partners make up the Voice of Design in this project.



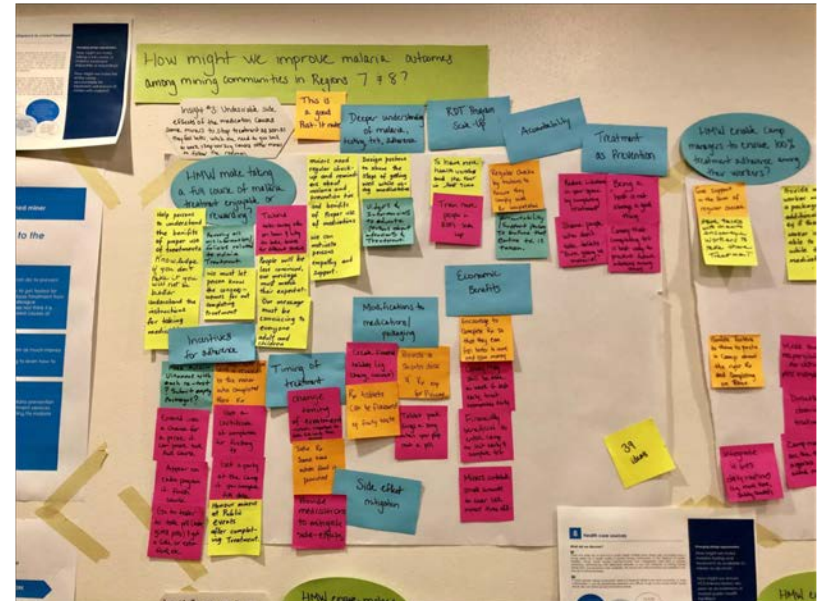
Design Challenges

For each insight uncovered during the Define stage, three design challenges were identified to clearly articulate the emerging opportunities for design interventions. These design challenges were framed as “How might we...” (HMW) questions.

HMW questions are short questions that turn insights into a launchpad to generate ideas. They should:

- Evoke ambitious solutions without postulating an idea.
- Be broad enough to encourage multiple unique solutions, yet narrow enough to provide focus.
- Reframe the problem, rather than simply restate it.

The following design challenges, framed as HMW questions, provided the stimulus and provocation for generating ideas throughout the Imagine Workshop.



Insight 1

Risk perception

- How might we make malaria prevention, testing, and treatment as natural as pumping water out of the pits after heavy rainfall?
- How might we increase the perceived risk of malaria in endemic areas?
- How might we make malaria unacceptable rather than commonplace?

Insight 2

Malaria knowledge and preventive behaviors

- How might we change social norms so that *not* undertaking proactive, preventive behaviors is seen as strange?
- How might we harness interpersonal relationships to share accurate and useful information about malaria prevention, testing, and treatment?
- How might we help more miners feel confident in their ability to prevent and treat malaria?

Insight 3

Adherence and nonadherence to correct treatment

- How might we make taking a full course of malaria treatment enjoyable or rewarding?
- How might we make the entire camp accountable for treatment adherence of miners with malaria?
- How might we enable camp managers to ensure 100 percent treatment adherence among their workers?

Insight 4

Self and traditional malaria treatment

- How might we incorporate the benefits of self-treatment or alternative treatment into the recommended testing and treatment regimen?
- How might we ensure patients always feel a strong sense of validation and confidence in what to do following an RDT, regardless of the test result?
- How might we make the recommended treatment regimen more convenient than self-treatment or alternative treatment?

Insight 5

Testing

- How might we make an entire mining community aware of free testing and treatment services available to them?
- How might we facilitate greater appreciation for testers among miners and other clients?
- How might we recruit, train, and retain at least two volunteer testers per camp?
- How can we make trained testers a more desirable “first point of call” than self-treatment?

Insight 6

Job motivation

- How might we help miners and camp workers consider their personal health as important as supporting their families and economic gains?
- How might we support miners to get back to work as quickly as possible, while still completing their treatment as prescribed?
- How might we leverage a desire to “be healthy for work” as an incentive for miners to seek malaria testing and treatment?

Insight 7

Mining camp environment

- How might we leverage the strong relationships between miners and camp managers to improve testing and treatment practices?
- How might we capitalize on time outside of work to promote malaria testing and treatment?
- How might we encourage the creation of champions for malaria testing and treatment?

Insight 8

Health care sources

- How might we ensure malaria testing and treatment is within reach for every miner?
- How might we extend the reach of trusted malaria public health services into the mining communities?
- How might we ensure miners and community members reject any malaria treatment that is not MOPH approved?

Insight 9

Rapid diagnostic testing

- How might we better enable testers to become local experts about malaria?
- How might we increase testers' confidence in their ability to correctly and consistently carry out their malaria responsibilities from start to finish?
- How might we help enthusiastic testers to become a “one-stop shop” for health services in their community?

Insight 10

Communication

- How might we leverage existing relationships and communication to spread information about malaria?
- How might we make malaria education materials and communication as common as other advertising?
- How might we make communication around malaria culturally appropriate to the mining context?

Insight 11

Coordination and communication gaps

- How might we improve coordination, flow of information, and provision of supplies between central, regional, and camp-level stakeholders?
- How might we leverage nongovernment resources, infrastructure, and connections in the malaria response? How might we simplify high-quality, user-friendly recordkeeping and data sharing for malaria?

Imagine Workshop

The imagine workshop took place in Georgetown over four consecutive days. Through a structured yet flexible approach, the objective of the workshop was to collectively generate, develop, and prioritize ideas around how to improve an effective malaria testing and treatment program in Guyana.

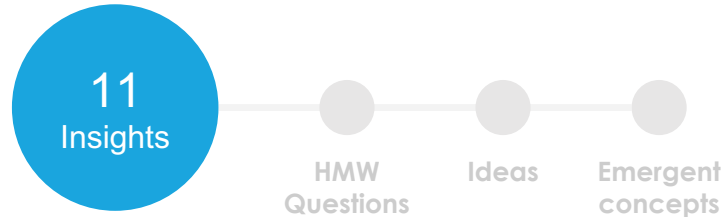
Thirty-five participants attended the workshop from 10 distinct partner organizations. Many of the participants were involved in the Define phase and prior research activities in Regions 7 and 8. The following partner organizations were represented in the workshop:

- Guyana Women Miners Organization
- National Mining Syndicate
- Guyana Geology and Mines Commission
- USAID
- PAHO
- Health Sciences Department Unit, MOPH
- National Tuberculosis Program, MOPH
- National Malaria Program, VCS, MOPH
- PR/HPU, MOPH
- Breakthrough ACTION Guyana

Upon the completion of the workshop, the goal was to have a set of initial ideas represented as simple, low-fidelity prototypes that could be taken out to the regions to be rapidly tested and refined with local communities, mining camps, and health facilities.



Review of Insights

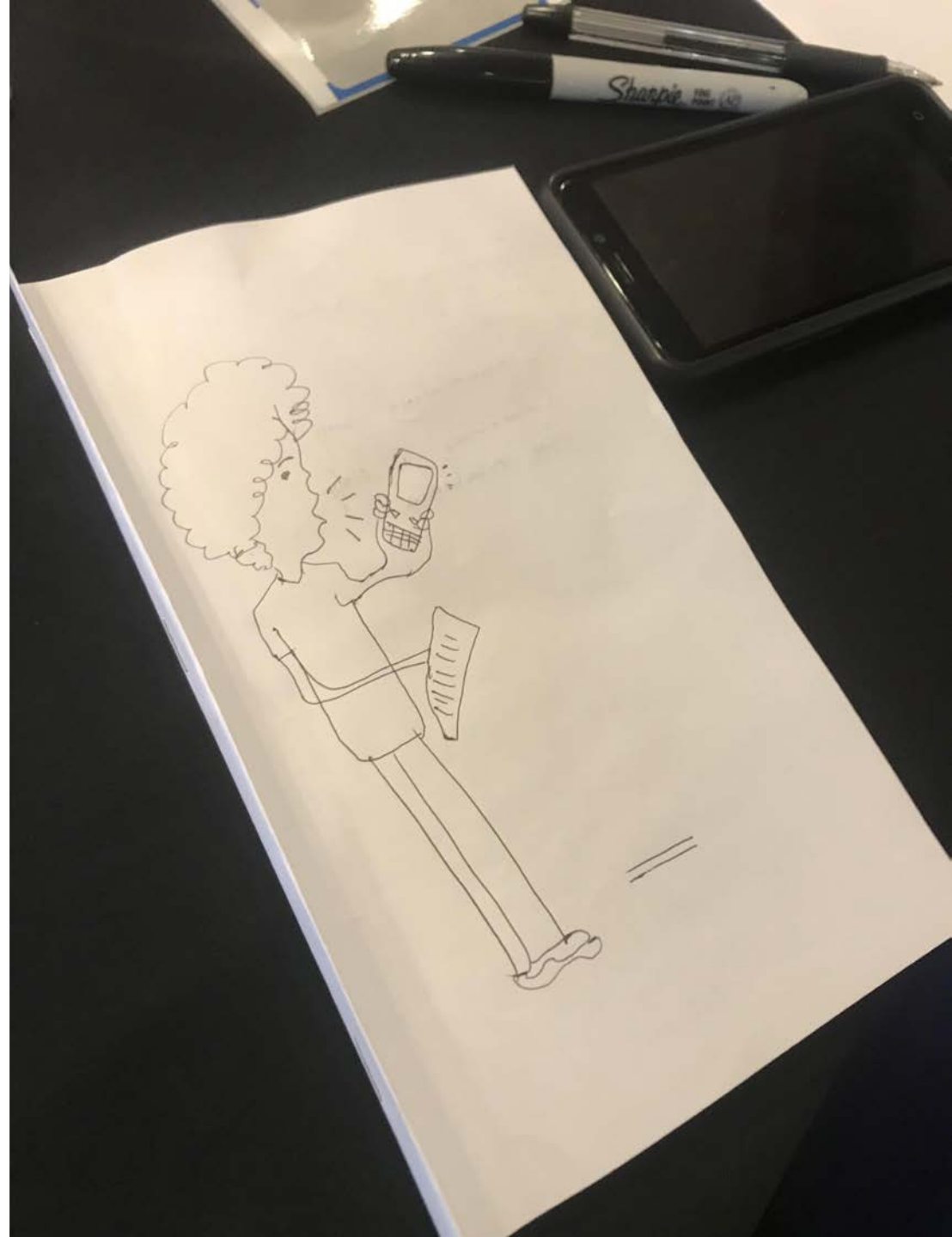


The Imagine workshop began with a recap presentation of the 11 insights that emerged from the Define phase. As each insight was presented, workshop participants were asked to consider:

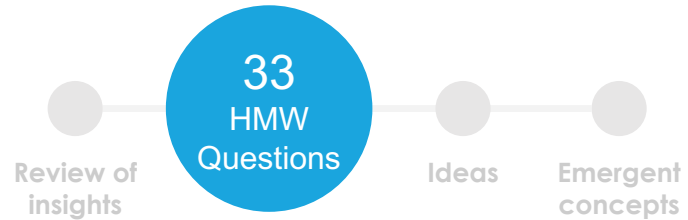
- What is new or interesting?
- What are the initial ideas that come to mind?

Objectives

- Review and refresh insights from Define stage
- Immerse the workshop group in the research findings
- Move into "idea generation" frame of mind



Introducing Design Challenges



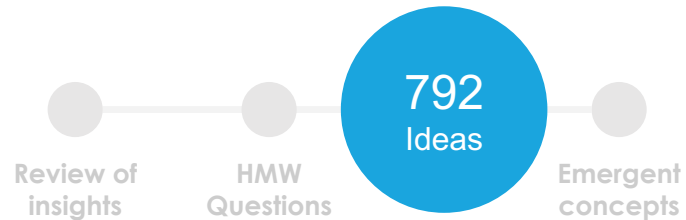
Workshop participants were split into five groups, each consisting of five or six people. Each group focused on two insights and the corresponding HMW questions. The HMW questions of the 11th insight (coordination and communication gaps) were distributed to all teams as an additional challenge for this cross-cutting issue.

Objectives

- Perceive or re-perceive the insights in a way that leads to new ideas for intervention



Rapid Idea Generation



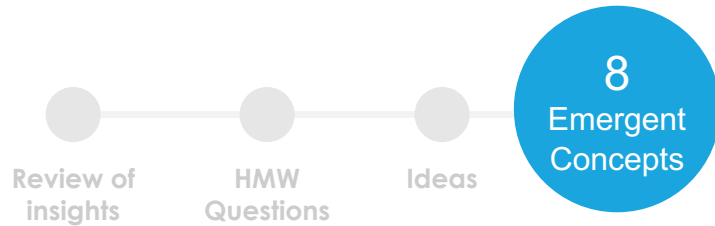
Moving through each HMW question one at a time, groups rapidly generated as many ideas as possible in response to the prompts. Participants produced a total of 792 ideas from this activity. Additional idea generation activities using scenario-based prompts helped the groups think beyond what is currently possible and consider the insights and HMW questions from new perspectives (e.g., solving this challenge in the year 2050, solving this challenge with a potato). Groups were given the chance to respond to different sets of HMW questions, as well as build on each other's ideas.

Objectives

- Generate as many unique ideas as possible within a set time period
- Generate unusual and crazy ideas, without being restricted by what is currently possible



Defining Concepts



From the vast set of early ideas, the Breakthrough ACTION team examined trends, themes, and overlap between them to converge on a refined group of concepts. Eight major themes were identified and then distributed to the workshop participants in small groups. Their task was to develop these themes into complete ideas by combining smaller ideas and adding substance where needed. These eight concepts would ultimately be our starting point for building and testing prototypes.

The eight emergent concepts are listed on Page 58 of the report and described in detail on the following pages.

Objectives

- Decide on the recurrent and prominent themes of ideas
- Build on the initial ideas within each theme, and produce one or more key concepts that can be taken forward into prototyping



Imagine Workshop: Building Prototypes

Once we reached a single idea per theme, the workshop participants set to work, building low-fidelity representations and mock-ups of the ideas. These representations are known as prototypes, and they allow us to test the idea with real audiences quickly and cheaply.

A prototype might take many different forms. It is important to note that the prototype might look quite different to what the idea would look like in reality, if it was implemented. A prototype is useful as long it allows us to learn about the idea by proving or disproving our assumptions.

Initial prototypes were constructed from a range of craft materials: colored paper, cardboard, stickers, markers, play-doh, string, tape, and so forth. Some prototypes also used digital mock-ups and photoshopped images to represent the idea.

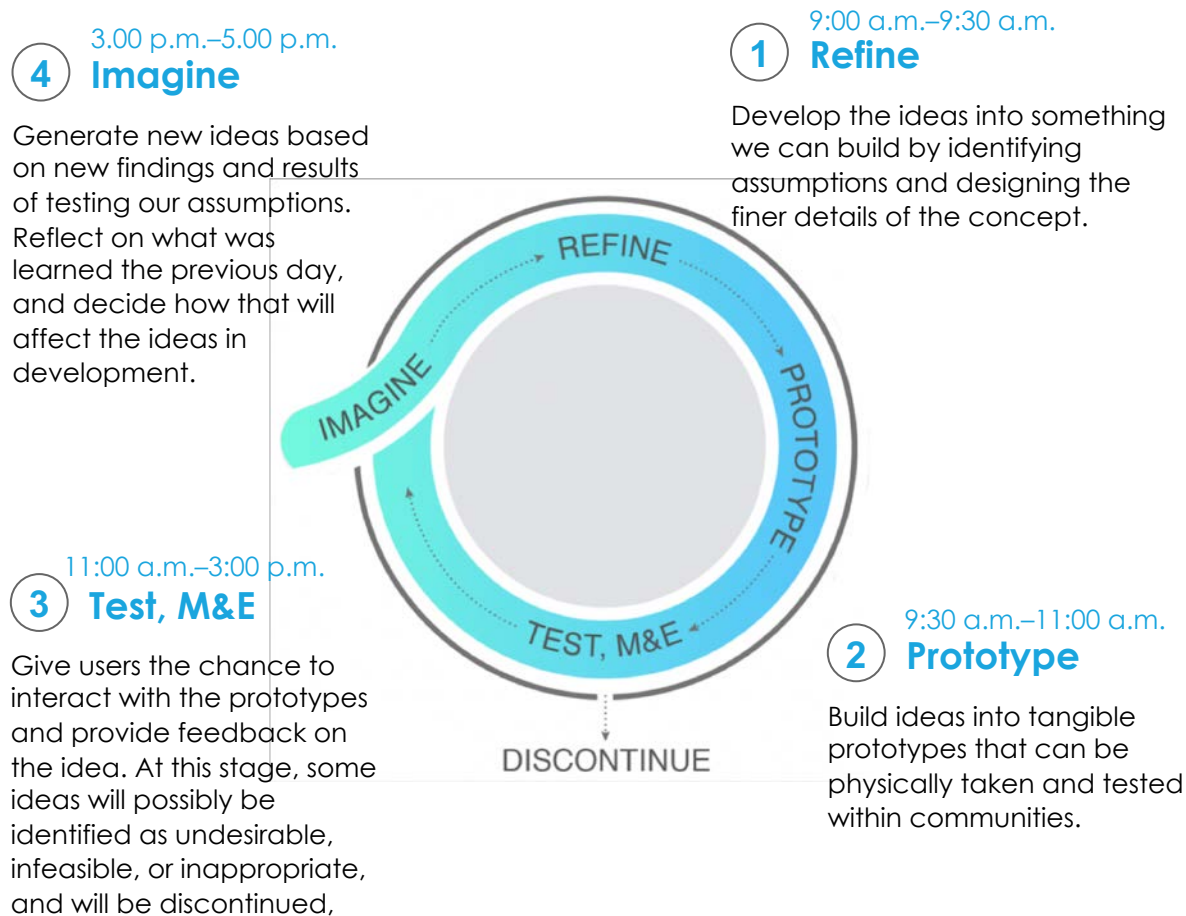
Each group developed a hypothesis for their idea; identifying what impact they expect their idea to make and the reaction they expect people to have to it. With each hypothesis, a set of assumptions became evident in each idea. Assumptions are things that we can test through the prototypes, and they help us to develop a simple line of inquiry for the testing sessions.



5. Testing

What was our prototyping methodology?

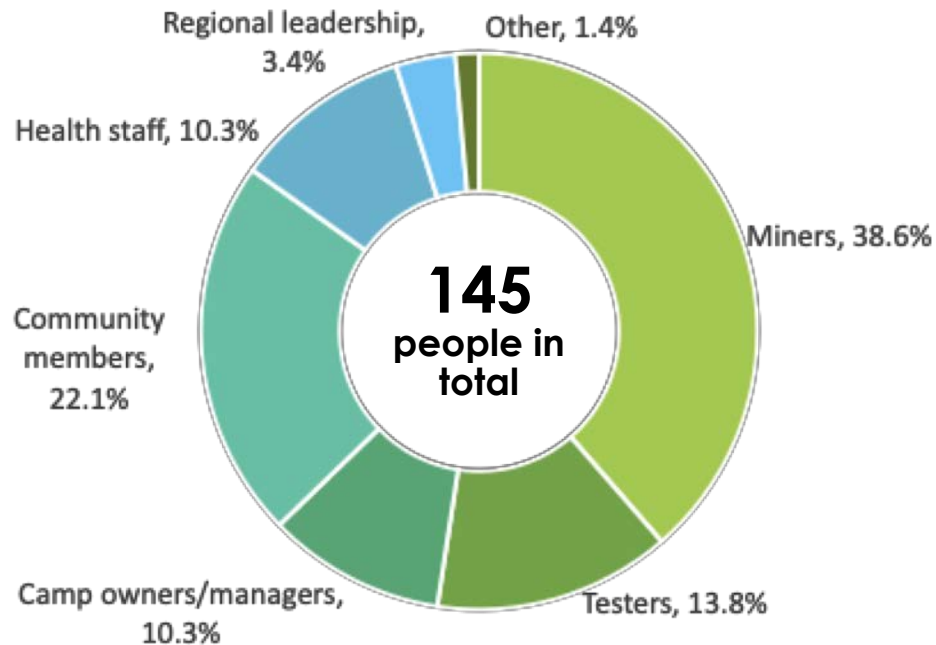
The group of participants in the Imagine Workshop split into two teams to return to Regions 7 and 8 for prototype testing. Each day of the week-long trips to the regions followed a similar methodology, starting with Refine:



Prototyping Principles

1. The greatest value should be created for the user with the smallest input of resources.
1. Prototypes should be put in the hands of the user (for testing) as quickly as possible.

Whom did we talk to?



Region 7 Team

VCS Central—1
VCS Regional—2
PR/HPU—1
TB—1
Breakthrough ACTION—3
Graphic Designer—1

Region 8 Team

VCS Central—1
VCS Regional—3
PR/HPU—1
Breakthrough ACTION—3
Graphic Designer—1

Region 7 Locations

- Kumang/Kumang
- Bacchus Camp
- Little Soiree
- Tiger Creek
- Takatu
- Puruni
- Bartica Hospital
- Regional Democratic Council

Region 8 Locations

- Minihaha
- Salabora
- Eagle Mountain
- Robinson & Vieira Mining
- Tusurrow
- Mahdia Hospital
- Mahdia Town
- Private Pharmacy
- Regional Democratic Council

Prototypes Tested

5.1

Malaria SBC campaign

Creative concepts and communication channels for a strategic SBC campaign that increases malaria knowledge and risk perception to motivate testing, treatment, adherence, and prevention

5.2

Malaria tester support materials

A malaria tester job aid for volunteer testers to provide basic information on malaria to miners and to improve the accuracy and quality of the service

5.3

RDT branding

Comprehensive branding strategy for the RDT program to increase visibility of and trustworthiness in MOPH-approved testers, services, and products

5.4

Standardized RDT program

Collaboration between MOPH and private importers of malaria supplies to standardize RDT kits and treatment supplies and increase the accuracy of malaria test results

5.5

Incentivizing adherence treatment

The treatment adherence idea started as a simple pill box container that split daily doses into separate compartments and included additional information such as when to take each dose.

5.6

Collaboration with private sector

Coordinated network of transportation companies (e.g., boat, plane, car) to facilitate transport of VCS reports and supplies

5.7

MalaApp

MalaApp is an app aimed at improving the ease, speed, and quality of reporting; improving testing and treatment services; and reducing stock-outs.

5.8

Malaria Fights (TOT network)

An updated structure for the RDT program that considers testers as trainers and supervisors for new testers, building a network where the health workers can support themselves

5.1

Malaria SBC Campaign Concepts

What is it?

The SBC campaign started off as four distinct creative concepts, each with a campaign name, slogan, and simple accompanying visual(s).

Go for Gold was meant to show the economic impact of not using MOPH-approved tests and treatment. **Man vs. Mosquito** pitted humans against mosquitoes in a humorous, comic-based approach. **Little Mosquito, Big Problem** aimed to increase malaria risk perception by appealing to both the head and the heart through statistics and testimonials. **Don't Give Me Malaria, Man!** focused on the human element of malaria transmission and the impact it could have on the entire camp/community.

Go-For-GOLD

I deserve the BEST quality, I'll choose what's BEST for me.

Man VS. Mosquito

Who Will Win?

- Men with the brain.
- Mosquitoes with the Malaria.

Little Mosquito, BIG PROBLEM

Did You Know...

... over 10,000 persons get infected with Malaria in Guyana each year?

Don't Give me Malaria, MAN!

"What happens to you, happens to all of US."

GO FOR GOLD

BUGS ARE THUGS. USE THE BEST MALARIA DRUGS.

GO FOR GOLD

BUGS ARE THUGS. USE THE BEST MALARIA DRUGS.

MAN vs MOSQUITO

01. I'm feeling sick, man.
02. Oh, it can be a mosquito. You should go to the camp clinic to do a test!
03. Complete your treatment, all right!
04. DAY 01
05. DAY 02
06. I feel much better!
07. Yeah! Don't need to continue with this treatment anymore!
08. A FEW DAYS LATER...
09. Oh, no!! It's happening again, and now I think I should have stopped the treatment!
Always take the full treatment!

LITTLE MOSQUITO, BIG PROBLEM

Did you know...

- 247 MILLION CASES OF MALARIA EACH YEAR
- 3.3 BILLION PEOPLE LIVE IN AREAS WHERE MALARIA IS A CONSTANT THREAT
- 1.2 MILLION DEATHS PER YEAR

LITTLE MOSQUITO, BIG PROBLEM

I already lost so many friends to malaria!
Almost everyone in my camp already got malaria!
I missed almost 1 month of work for not treating myself so early enough!

DON'T GIVE ME MALARIA, MAN

what happens to you can happen to us

What worked?

- The Little Mosquito, Big Problem and Man vs. Mosquito creative concepts were most preferred. Miners understood them, found them humorous, and felt they captured their attention best.
- People did not know that mosquitoes first need to bite someone with malaria in order to get it and then pass on the parasite. They found this new and surprising.
- Miners were surprised at the number of malaria cases in Guyana each year.
- Using real people testimonials is appreciated and helps miners identify with the stories.
- Use of humor and easy language worked really well.

What didn't work?

- Miners found Go for Gold confusing and did not understand the attempted economic angle. We intended to portray one miner getting malaria and not being able to work while his fellow miners continued to earn money. However, most people did not understand what was happening and perceived a negative message from the campaign, specifically encouraging people to keep working even if sick. Neither visual sufficiently conveyed the intended meaning.
- Some felt "Don't Give Me Malaria, Man" could be stigmatizing.
- Literacy levels were low; many miners were unable to read the text on the concepts.

"Small things do big damage."

"Mosquito bites this guy, moves onto him, he pass it on."

"Ohh! Mosquito could transfer from one person to the next person."

"If you're infected and come into camp you can spread malaria around. It can keep going, keep going."

"The man with the good brain will conquer the malaria."

"I ain't aware of this [10,000 stat]. If they knew this, they could take malaria more serious."

"Do one of the straightforward message.
Step 1 – Don't feel well.
Step 2 – RDT. Guide them on the right way."

"Do you think miners would read the [comic] book?"

"There's a mosquito heading toward his head...I'm trying to figure this thing out now. He's starting to get malaria... They're going for \$ and not going to protect themselves."

"Most of the time people don't be aware of the facts. You have to put it in their terms. Pictures might tell a better story."

"You buy out malaria treatment but you don't know if it's malaria you get. You need to test to be sure."

"If we had more sense, mosquito would lose."

"This is a good message. You're showing them the facts."

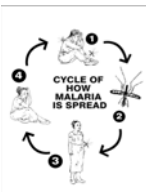
"It's money all the time."

"Really???" [in response to 10,000 statistic]

"You could win malaria if you use your brain. Get tested."

"For me none is convincing."

How did it evolve?



"The spreading one is important because most people don't know how you get malaria. They think mosquitoes are born with it."

Don't Give Me Malaria, Man

We tried to depict a more step-by-step version of how malaria is spread. Overall, the concept that a mosquito must first bite an infected human to pass malaria onto others generated a lot of discussion.



Malaria Can Be Cured

Learning from other prototypes, we included a new concept around how malaria parasites can be completely eliminated from the body and your malaria cured if you adhere to your full course of treatment. This concept was among those that resonated most strongly.

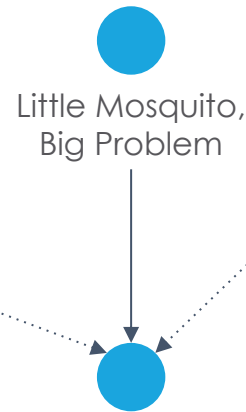
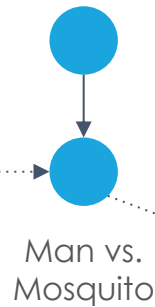


"The curing one will educate people the most, because most people hear it's always in your system and malaria just rises up."



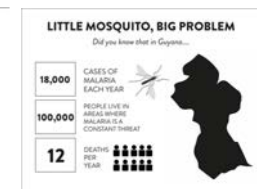
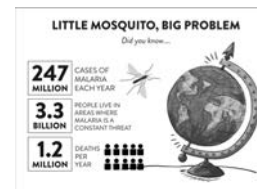
Man vs. Mosquito

Given low literacy levels, we moved this from a text-heavy print material to a short animated video, whose comical, "over-the-top" nature received a lot of laughs.



Little Mosquito, Big Problem

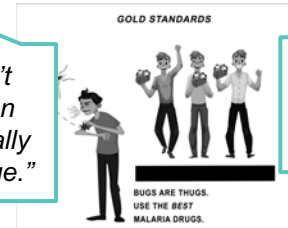
We started showing local statistics in addition to global statistics. People felt that both were important. Some were surprised to see the statistics from Guyana, while others felt this was expected.



"The percentage I think is too high. We need to cut it down. There's too much for we to be losing."

Go for Gold

We dropped the quality angle of the treatment, and tried to improve our visual of the economic angle. Most miners were still confused by the visual, and felt the economic benefit was too obvious.



"You can't work when you get really sick. It's true."

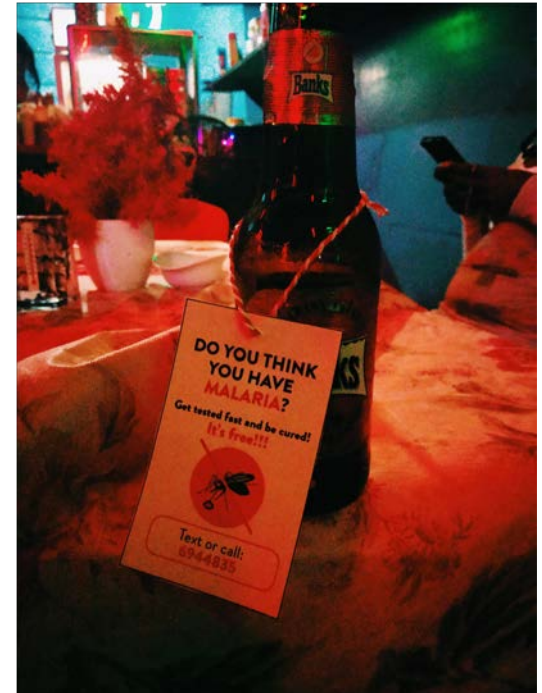
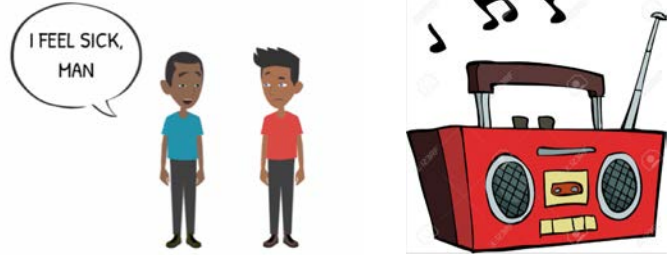
"You don't need to tell me that. I know."

5.1 +

Malaria SBC Campaign Channels

What is it?

A variety of communication channels, tested to see which are most accessible to, used by, and preferable to the target audience. The team also assessed media access at each camp.



What worked?

- **Jingle.** People really liked the idea of a song and would repeat the memorable last line. They expressed a desire for it to be a full song with a dancing rhythm.
- **Videos.** Visual content was well received. The use of Paul, his authority as a miner, and his story about how malaria came to his camp was a welcome addition to the animation. Miners suggested several places where videos could be played.
- **Radio spot.** People found the interaction between characters funny and educational.
- **Facebook.** Many people had access to phones and WiFi and/or signal and spent much of their free time on social media. They said they would follow a miner on Facebook.
- **Billboards.** People gave suggestions for where billboards could be placed to attract the most attention.

"[The jingle] should go to the radio station. You can start playing this on radio now."

"Make it a catchy jingle you want to dance to that gets stuck in your head."

"I'd gather up everybody, let everyone come and watch [the video]. I'm sure they'd learn something they didn't already know."

"The video is educational."

"If you put on DVDs and give it to people they'll watch it, but if you put a price tag they won't buy it. Make it free."

"Among all these animals, insects, the smaller one is the most deadly."

"If messages are on TV or radio we can win a lot of souls with this"—Camp Owner

"On Facebook it will come up very often so people can see"—Tester

"Put the billboard at the beginning of Minihaha."

What didn't work?

- **Beer bottle branding.** No one looked at the labels on the beer when this idea was tested in a bar setting.
- **English-only text.** Channels should convey messages in English, Spanish, and Portuguese.
- **Card deck.** Some people appreciated it, while others said they only play games on their phones. Some noted miners do not take good care of such things and often lose them.
- **Images of people.** People felt images of people used in the videos did not look Guyanese.
- **Text-based video segments.** People preferred seeing pictures to text and were able to recall visual aspects of the video much better.
- Some **technical information** needs updating, such as the list of side effects.
- Using **consumer goods** to spread malaria information may go unnoticed, especially if it placed on the back.

"I couldn't tell the last time I looked to the back of a label"—Tester

"Definitely the pictures doesn't look local."

"Use more pictures than words."

"A lot more info is needed here [in the jingle]. She was too short. She was just saying, 'Don't give me malaria, man.'"

"Make [the video] more in depth. Scientific-like."

"Remove 'shaking' and 'mental confusion' from the side effects. Use 'joint pain' instead of 'muscle aches.' Add 'lower back pain.'"

"For this bush here everything is get up and go. It's either sleep, work or party"—Tester

"Get Jomo or a proper artist who could actually put something together to do a jingle and sign on."

How did it evolve?

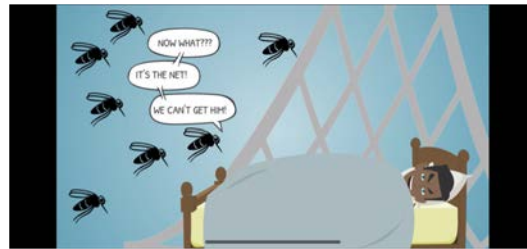
Jingle

A short, 30-second jingle quickly drew requests for a full song with a reggae/soca beat. Some suggested the song, which will be part of a catchy dance and music video, be performed by a famous Guyanese artist. A radio spot and talk show were also well received.



Videos

A four-minute educational video about malaria was popular. Some interviewees suggested it become a full-length film or be broken into a series of shorter segments. Two short "Man vs. Mosquito" animations were added along the way, one on net use and another on adherence. Miners found these videos funny and entertaining.



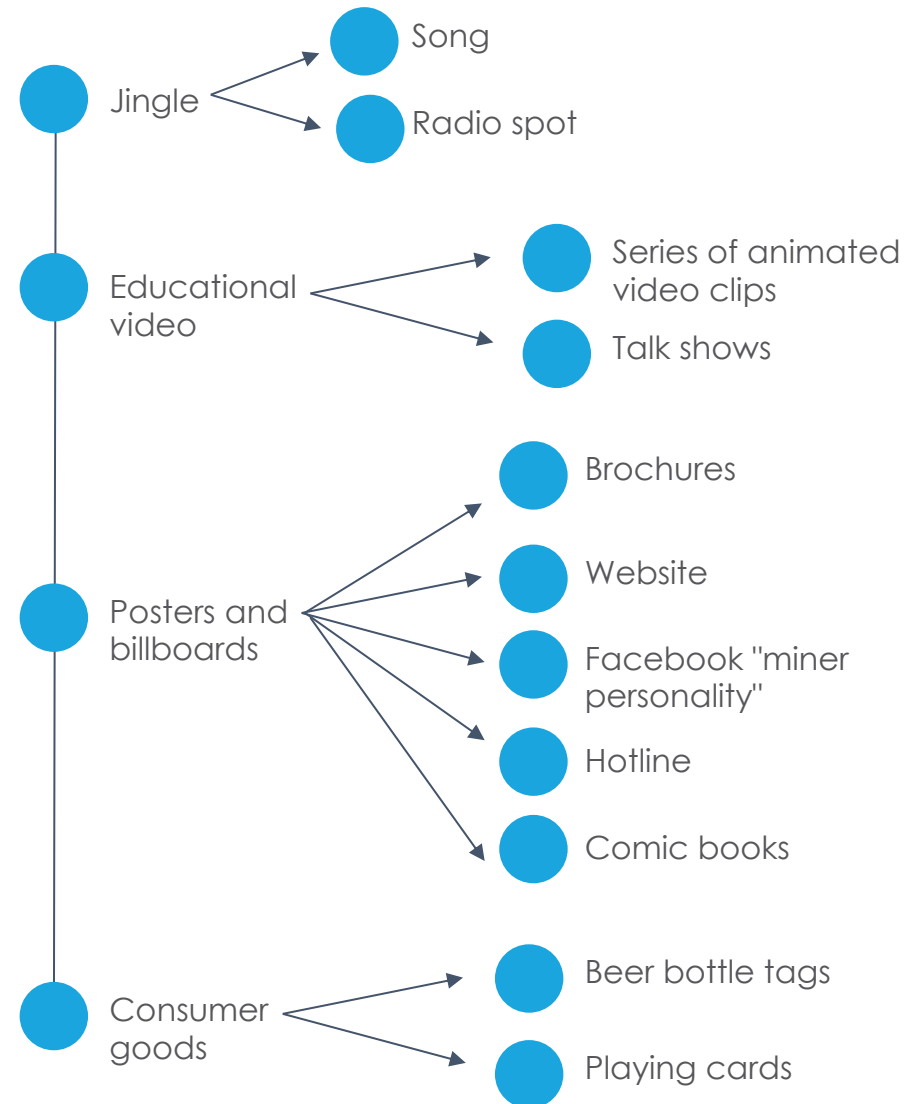
Billboards and Posters

We tested various content and concepts for a malaria campaign, using communication channels such as billboards, posters, and comic books. Additional channels explored during the field test included:

- Brochures were left at restaurants and shops. They were interesting enough to pick up, but were not taken home.
- A website was not a "go-to" channel for miners, but some said they would access information from a website if it were available.
- A Facebook page was largely accepted and evolved into an interactive page run by a miner personality that could integrate messaging on malaria, occupational health, and safety in posts about life in the mines.

Consumer Goods

Malaria messaging was added to a Coca-Cola label and tested in the target audience, but some suggested that people would not see the messaging. The idea evolved into creating a card deck and bottle tags with short malaria messaging. The bottle tags were tested in local night clubs and did not fare well. People liked the idea of the card deck but said miners do not typically take care of such items, so it would not last long.

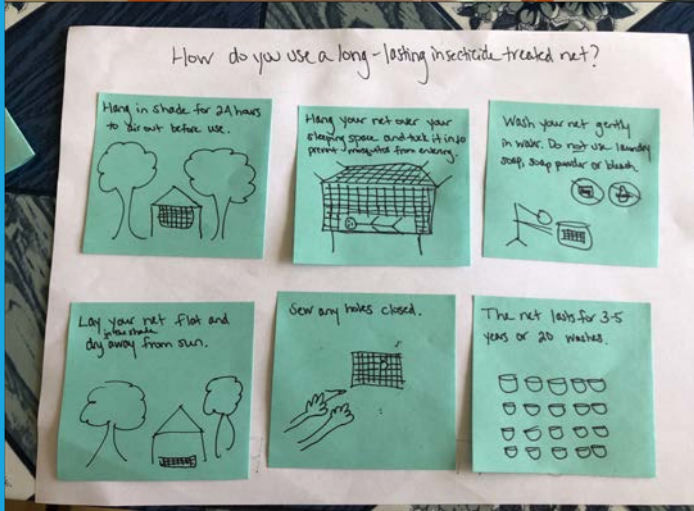


5.2

Malaria Trainer Support Materials

What is it?

A malaria tester job aid for volunteer testers to provide basic information on malaria to miners and to improve the accuracy and quality of the service; and maps and a directory of MOPH-trained testers throughout the area.



MEET THE MALARIA FIGHTERS IN YOUR REGION	MEET THE MALARIA FIGHTERS IN YOUR REGION	MEET THE MALARIA FIGHTERS IN YOUR REGION
FREE TEST AND TREAT	FREE TEST AND TREAT	FREE TEST AND TREAT
MICHAEL ANDREW John Corner Shop Pururu Landing ☎6897543	MICHAEL ANDREW John Corner Shop Pururu Landing ☎6897543	MICHAEL ANDREW John Corner Shop Pururu Landing ☎6897543
NATALIE THOMAS Super Gold Hotel Pururu Landing ☎6827541	NATALIE THOMAS Super Gold Hotel Pururu Landing ☎6827541	NATALIE THOMAS Super Gold Hotel Pururu Landing ☎6827541
PATRICIA SMITH Baccus Camp Pururu Landing ☎6527341	PATRICIA SMITH Baccus Camp Pururu Landing ☎6527341	PATRICIA SMITH Baccus Camp Pururu Landing ☎6527341
Don't give malaria a chance! Get tested fast and complete your full treatment!	Don't give malaria a chance! Get tested fast and complete your full treatment!	Don't give malaria a chance! Get tested fast and complete your full treatment!

What worked?

- Volunteer testers appreciated the idea of having a tool to assist them with carrying out their duties.
- Both volunteer testers and miners gravitated toward the illustrations in the flip chart and did not read the text.
- In Region 8, most testers thought that the flip chart contained pertinent information that all people should know and that the content was easy to understand.

"This (flipchart) will be good for me, everything is really good."—Tester

What didn't work?

- Most testers in Region 7 thought that the flipchart was too cumbersome and preferred a small booklet.
- Information about the use and care of nets was lacking.
- In Region 7, there was a strong desire to have the treatment guidelines accessible for quick reference and that it should be in the form of a card and pocket size.

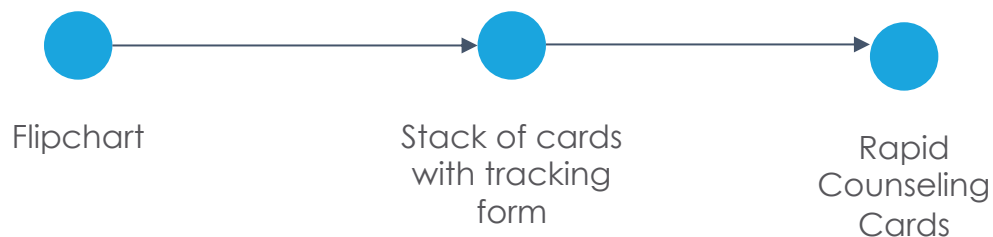
"I look at the book if someone asks me something. Well, if I have time for that, right?"—Tester

How did it evolve?

Originally, the tool was designed in the form of a flipchart, one side with a picture depicting relevant information about malaria for the miner and the other side with text to help the tester explain the visual. The flip chart included how malaria is transmitted, when you can be bitten, how to prevent malaria, when to get a malaria test, what treatment is needed, what side effects could happen, and why it is necessary to complete treatment.

Volunteer testers frequently explained that due to time constraints imposed by their other duties, they currently do not counsel patients or share information about malaria. The design team therefore introduced the idea of utilizing the flip chart as a stack of cards along with a tracking form to help tailor the counseling session to the specific needs of the client. Testers accepted the idea in this format.

During the prototype consolidation workshops, teams from the two regions combined their feedback and developed the idea of the rapid counseling cards.



What worked?

- Both volunteer testers and miners saw value in publicizing the location of testers.
- Miners appreciated the inclusion of the photograph of the testers in the brochure since it would assist persons that are not literate.

What did not work?

- There was difficulty in identifying the map prototype since people were unfamiliar with maps.
- A few testers did not want their photograph and phone number to be published in the brochure format.
- Testers did not like the name, “Malaria Fighters.” They interpreted that as referring to someone that had malaria and was trying to fight the infection, rather than as a name for the testers.
- Given the relatively high turnover of testers, materials with contact information would need to be regularly updated.

“If I know where they have free test I wouldn’t pay for the other one.”—Miner

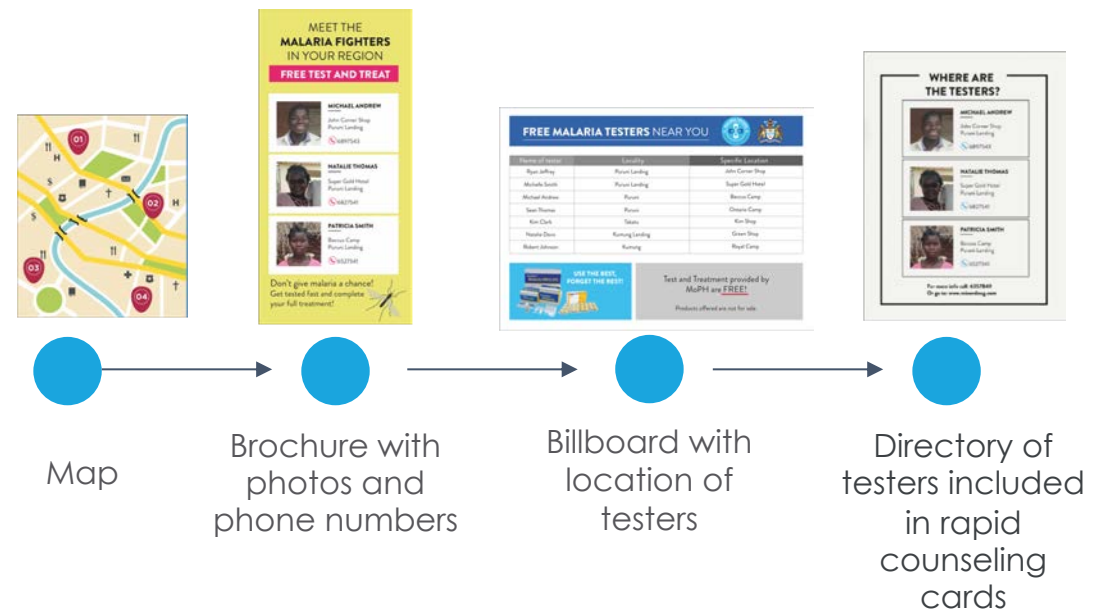
How did it evolve?

Prototyped as a part of tester support materials, a map was intended to indicate where testers are located. However, the initial representation was not recognized as a map by either testers or miners.

In Region 8, the prototype was further developed to indicate landmarks in the region, using an actual map of Mahdia to make locations easy to identify. However, there was still difficulty in recognizing and understanding the map.

Region 7 designed a brochure with the photograph, name, location, and phone number of volunteer testers. However, a few testers did not want their photograph and phone number to be published. The concept of publicizing the location of testers then evolved further into a billboard with only their locations, but this did not resonate with miners.

Based on the findings from the field testing in both regions, the design team decided to include a directory of testers in the rapid counseling cards, so that testers would be aware of the location of other testers and could refer clients if needed.

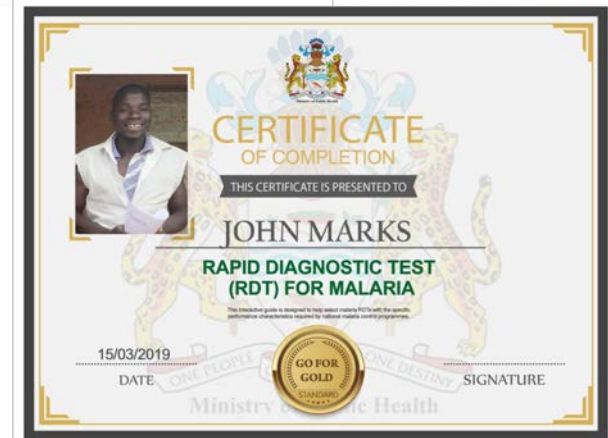


5.3

RDT Branding: Products

What is it?

Comprehensive branding strategy to increase visibility of and trustworthiness in MOPH-approved testers, services, and products.



What worked?

- Testers appreciated the idea of a waterproof box to keep tests, pills, and other supplies safe.
- A flashlight would be useful for reading test results in the evening.
- All testers welcomed the certificate as a way to validate their training and skills in administering RDTs.
- Other useful items included the following: signage (e.g., flags) highlighting free testing and treatment; logo with MOPH coat of arms; billboards promoting the RDT service at the landing; and client orientation form.

"This is exactly what I was telling you guys I needed."—Tester about kit

"I didn't know there was free test here. Now I know, I will come."—Miner

What did not work?

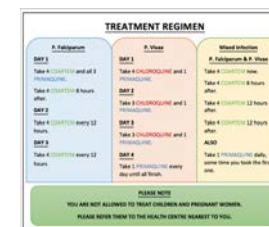
- Testers differed on whether they would wear or use a branded t-shirt, vest, or cap.
- The list of proposed names did not resonate with trained testers.
- Testers did not seem keen on bandanas as part of the kit.
- Testers wanted to know what would happen to their signage if they relocated.
- The "Go for Gold" seal made people confused and not always able to associate with malaria.

"Oh God, no. I don't want to use this vest. This thing is for the regional [VCS] officers, not testers."—Tester

How did it evolve?

The branding of testers was originally meant to raise the visibility of the RDT program and serve as a platform to show appreciation to volunteer testers. The goal of this prototype did not change much after the user testing phase. Both testers and miners were generally pleased with the idea of a central brand. However, the following changes were made to the final prototype:

- Removed branded vest, t-shirt, and cap
- Removed identification badge
- Added a handle to the box for the tester's kit
- Developed a visual logo to convey availability of testing and treatment services for low-literacy audiences
- Added tester photo to training certificate
- Added easily transportable signage in the form of a flag for mobile testers
- Abandoned idea to rename trained testers



Kit



Kit Version 2



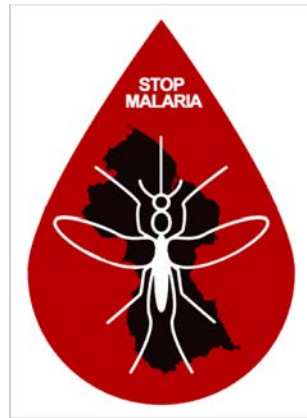
+ Treatment Regimen

5.3 +

RDT Branding: Logo

What is it?

A consistent visual element to convey the availability of free malaria testing and treatment services.



MALARIA TESTING AND TREATMENT



What worked?

- People liked seeing visual elements that clearly represented the service and why you should go—the mosquito, the act of testing, and the tablets, in particular.
- Respondents felt that showing the mosquito covering the map of Guyana helped to show that malaria is countrywide, not only limited to mining regions.
- The shield was interpreted as needing to protect yourself.
- The phrase “Stop Malaria” was thought to be simple and effective.
- People preferred the logo in color as opposed to black and white.
- The use of the MOPH logo was appreciated.

“So easy to recognize them right away.”—Camp manager

“It should be like Digicel signs.”—Tester

What didn't work?

- Logos had a lot going on and could be simplified.
- Some respondents interpreted the “Hitting Out Malaria” logo literally—you are actually supposed to hit mosquitoes to help eliminate malaria. Some felt this logo meant you should keep your area clean to eliminate the chances of mosquito breeding. Neither interpretation was the intended message. Additionally, the pick axe is fairly specific to the mining community. If the campaign is scaled up at some point, the logo would need to work not only for miners, but for loggers, Amerindian communities, and other nonminers in all regions.
- The logo needs to be easy to describe in words so that it can be referred to on radio and other nonvisual communication channels.

“The pick axe is killing the mosquito?”

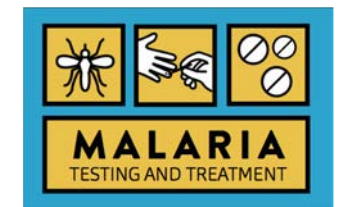
How did it evolve?

The logo moved from a single image to a series of images to clearly show the three key components of the service: malaria through a mosquito, testing through a finger prick, and treatment through the portrayal of tablets.

The image of testing was changed from a finger with a drop of blood to show someone administering a finger prick, as the drop of blood was off-putting and potentially a deterrent to some. The image of the tablets was also updated to more accurately reflect the actual shape of MOPH-approved malaria medication.

The colors of the logo changed from red and white, which was seen to have political implications, to blue and yellow, which is absent of any political affiliation.

The final iteration was felt to be universal and easily understood—something that multiple audiences in multiple locations could easily identify and interpret.

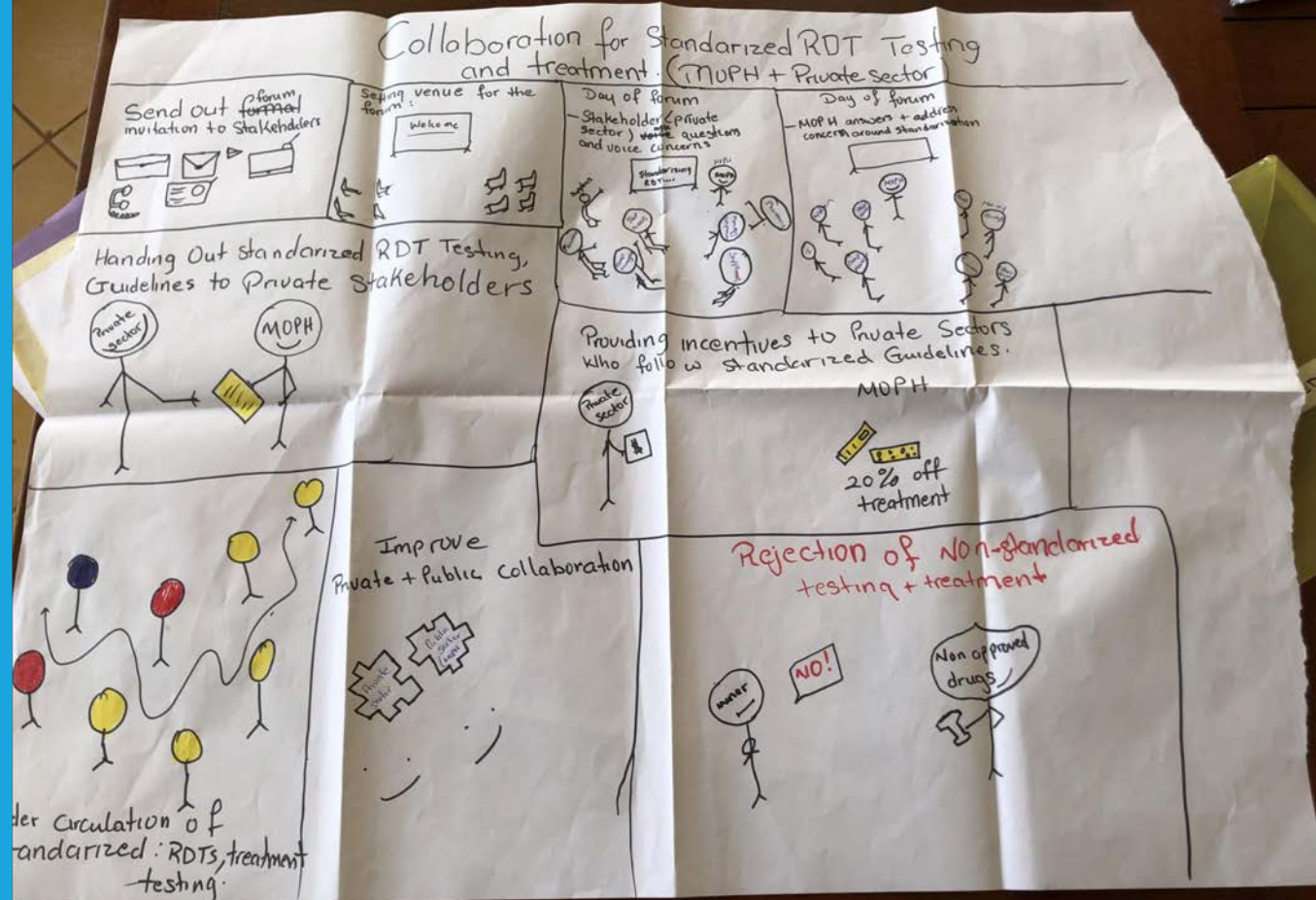


5.4

Standardized RDT Program

What is it?

Collaboration between MOPH and private importers of malaria supplies to standardize RDT kits and treatment supplies and increase the accuracy of malaria test results. Ultimately, this partnership would standardize malaria case management across private and public health facilities.



What worked?

- Having the MOPH Certificate of Approval promoted greater confidence in the RDT kits and treatment.
- Some miners did not know that MOPH testing and treatment are free, so branding the supplies is important

“The standardized thing is good.”—Miner/ranger

“The MOPH drugs are very good. I only use Artefan as a quick fix if I can’t get the MOPH drugs or until I could get to the landing.”—Camp manager

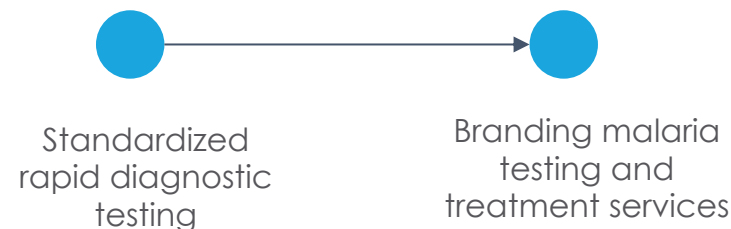
What did not work?

- Some people did not know what MOPH stood for.
- A policy decision is needed from the Cabinet to allow for collaboration with MOPH and private importers on the importation and sale of MOPH-approved malaria supplies by private suppliers.

*“What is MOPH?”
—Miner*

How did it evolve?

The prototype that was developed for testing was a Certificate of Approval that will be placed on the MOPH-recommended RDT kits and treatment. Miners acknowledged that the MOPH malaria supplies were better than over-the-counter products. They therefore welcomed the idea of having standardized RDT kits and treatment approved by MOPH. Feedback from testing the prototype in the field also pointed to the importance of promoting and branding the MOPH-approved supplies as free and of high quality, so that the MOPH products would become a household name and preferred choice by miners.

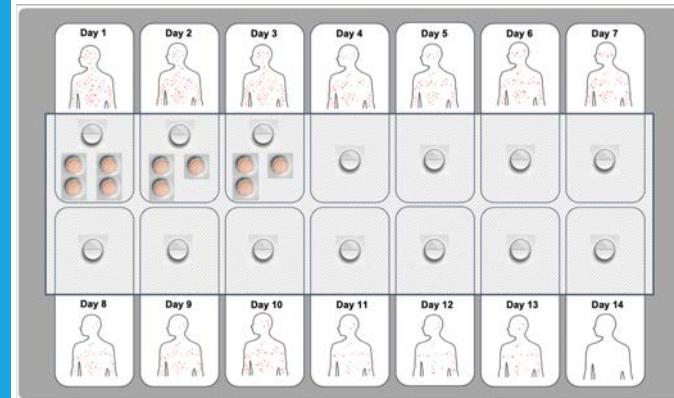
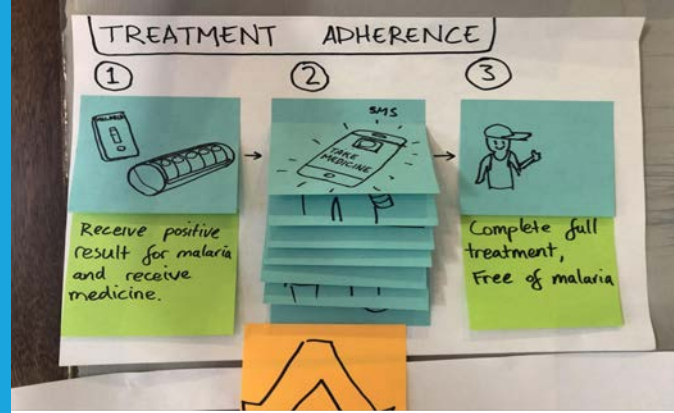


5.5

Incentivizing Treatment Adherence

What is it?

The treatment adherence idea started as a simple pill box container that split daily doses into separate compartments and included additional information such as when to take each dose.



What worked?

- Miners, testers, and pharmacists need a simple method for showing what medication needs to be taken and when.
- Many people do not realize that malaria can be completely eradicated from your system if treatment is finished completely and as prescribed.
- Miners need an easy and unobtrusive way to be reminded of when to take their medication.
- The wristband idea received positive feedback due to a high novelty factor.
- Malaria does not have stigma in these communities, so public knowledge of who is sick was not a concern.

What did not work?

- Miners did not read the packaging on the pill case. The product needs to be immediately identifiable.
- The pill case idea was not desired in Region 7 because of its bulkiness.
- SMS reminders were not viable because most miners do not have their phone with them while working.
- Some miners cannot read, so all information needs to be as visible as possible.

"I know what to do every day, I write the time and take the tablet."

"The adherence board should go in the kitchen, you would be able to remind them [to take their treatment]."

"This [adherence board] would be easy for us when we're just passing by, to know who is taking malaria treatment."

"Everybody works together so it's not a problem [if others know you have malaria]."

"Writing on the ziploc bag can fade, and tablets can get crushed."

"This would show I've been taking it for three days but I still have a lot of parasites left."

"Working in the mines, people are unlikely to have a belt or pockets to hold this."

"People will find any excuse to not take the meds."

"Does it seal properly?"

"If it's during the day, it won't work—pit men don't have their phone from 6 a.m. to 6 p.m."

How did it evolve?

Pill Packaging

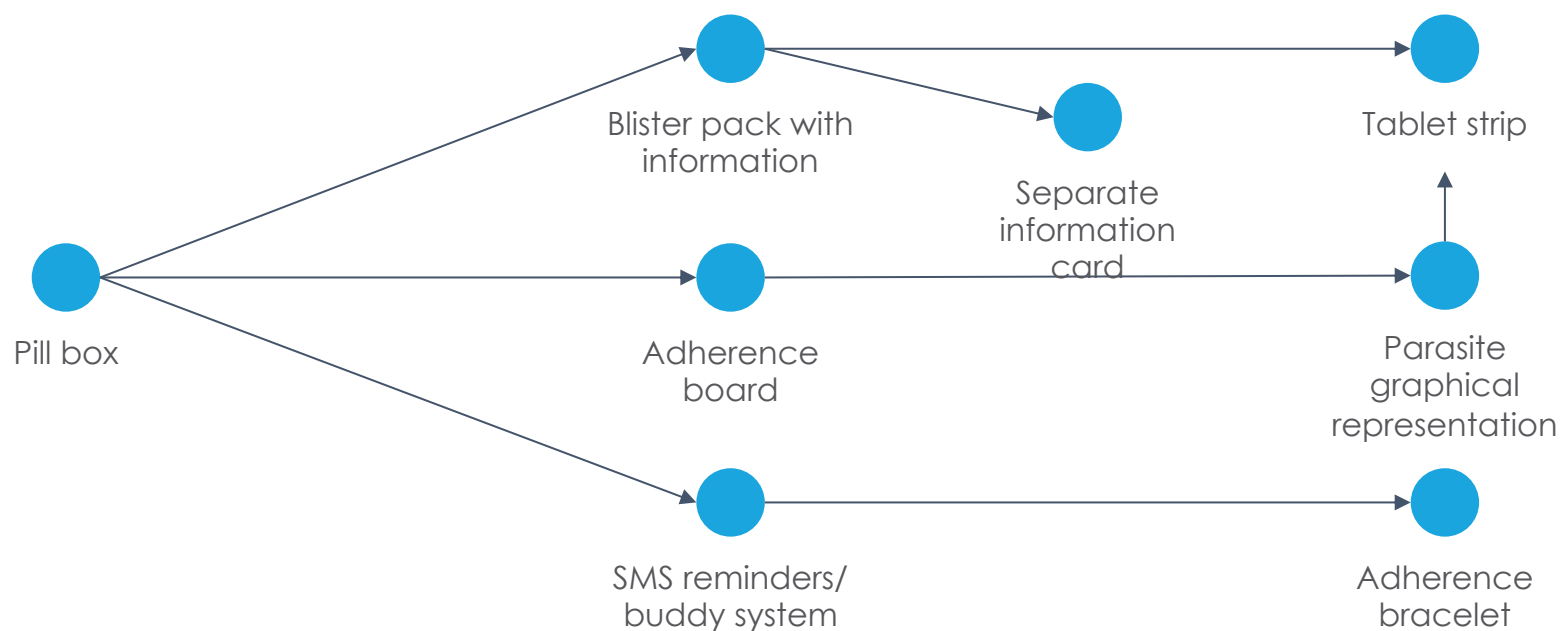
The pill case idea was modified into a blister pack, which serves the same purpose while being more compact and lighter. Different ways of explaining the treatment regimen were explored, such as a card that accompanies the tablets and can be explained to the patient by the pharmacist or tester.

Parasite Graphical Representation

A range of other adherence ideas were tested in combination with the pill packaging: SMS reminders, camp comparison, public adherence board, small incentives, and a buddy system. It was discovered that some people were not finishing their treatment because they did not think malaria could be cured. This led to the development of showing a graphical representation of the malaria parasites remaining in the patient's body until completion of treatment.

Bracelet

The wearable reminder bracelet idea was developed on the finding that treatment regimens differ for each type of malaria and can be relatively complicated.



What worked?

- The idea of having a coordinated and structured response for the delivery of malaria supplies and reports was welcomed by the testers. The regional VCS in Region 7 has been without a functioning vehicle for several months, which hampered monitoring visits to the testers as well as the delivery of malaria supplies.
- The Regional Democratic Council in Region 8 suggested stronger collaboration between departments within the region to ensure more timely distribution of supplies and reports.

What did not work?

- The prototype was not tested with private transportation companies during the testing period.
- Sustaining incentives for private transportation companies would be difficult and require advocacy with the private sector.

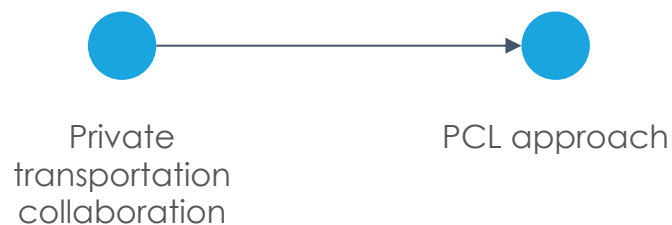
How did it evolve?

Feedback from testing the prototypes revealed that while more collaboration is needed between the private transportation providers and MOPH, the delivery of supplies to the testers and reports to regional VCS offices, respectively, required a more comprehensive approach and solutions.

Discussions with the regional VCS staff indicated some health posts regularly submit their reports. These health posts are equipped with all-terrain vehicles and the areas surrounding the health posts are equipped with Wi-Fi connection. The prototypes were further iterated so that the health facilities would become transit points for the distribution of supplies and the submission of reports to the regional VCS office.

After further iterations, the prototypes evolved to become part of the Participants, Content, and Logistics (PCL) approach for the Rapid Diagnostic Testing and Treatment program.

“I welcome this kind of collaboration because right now I have to pay a GYD 1,000 to truck or car men and boat operators to send our my reports or when I receive supplies; and I am not reimbursed.”—Tester

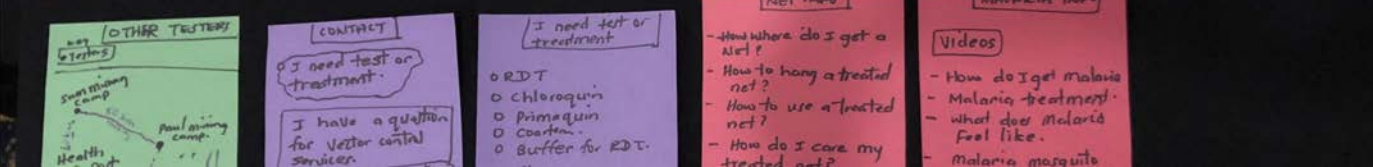
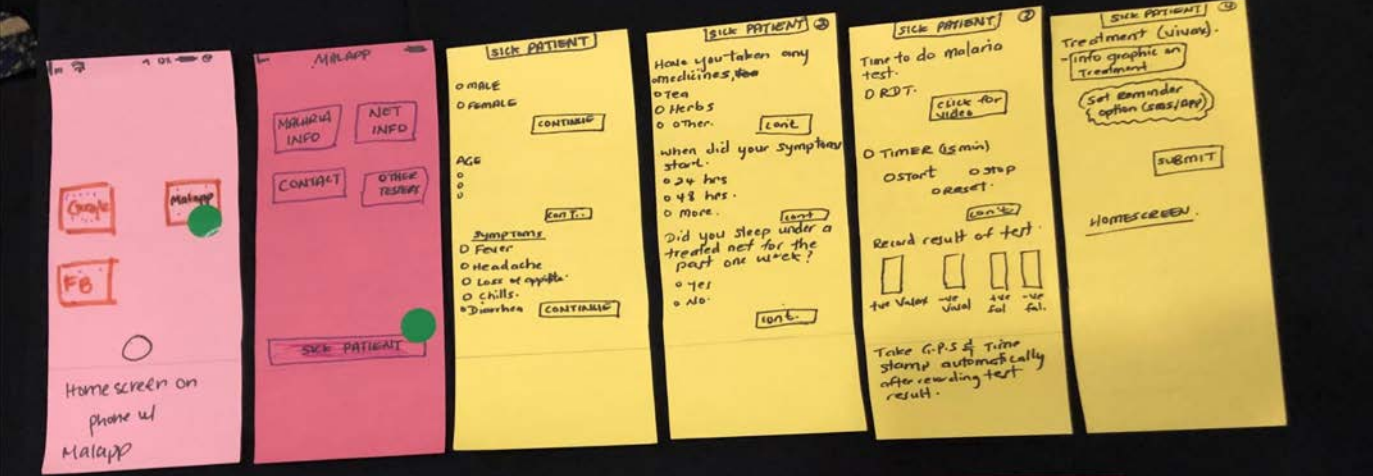
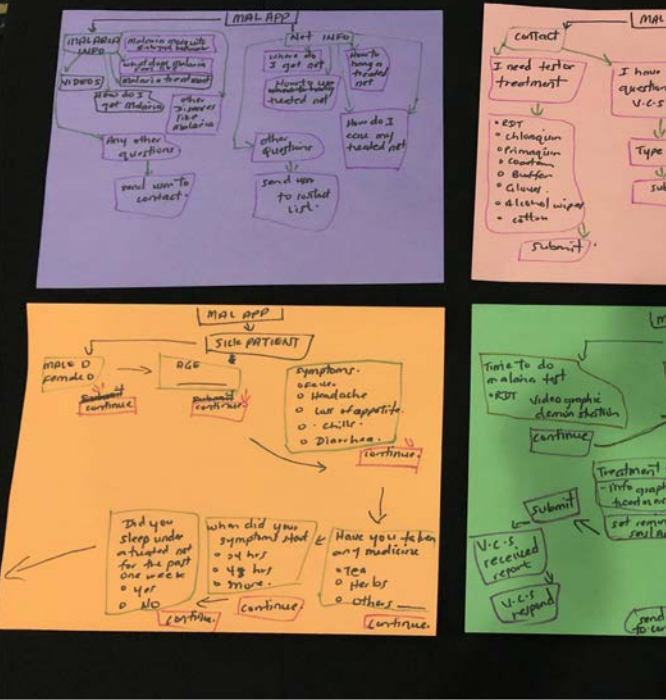
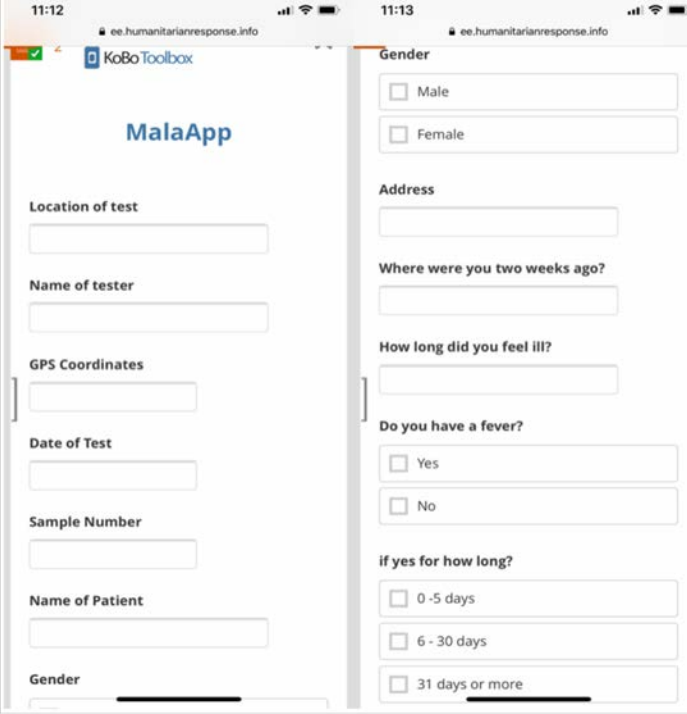


5.7

MalaApp

What is it?

MalaApp is a phone app aimed at improving the ease, speed, and quality of reporting; improving testing and treatment services; and reducing stock-outs. It enables testers to easily and accurately fill out necessary documentation, report stock-outs and request supplies, and contact other testers. The app would also include educational information on malaria transmission, symptoms, how to use LLINs, and the recommended malaria treatment.



What worked?

- Testers acknowledged the need for a fast communication system to request stocks and to clarify doubts.
- The system could be used offline, and data could be uploaded when the tester is able to connect.

What did not work?

- The vast majority of testers felt that the app could not work in their setting due to weak internet signal and connectivity. Connectivity to the internet is actually better with older technology cell phones and not smartphones.
- Some testers thought that using the app would be difficult and tedious since they usually do not use this technology.
- Several fields required entering open-ended responses, which is time consuming and prone to error.
- Testers felt the current paper reporting system is straightforward and easy to use. They did not see the need for an additional system, and they felt it would be duplicative because paper reports would still be necessary.

"It's too much work for the tester."—Tester

"I think you need to take in consideration not all miners have a phone for that."—Camp manager

"I don't know about the app thing, so I don't use them."—Tester

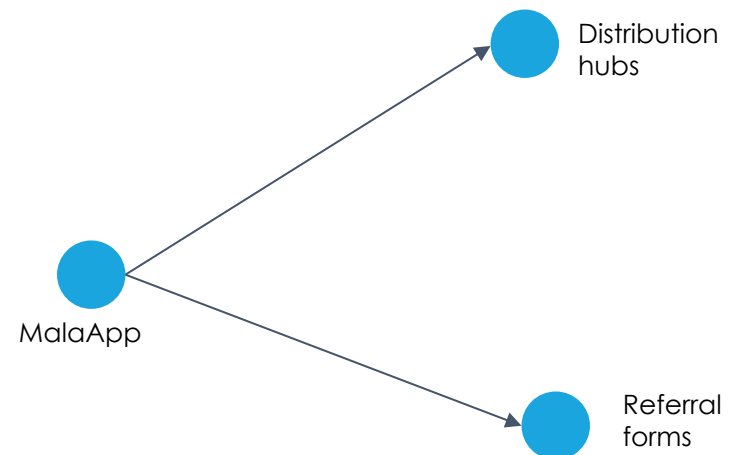
"It's a good idea but me, for one, I don't like the phone business."—Tester

How did it evolve?

The prototyped app was downloaded on the phones of the members of the research team before going into the field. During field testing the idea of the app was explained to testers and when possible, the testers were given an opportunity to interact with the app.

Since most testers felt the app could not work in their setting, recommendations were made for an official form for testers to refer patients to another tester in case of testing or treatment stock-outs. During testing, referrals to the hospital were expanded to cover complicated cases of malaria, including cases among pregnant women and children, and negative malaria cases. The referral form was well accepted by everyone. Suggestions included producing the form in duplicate, stamping the form for certification, and providing hospital triage staff with the name and location of volunteer testers for validating where the form is coming from.

Issues in data collection and reporting would be addressed through the creation of distribution hubs, in which designated locations closer to the camps would be responsible for collecting reports on a regular basis.

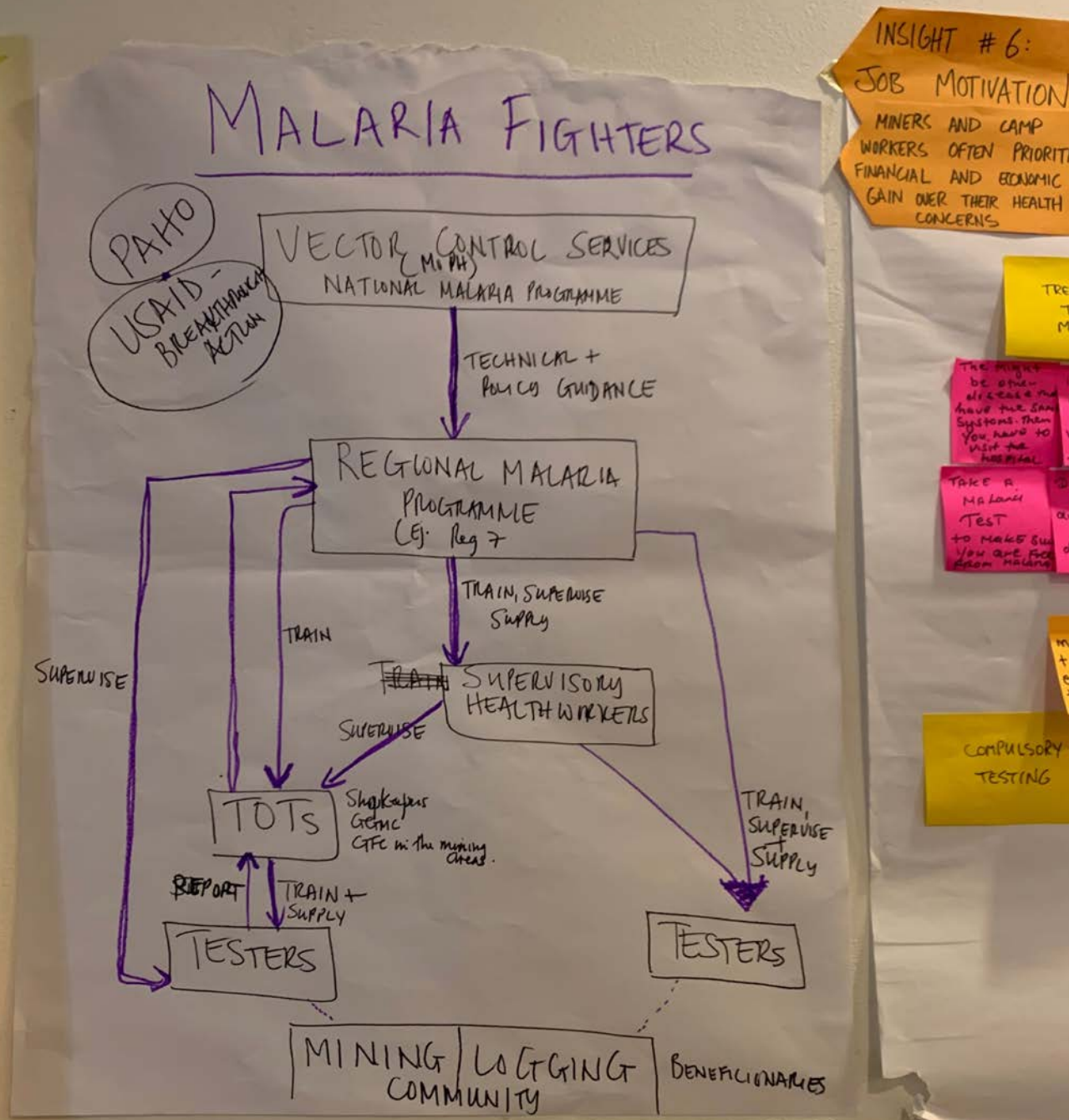


5.8

Malaria Fighters (TOT network)

What is it?

An updated structure for the RDT program, with testers as trainers and supervisors for new testers, building a network in which the health workers can support themselves, decentralizing training and increasing the number of active testers.



What worked?

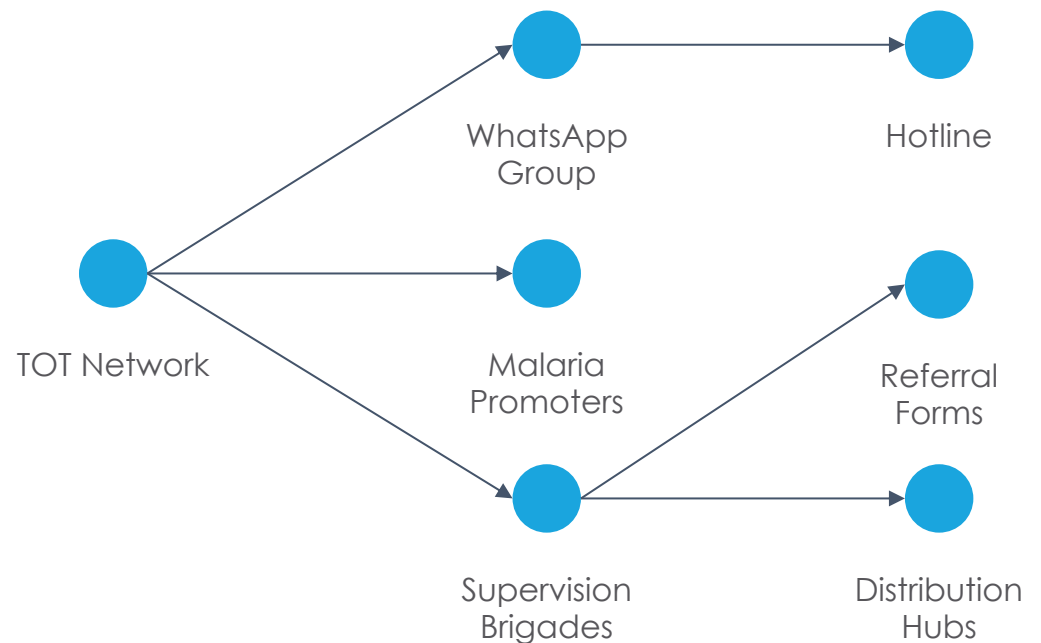
- A support system for the testers needs to be created. They currently do not have direct contact with VCS and would like to have a line of communication for concerns and emergencies.
- Informal supervision already happens between testers. New testers sometimes rely on the old ones for help with reporting, getting supplies, or resolving doubts.
- Testers want to have a network for better distribution and reporting since they often pay for transportation without being reimbursed.

*"She (the tester) been asking y'all for a phone very long to communicate with you."—
Shop owner*

How did it evolve?

During testing, the concept of Malaria Fighters through a TOT network evolved into different components:

- **Communication:** Regional WhatsApp groups would help to improve communication between VCS and testers. Every tester would be assigned a VCS point of contact. A hotline could help address doubts.
- **Supervision and distribution:** Mobile Brigades, Distribution Hubs, and referral forms helped to solve issues around distribution and supervision.
- **Work overload:** In order to not overwhelm volunteers, malaria promoters could share information on malaria, advocate for malaria testing and treatment services, and help ease the burden on testers.



What did not work?

- Testers normally do not have the time to expand their services. They are volunteers and cannot take on more responsibilities beyond those they already have.
- Monitoring and maintaining quality of the tester with a decentralized TOT program is hard. Some testers mentioned training other people to help them and facing difficulties with helpers charging for the service or performing the tests wrong. More supervision would be necessary.

"They are volunteers. We can't push them too hard or they give up."—M&E officer

"I can do what you're asking me. Well, if I have time for that, right?"—Tester

Prototype Progression Overview

■ Additions or extensions of ideas
■ Discontinued components



6. Recommended Prototypes

6.1

Little Mosquito, Big Problem SBC Campaign

What is it?

Little Mosquito, Big Problem is an SBC campaign that targets mining camps and communities in malaria-endemic Regions 7 and 8. The campaign objectives are to increase the proportion of the target audience who:

- Feels they are at risk of malaria and that malaria is a serious problem.
- Understands how malaria is transmitted, why it is important to test for malaria as soon as they experience symptoms, and why it is important to use and complete MOPH-approved treatment.
- Knows where they can go for MOPH-approved testing and treatment.

The campaign uses a highly visual, low-literacy approach. It is implemented through multiple, mutually reinforcing communication channels that are easily accessible by miners, and addresses four major topics: (1) malaria risk perception, (2) testing, (3) treatment, and (4) LLIN use. The campaign is implemented with higher intensity during times of the year when malaria risk is highest.

Problem Definition

Little Mosquito, Big Problem seeks to address several barriers to behavior change:

- Miners are not aware of free MOPH-approved testing and treatment services available near them.
- Miners do not view malaria as a serious problem.
- Miners do not know that mosquitoes can only be infected when they bite someone who already has malaria, or that malaria can be completely cured and parasites eliminated from the body.
- Miners often self-diagnose and self-treat, and tend to stop treatment after a few days when they feel better, particularly for *P. vivax*.
- Miners do not like sleeping under nets and are not adequately informed on net use/care/repair practices.



How does it work?



The **Little Mosquito, Big Problem Soca song, dance, and music video**, performed by a famous Guyanese musician, is launched at a public event and takes Guyana by storm.



Radio spots of 30–60 seconds in length air on national and local radio stations. Local radio and television stations invite guests (e.g., VCS, testers, miners) to appear on **radio/TV talk shows**, which feature testimonials, expert advice, and allow listeners to text/call in with questions.



Attention-grabbing **billboards** and **posters** are placed at highly trafficked locations.



A popular miner **social media personality** infuses posts about daily life in the camp with messages on malaria.



A series of short **video clips** help visualize and further explain the messages given on other channels.



Assumption

If miners and community members feel malaria is a risk, understand the importance of testing early and treating completely, and are aware of free, high-quality services near them, they will be motivated to test early for malaria, receive and complete the MOPH-approved medication, and sleep under an LLIN every night. Recommended malaria behaviors will become social norms.

Measuring Success (Illustrative Indicators)

We will track the percentage of respondents who:

1. Have heard or seen a campaign message in the last 3 months.
2. Can accurately recall a campaign message.
3. Feel personally at risk of malaria.
4. Feel that malaria is a serious problem.
5. Know how malaria is transmitted.
6. Know that malaria can be cured.
7. Know where they can access MOPH-approved malaria testing and treatment services.

"This is a good message. You're showing them the facts."

"It's reality. The mosquito is so little, but it is a big problem."

"Put the billboard at the beginning of Minihaha."

"[The jingle] should go to the radio station. You can start playing this on radio now."

"[Man vs. Mosquito] sends the message, 'who is really smarter?' We know we could dominate this disease because we got the tools and we got the brain. Mosquitoes have the malaria so we can keep it down and put an end to it."

Insight 1

Risk perception

Malaria is seen as routine and commonplace; it is not considered a major health risk in many communities.

Insight 2

Malaria knowledge and preventive behaviors

There are many contradictions around what people know about malaria and how they behave.

Insight 3

Adherence and nonadherence to correct treatment+

Undesirable medication side effects cause some miners to stop treatment as soon as they feel better; for others, the need to get back to work and be able to keep working motivates them to follow the regimen.

Insight 4

Self and traditional malaria treatment

Commonly accepted practical solutions to diagnose and treat malaria, which differ greatly from official recommendations, are preferred due to convenience and personal experience with these treatments.

Insight 5

Testing+

The role of volunteer testers in providing free malaria testing and treatment services is not fully understood or appreciated by miners and clients.

Insight 7

Mining camp environment +

Strong and respectful relationships exist between miners and their camp managers because they need each other to be successful at their jobs.

Insight 8

Health care sources

Health facilities are a desired option for health care services, but people will access other sources if necessary due to transportation, time, distance, and cost limitations.

Insight 10

Communication+

Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.

Insight 11

Coordination and communication gaps+

A lack of coordination and communication between stakeholder groups reduces the effectiveness of the National Malaria Program.

6.2

Rapid Counseling Cards

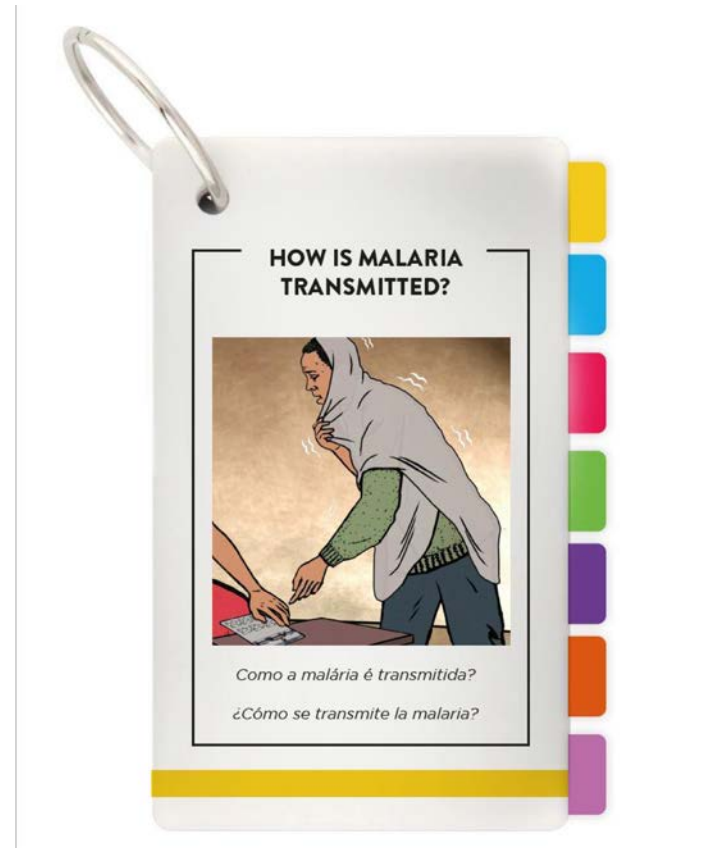
What is it?

A handy and attractive stack of cards to be used by volunteer testers and health care workers to provide rapid, tailored, and effective counseling to clients on malaria.

The counseling cards will be packaged as a small booklet of laminated cards bound by a metal ring, containing pertinent information about malaria prevention, transmission, and treatment. The cards, which each include an image on the front and supporting information on the back, are meant to support malaria testers and/or promoters to provide rapid and accurate counseling to miners/clients. The cards are color-coded and work together with an orientation form that will allow testers/promoters to tailor counseling sessions according to clients' needs. Testers/promoters will be able to quickly identify the appropriate counseling card, using color-coded tabs on the cards that will be linked to a matching system on the orientation form. This package will also include a directory of trained testers in the area so they can refer clients, if needed.

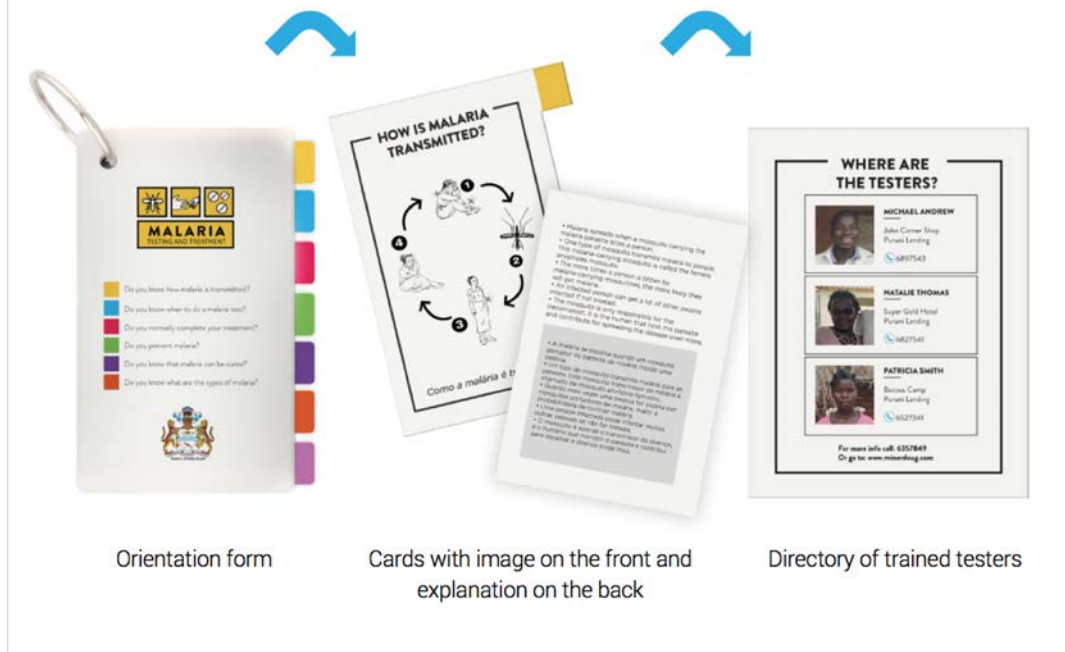
Problem Definition

Although they work closely with the regional VCS team, volunteer testers do not have health education materials they can use with their clients or as a reference. Moreover, they are not provided with materials to guide them with administering treatment; they rely solely on their handwritten notes taken during the training. Testers lack interpersonal communication and counseling skills, and they have not been trained to assess and address the unique situations of their clients.



How does it work?

1. Testers/promoters ask clients a short series of questions through an orientation form to identify gaps in clients' malaria knowledge and behavior.
1. The orientation form is accompanied by a set of counseling cards, color-coded to match the questions and responses on the orientation form.
1. The front of the counseling cards contains an image to show the client, while the back has key talking points for the tester/promoter.
1. This format allows testers/promoters to tailor counseling sessions based on responses to the orientation form.
1. All testers/promoters are trained on how to use the orientation form and counseling cards.
1. Testers have access to a directory of area-trained testers in the event they need to refer clients to another location using referral forms.



Assumption

If provided with an appropriate job aid, testers will be motivated and equipped to deliver better quality treatment and counseling services to miners and in turn, miners will then adopt correct prevention and treatment behaviors.

Measuring Success (Illustrative Indicators)

1. Number of counseling sessions conducted by testers/promoters
2. Number of counseling sessions conducted by testers/promoters using new counseling cards
3. Number of clients who report participating in counseling sessions
4. Number of clients who accept testing after counseling session
5. Number of clients who report completing treatment after their most recent counseling session

"I look at the book if someone asks me something. Well, if I have time for that, right?"—Tester

"So much better than going through my pages to find it."—Tester

"This will be good for me, everything is really good."—Tester

"I would go through the entire thing while they wait for the test results."—Tester

"This is good information for everyone to know."—Tester

Insight 1

Risk perception

Malaria is seen as routine and commonplace; it is not considered a major health risk in many communities.

Insight 2

Malaria knowledge and preventive behaviors

There are many contradictions around what people know about malaria and how they behave.

Insight 3

Adherence and nonadherence to correct treatment+

Undesirable medication side effects cause some miners to stop treatment as soon as they feel better; for others, the need to get back to work and be able to keep working motivates them to follow the regimen.

Insight 4

Self and traditional malaria treatment

Commonly accepted practical solutions to diagnose and treat malaria, which differ greatly from official recommendations, are preferred due to convenience and personal experience with these treatments.

Insight 5

Testing+

The role of volunteer testers in providing free malaria testing and treatment services is not fully understood or appreciated by miners and clients.

Insight 7

Mining camp environment +

Strong and respectful relationships exist between miners and their camp managers because they need each other to be successful at their jobs.

Insight 10

Communication +

Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.

6.3

Branding Malaria Testing and Treatment Services

What is it?

A trademark meant to raise the visibility and quality of free MOPH-approved malaria testing and treatment services under the ministry's Rapid Diagnostic Testing and Treatment program.

The brand will include a logo, MOPH-approved seal, tester's toolkit, and certificate of completion with the tester's photo. The toolkit includes a waterproof container with a handle that will protect supplies from the environment. The toolkit will also include rapid counseling cards, a laminated card with the treatment regimen for different types of malaria as well as a flashlight to help testers read cartridges in the evening.

Problem Definition

Despite having trained a cadre of stable workers (i.e., cooks and shopkeepers) in Regions 7 and 8 to administer free RDTs, MOPH recognizes that some miners and camp managers are unaware that these services exist in their communities. In addition, many people often self-treat symptoms they associate with malaria. They use alternative/traditional medicines or purchase less effective over-the-counter medication (i.e., Artefan and Artecom) to treat malaria symptoms without first undergoing testing to confirm which type of malaria they have. The over-the-counter medications cannot fully eliminate malaria parasites, which permits a relapse of the disease.

Furthermore, volunteer testers, often busy with their daily responsibilities, sometimes feel unappreciated by clients who can be demanding.



How does it work?

Testers who successfully complete the MOPH training are given and oriented on a prepackaged toolkit containing:

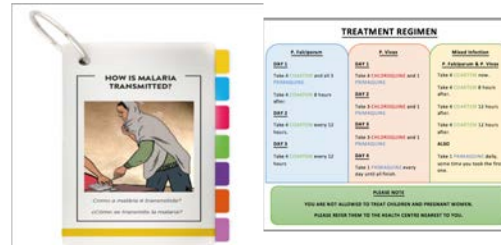
- A durable, waterproof box with a handle to hold all their supplies
- A guide to different treatment regimens, located on the inside cover of the box
- Testing supplies (MOPH-approved RDTs, treatment, gloves, cotton)
- Rapid counseling cards to enable efficient, effective tailored counseling
- A flag indicating the availability of free malaria testing and treatment services to place outside the testing site
- Signage and posters for the testing site
- A flashlight to better enable testers to conduct their work in the evenings
- A sharps container
- Reporting forms
- A laminated certificate with the tester's photograph



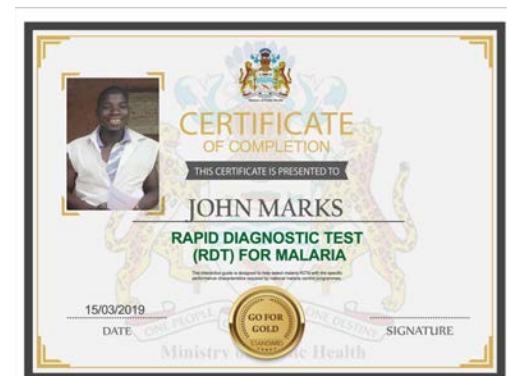
SIGNS



TESTER'S TOOLKIT



MOPH SEAL



CERTIFICATE

Assumption

If a brand is created for malaria testing and treatment services, it will allow clients to better identify testers, their location, and the best quality malaria RDTs and treatment. It will increase testers' confidence and help them feel valued and appreciated.

Measuring Success (Illustrative Indicators)

1. Average number of tests completed per month before and after receiving the kit (for testers who have previously been trained)
2. Percentage of trained testers with flag/signage posters placed at their site
3. Percentage of community members who know where to access free MOPH-approved malaria testing and treatment services
4. Percentage of testers who feel confident in their ability to provide high-quality malaria testing and treatment services

"This [box] would be good to keep things safe from the heat and so forth."—Tester

"Sometimes the [results] line is hard to see; you have to use flashlight."—Tester

"The flashlight is a great thing because sometimes when you're in here, you don't get to see the cassette properly."—Tester

"I would frame [the certificate] and keep it on my wall so when they come, they can see it."—Tester

"It certifies that I'm a member of the malaria department. It makes me feel happy. Everyone would like to have a certificate. You all are showing me gratitude."—Tester

Insight 2 **Malaria knowledge and preventive behaviors**

There are many contradictions around what people know about malaria and how they behave.

Insight 4 **Self and traditional malaria treatment**

Commonly accepted practical solutions to diagnose and treat malaria, which differ greatly from official recommendations, are preferred due to convenience and personal experience with these treatments.

Insight 5 **Testing+**

The role of volunteer testers in providing free malaria testing and treatment services is not fully understood or appreciated by miners and clients.

Insight 6 **Job motivation**

Miners and camp workers often prioritize financial/economic gain over their health concerns.

Insight 8 **Health care sources**

Health facilities are a desired option for health care services, but people will access other sources if necessary due to transportation, time, distance, and cost limitations.

Insight 10 **Communication+**

Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.

Insight 11

Coordination and communication gaps+

A lack of coordination and communication between stakeholder groups reduces the effectiveness of the National Malaria Program.

6.4

Innovations in Treatment Adherence

What is it?

The innovations are two unique and complementary products that help miners remember to complete their treatment regimen as prescribed and understand why it is important.

The first product is a tablet strip that separates daily prescribed dosages in individual packets. Relevant treatment information is printed on each packet. It also includes a visual representation of how parasites in the body are reduced each day the treatment is taken. The wristband indicates when the user should take their treatment with an audible reminder. The two products work together to simplify treatment, provide treatment reminders, and encourage treatment completion.

Problem Definition

Many miners do not take the full course of malaria treatment as prescribed, often taking only enough medicine to treat the symptoms. There are several underlying reasons:

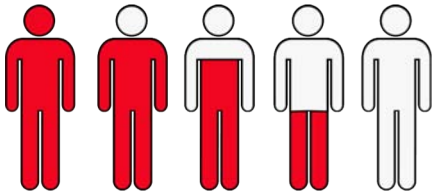
- Some people believe that once you have malaria, you have it forever and cannot be cured. Therefore, once symptoms have been addressed, further treatment is perceived as unnecessary.
- The prescribed treatment regimen does not align with work schedules or is difficult to remember.
- The medicine is perceived to taste bad or have unwanted side effects.



How does it work?

Tablet Strip

Daily dosages of medication required for a particular strain of malaria are separated into flexible, waterproof packets that are attached in a linear tablet strip. Important information about the medication, including the time it should be taken, is noted on each individual packet. Illustrations on the packaging demonstrate how malaria parasites decline in the body as treatment is taken. Packaged by a local supplier, treatment strips for *P. vivax*, *P. falciparum*, and mixed infections are available at health facilities and malaria RDT sites in mining communities.



Adherence Wrist Band

If a client's malaria test is positive, tablet strips are dispensed together with a small, waterproof, brightly colored reminder band that the client wears on their wrist. When the client takes their first dose, they press a button on the band to activate an electronic alarm. The wristband is preprogrammed to sound/buzz at appropriate dosage intervals, serving as a reminder to take the medication on time. The miner presses the same button to silence the alarm. The band and its alarm also signal that the miner is taking malaria treatment, which enables other people in the community to support adherence. Different color bands are used for different types of malaria.



Assumption

If we provide access to these adherence products, we will see an increase in malaria medication being taken in full and as prescribed. We will see patients taking the right medication, at the right time, and for the required duration of the treatment regimen. This adherence will lead to reduced transmission of the malaria parasites as more people eradicate it from their system.

Measuring Success (Illustrative Indicators)*

We will know if our idea is working if we see:

1. Reduced number of miners with relapses of malaria
2. Increased number of miners reporting that they completed their treatment
3. Increased knowledge of malaria treatment
4. Percentage of miners who wear the wristband for the full course of treatment

**Pending further approval of this prototype, these indicators will be updated/expanded on as necessary.*

"It makes it clearer what to take when."

"People might realize how important each pill is for them."

"That's perfect! Sometimes I need to set the alarm on their phones."

"This would be good, should make it with brighter colors so everybody is accountable for the person."

"There's a misconception that it [malaria] will come back—finish this and you're cured!"

"People like fancy gadgets. To know that they are getting all these nice things would motivate them."

"Ooh woow! So nice! This is exactly what Alex needs!"

"So if I complete the treatment, is malaria is totally out?"

"I would use it to remind me when I'm out there."

"It [pill packing] has to be waterproof."

"Sometimes you're working a 24 hour shift so there is no time to take your treatment."

"This would show I've been taking it for three days, but I still have a lot of parasites left."

"Would help managers to advise miners how to use it."

Insight 1

Risk perception

Malaria is seen as routine and commonplace; it is not considered a major health risk in many communities.

Insight 2

Malaria knowledge and preventive behaviors

There are many contradictions around what people know about malaria and how they behave.

Insight 3

Adherence and nonadherence to correct treatment+

Undesirable medication side effects cause some miners to stop treatment as soon as they feel better; for others, the need to get back to work and be able to keep working motivates them to follow the regimen.

Insight 4

Self and traditional malaria treatment

Commonly accepted practical solutions to diagnose and treat malaria, which differ greatly from official recommendations, are preferred due to convenience and personal experience with these treatments.

Insight 7

Mining camp environment +

Strong and respectful relationships exist between miners and their camp managers because they need each other to be successful at their jobs.

Insight 10

Communication+

Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.

6.5

PCL Approach to the RDT Program

What is it?

The positive outcomes created by the Little Mosquito, Big Problem SBC campaign and the branding of malaria service delivery points can only be sustained with adequate adjustments to the RDT program to ensure that MOPH-recommended testing and treatment is accessible at all times by miners. The PCL approach aims to diagnose and address gaps in the current RDT program related to PCL in order to ensure that the program can meet the demands that complementary interventions will generate.

The PCL approach will address scaling up of testers, antimalarials, and other malarial commodities in difficult-to-access mining areas, with an overall aim of breaking transmission and decreasing disease burden. Hubs will be established for distribution, reporting, medical supplies, and training, facilitated by a mobile brigade. Malaria promoters will ensure that knowledge about malaria is shared within mining communities. RDTs will be supported by implementing a referral form that covers cases that testers are not equipped to manage.

Problem Definition

The RDT program has some gaps that hinder meeting the current demand for services. Demand will increase as a result of the interventions proposed by this project. Therefore, the following areas of the program require improvement:

- Quality of RDT program services
- Accuracy and reliability on reporting
- Access to MOPH testing and treatment
- An environment that supports miners' use of approved tests and treatment and adherence to medication and preventative methods



How does it work?

The focus of this approach is to analyze the current RDT program, diagnose challenges and implement changes that improve every step of the program. Some of the recommendations from the Design & Test Phase were the following*:

Recruiting: Develop official recruitment criteria and a recruiting strategy and campaign. Consider a peer education program.

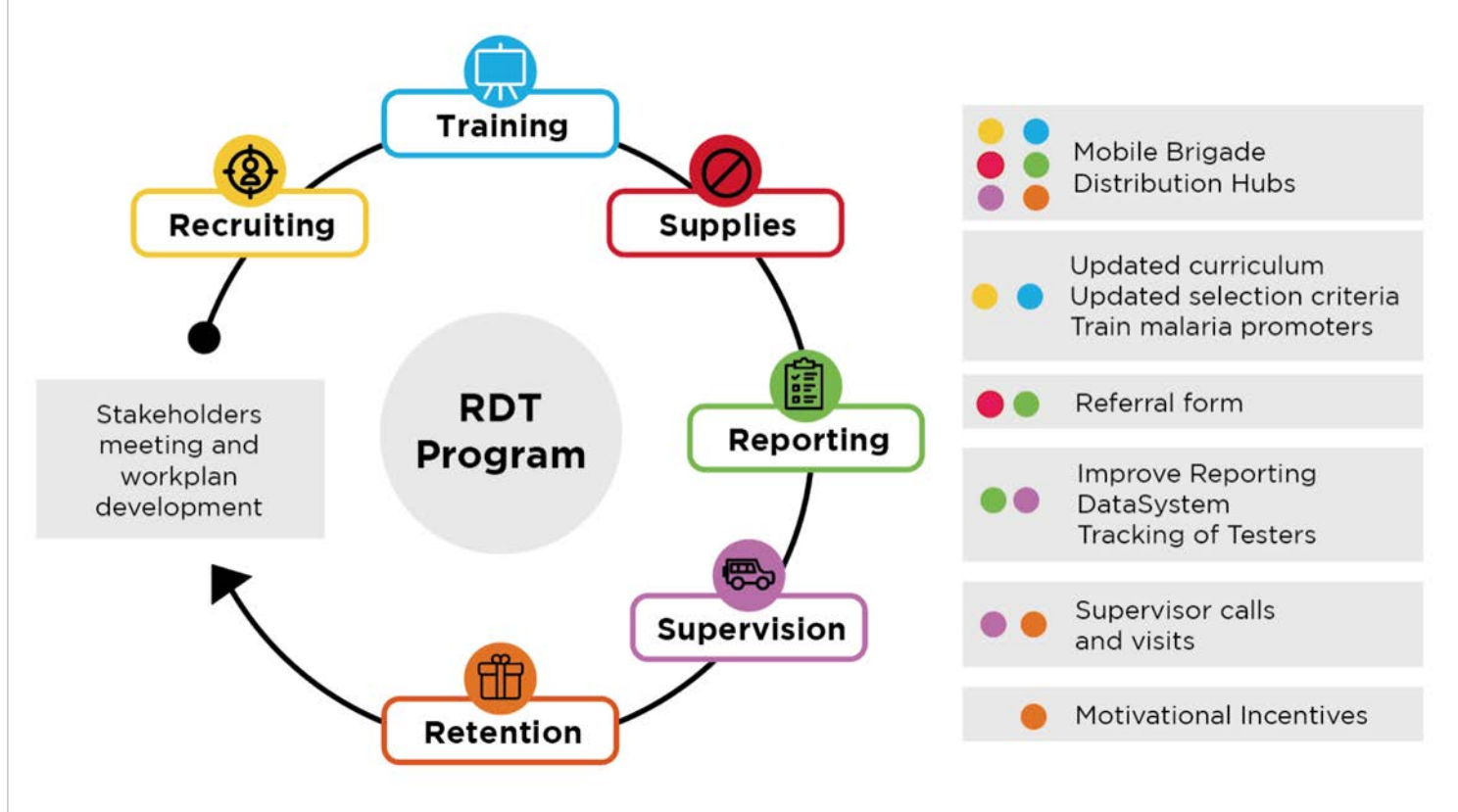
Training: Update curriculum and tools. Develop annual schedules for trainings. Consider a TOT system. Train malaria promoters.

Supplies: Create referral forms. Use distribution hubs, mobile brigades, and partnerships with transportation companies.

Reporting: Update the data entry system, improve infrastructure, and track inactive testers.

Supervision: Assign VCS staff to every tester. Create a directory of testers. Perform supervisory calls and visits.

Retention: Provide certificates. Create motivational incentives.



*For the full analysis and recommendations, please see the RDT Diagnosis report.

How does it work?

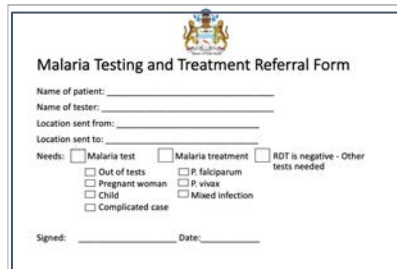
Besides internal changes within the program's processes and structure, the main new components of the evolved Rapid Diagnostic Testing and Treatment program are:



Mobile brigade teams, based in strategically located hubs, will be composed of a doctor/medex/nurse, community health worker, malaria microscopist, M&E officer, and driver. These teams will facilitate bimonthly distribution of medication and medical supplies, as well as conduct supervisory visits, collect data, and provide training opportunities to far-flung areas or small-scale mines that do not have access to testing and treatment.



Health promoters will be trained as volunteer malaria peer educators. The role of the health promoters will be to support testers by advocating for MOPH-approved testing and treatment services, as well as provide accurate advice to miners and members of the community.



Malaria Testing and Treatment Referral Form

Name of patient: _____
Name of tester: _____
Location sent from: _____
Location sent to: _____

Needs: Malaria test Malaria treatment RDT is negative - Other tests needed
 Out of tests P. falciparum
 Pregnant woman P. vivax
 Child Mixed infection
 Complicated case

Signed: _____ Date: _____

A streamlined referral system creates a formal and simpler way for a miner to be referred from one testing site to another testing site or medical facility. Such referrals would be necessary in the event of a test, drug, or medical supply shortage or a complicated and/or severe case of malaria that a volunteer tester is not qualified to address. The system also aids with the accountability of tests and drugs supplied to miners at testing sites.

Assumption

If we implement an approved and updated RDT approach program, we will ensure that the demands will be satisfied with adequate supplies, reporting of malaria cases will be increased, and malaria knowledge and perception gaps will be filled, improving treatment adherence. Additionally, the number of volunteer testers and promoters will increase, and they will feel appreciated and motivated for the job, ensuring retention.

Measuring Success (Illustrative Indicators)*

1. Percentage of reports that are submitted according to the designated reporting schedule by type of report
2. Decrease in shortages of malaria drugs and medical supplies
3. Number of referrals made between testing sites and facilities
4. Increased number of malaria tests conducted and treatment administered in mining communities

**Pending further approval of this prototype, these indicators will be updated/expanded on as necessary.*

*"I went to the hospital for supplies and they didn't have any. I never came back."—
Tester*

*"I went to the hospital and asked for a sign, but they only had a book."—
Tester*

*"I asked for materials from people around, but nobody shares."—
Tester*

"We don't know where to go. One time we went to the city, they sent us to another place. We got there and they sent us back."—Camp manager

"If I know where they have free test I wouldn't pay for the other one."—Miner

"I didn't know there was free test here. Now I know. I will come."—Miner

Insight 6

Job motivation

Miners and camp workers often prioritize financial/economic gain over their health concerns.

Insight 8

Health care sources

Health facilities are a desired option for health care services, but people will access other sources if necessary due to transportation, time, distance, and cost limitations.

Insight 9

RDT training +

The RDT training provided by MOPH is effective; however, testers would like to be trained to provide additional health services.

Insight 10

Communication+

Health communication and health promotion activities and materials, including radio programs, exist but are undeveloped and underutilized.

Insight 11

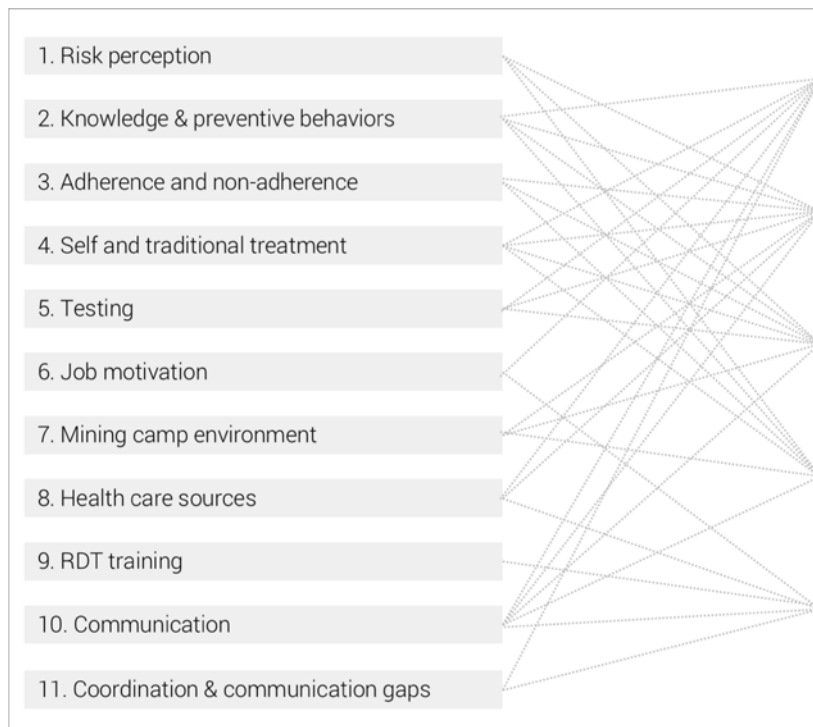
Coordination and communication gaps+

A lack of coordination and communication between stakeholder groups reduces the effectiveness of the National Malaria Program.

7. Intervention Model

Mapping Insights to Concepts

Insights From Discovery



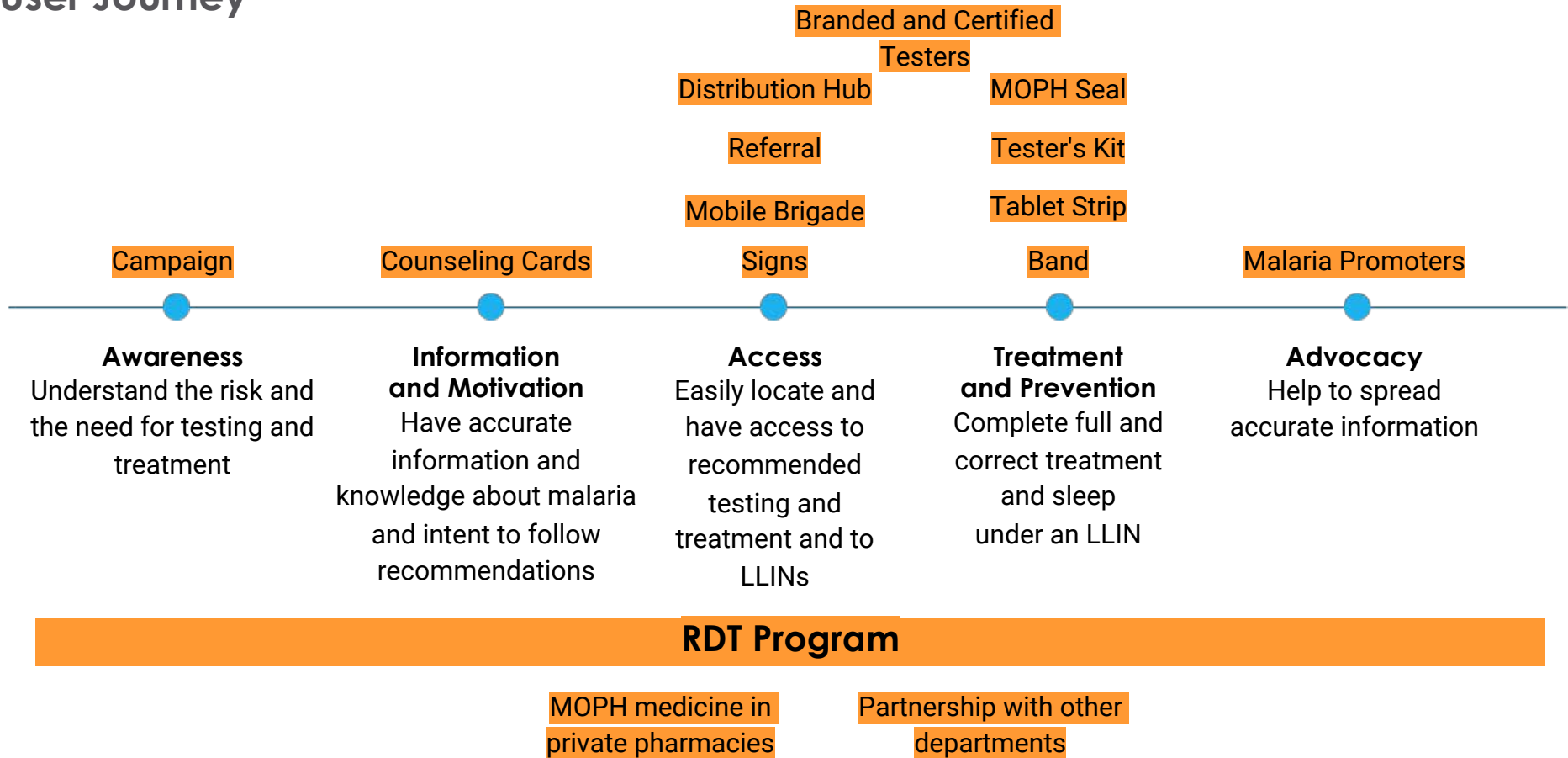
Prioritized Concepts



Mapping Insights to Concepts

The recommended ideas collectively respond to and address all 11 insights from the Discovery phase. Each intervention is informed by multiple insights. Together, the recommended ideas create an ecosystem of interventions that complement each other and work together to improve malaria testing and treatment services and shift related behaviors.

User Journey



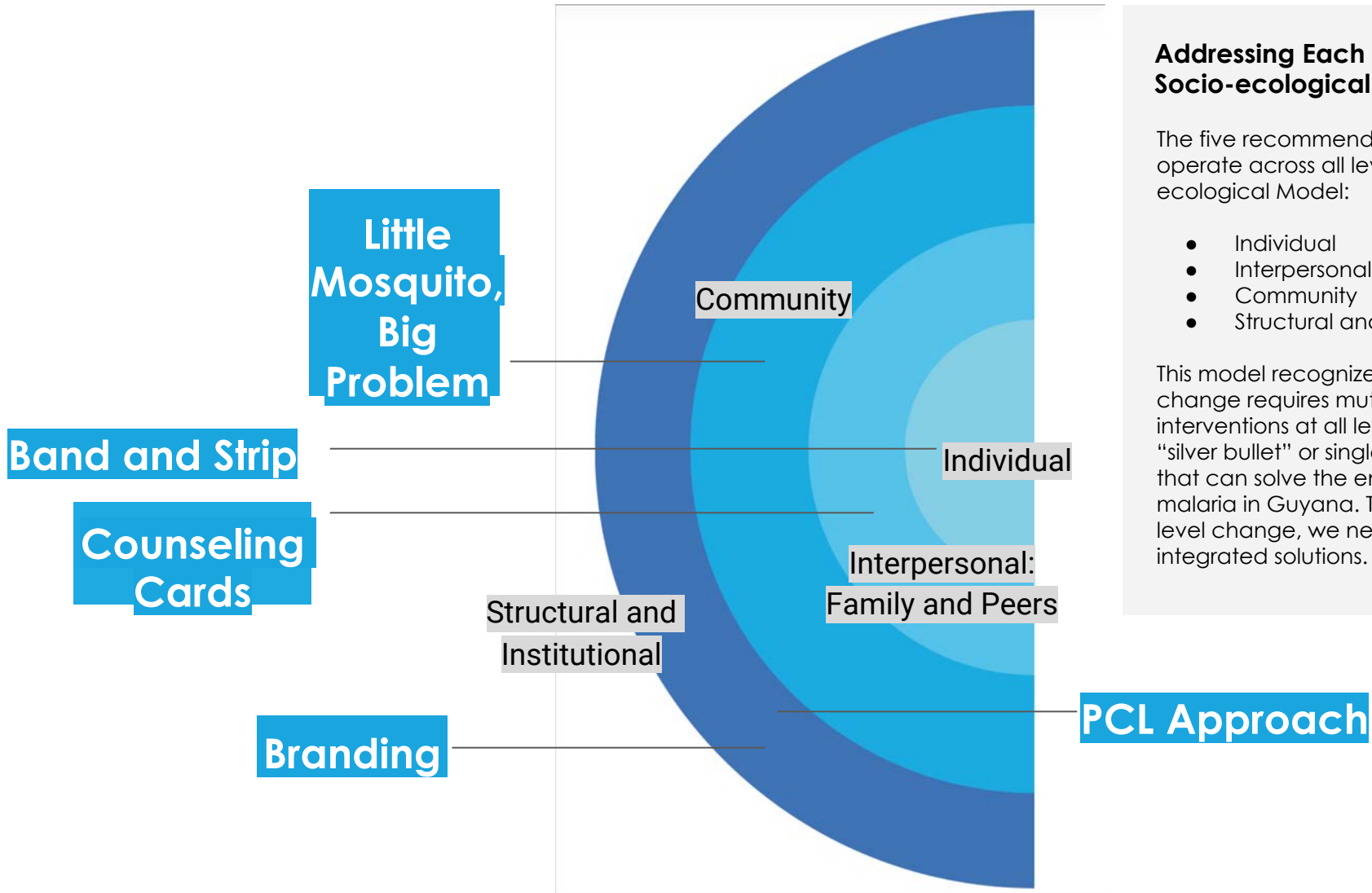
Addressing the critical touchpoints of the user's experience

The graphic above shows how the individual components of the five recommended prototypes address the critical touchpoints of the ideal user journey.

The Little Mosquito, Big Problem SBC campaign raises awareness of the risks posed by malaria and encourages testing. The rapid counseling cards help testers provide accurate information.

Elements of the branded services and PCL approach help patients access malaria services easily. The Adherence products help to improve treatment and prevention practices. Finally, the malaria promoters included in the PCL approach help to advocate for the series of interventions.

Socio-ecological Model



Addressing Each Level of the Socio-ecological Model

The five recommended prototypes operate across all levels of the Socio-ecological Model:

- Individual
- Interpersonal
- Community
- Structural and Institutional

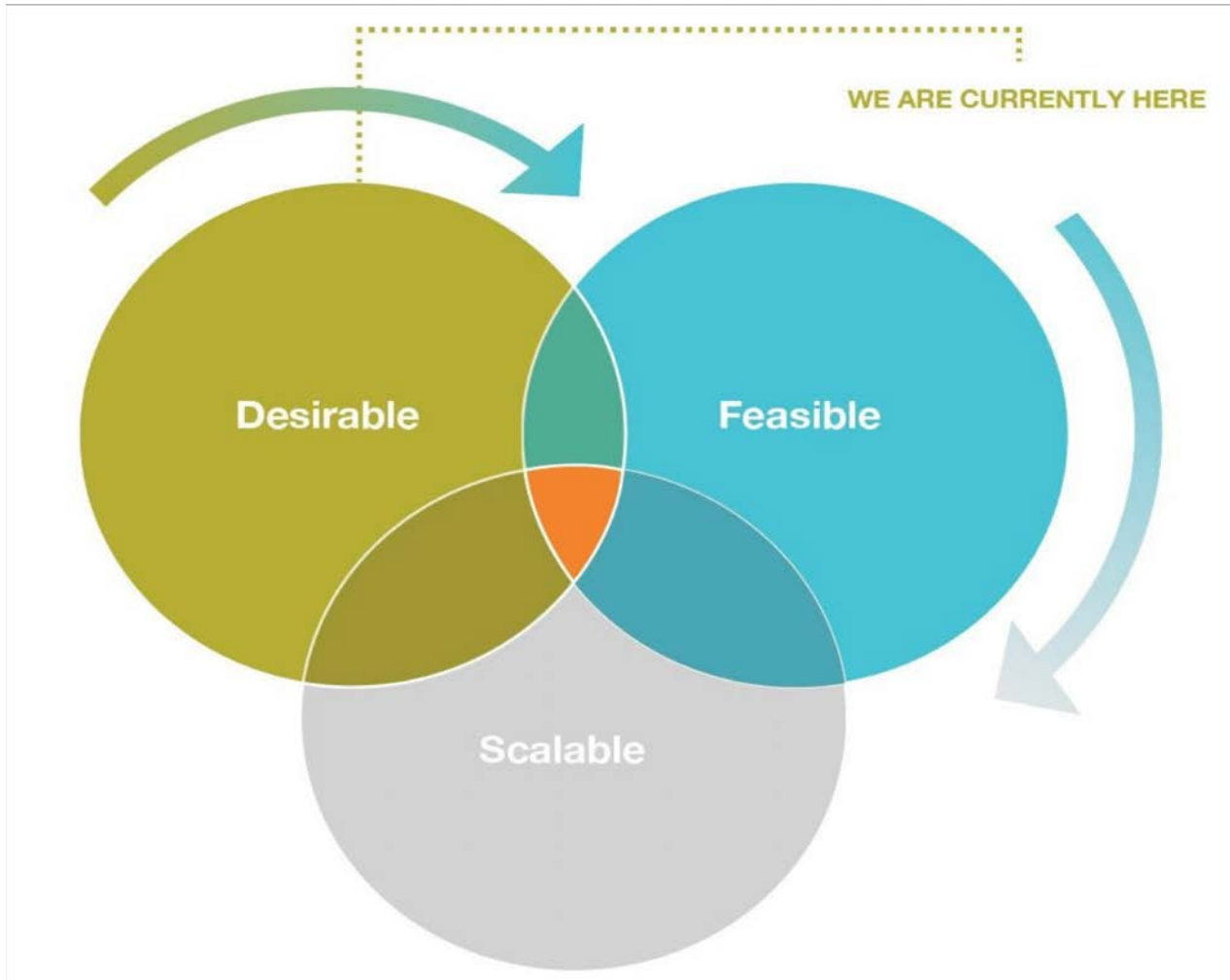
This model recognizes that behavior change requires mutually reinforcing interventions at all levels. There is no “silver bullet” or single innovative idea that can solve the entire problem of malaria in Guyana. To achieve systems-level change, we need systems-level, integrated solutions.



Where do we go
from here?



From Desirability to Feasibility



Future Iterations of Prototypes and Pilots

The early iterations of prototypes described in this report focused on the Desirability lens: *What would work for users?*

As future prototypes and small-scale pilots increase in fidelity, we will begin to shift our focus to the Feasibility lens: *What interventions can be realistically implemented, and how can we make this possible? Which components are not feasible?*

Following pilot testing we will focus on how the ideas can be scaled up to a national level or to the desired breadth of intervention.

Ultimately, we want to iterate and improve ideas through all three lenses so they can be as strong as possible with minimum investment and risk, maximizing chances of success.

8. Key Learnings for Future Implementation

Messaging and Language

DOs

Messaging

- Every communication should be created from the Little Mosquito, Big Problem concept, linking every message.
- Make sure that the subjects around malaria (transmission, prevention, testing and treatment, cure) can be easily and quickly understood.
- Always refer people to MOPH-approved testing and treatment.
- Use real-life mining situations and people to spread the messages and ensure people can relate to them.
- Be consistent. The take-away from the campaign must be the same regardless of which piece of communication users are exposed to.
- Be positive. Even though we want people to understand the seriousness of malaria, we also want to spread awareness that it can be cured easily and everybody can be part of the solution.
- Use real statistics and facts to support the message.
- Explore a story-telling strategy and real testimonials to make the users part of it, as equals.

Language and Tone of Voice

- Whenever possible, translate every material for Spanish and Portuguese.
- Keep it simple. Say what you need to say in an objective way so people will remember it easily.
- Be friendly and use humor to engage people with the communication.
- Be literal and use a low-literacy approach.

DON'Ts

Messaging

- Don't stigmatize malaria by depicting infected people as being guilty of spreading the disease.
- Don't over-leverage economic factors in a way that encourages miners and camp managers to continue working while sick.
- Don't leverage fear and negativity.
- Don't spread information that is not approved by MOPH.
- Don't patronize. Communication should not be created with a sense of superiority.

Language and Tone of Voice

- Don't use too many metaphors or fancy language.
- Don't create communications that only work in English.
- Don't use technical terms and serious tone of voice.
- Don't use complex images that require interpretation.

Communication Channels



DOs

Song

- Have a famous Guyanese Soca musician perform, launch, and promote the song.
- Accompany the song with a dance and music video which show how mosquitoes transmit malaria and what humans can do to beat transmission.
- Launch the song in a public event, play it on the radio and nightclubs, and share it on social media.
- Use song snippets to begin or end radio spots to give the campaign an audio brand.

Videos

- Ensure content is highly visual and features local people.
- Show in-depth, technical information to clarify content.
- Show videos at camps/restaurants with television and invite surrounding camps to attend.
- Include it on social media, WhatsApp, DVDs of action and other movies or ads during cricket matches or news.

Radio Spots

- Create additional spots 30-60 seconds in length addressing each of the campaign objectives.
- Portray comical interactions between characters that emphasize key campaign messages in the context of daily-life activities.
- Include a call to action to go for free MOPH-approved malaria testing and treatment where they see the malaria logo near them at the end of each spot.
- Feature clips from the song in the spot for consistency.



DON'Ts

Song

- Don't use the radio as the only way to spread the song; not every region has radio access.
- Don't create a song with a slow beat or too serious approach; people should not only associate it with the problem, but enjoy it and find it catchy in order to become viral.

Videos

- Don't use too much text content since not everybody can read.
- Don't make it too long, unless it is a feature-length film, because people can get bored.
- Don't use specific and technical terms because people might find it hard to understand.

Radio Spots

- Don't make it longer than 60 seconds.
- Don't use foreign accent/voices.
- Don't forget to use a call to action.

Consumer Goods

- Don't put information on the back of products because people won't notice it.
- Don't put information on goods that are consumed only in leisure times because people might feel annoyed.

Communication Channels



DOs

Radio Talk Shows

- Invite guests on air to discuss different malaria topics. Guests may include regional VCS staff, doctors, MOPH, testers, GGMC, and miners themselves.
- Prepare interview guides and talking points in advance to ensure key points are covered and the information given is consistent.
- Feature testimonials and/or technical information based on questions that people have called or sent by SMS to the station.

Billboards and Posters

- Place simple, highly visual, attention-grabbing campaign billboards at highly trafficked junctions.
- Show the test and treat logo to refer people to services.
- Place posters that match the billboards at mining camps, in shops and restaurants, and around landing sites and towns.

Facebook

- Create a miner social media personality together with GGMC, VCS, PR/HPU, other units within MOPH, and other ministries in order to integrate messaging on malaria, occupational health and safety, HIV, and other topics to provide a wealth of content and help to ensure its sustainability.
- Create and approve a content calendar in advance to ensure reliability and accuracy of posts.



DON'Ts

Radio Talk Shows

- Don't give complex and technical responses.
- Don't go unprepared or without promoting the show previously.
- Don't give answers that are not approved by MOPH.

Billboards and Posters

- Don't use too much text content since not everybody can read.
- Don't forget to use a call to action and refer people to test and treatment services.
- Don't use pictures of foreign/nonlocal people.
- Don't place posters outside shops because they can deteriorate.

Facebook

- Don't create a personality associated with the health sector. It should be a regular, relatable person.
- Don't use specific and technical terms because people might find the message hard to understand.
- Don't overpost because people might get annoyed.
- Don't post only health messages. Make sure to include daily-life content and tips.
- Don't create inconsistent posts. Language used should be coherent as though one single person is updating the page.
- Don't create all-text posts. Explore visual content.

Appearance and Content

DOs

- The counseling cards should be visually appealing and must contain illustrations.
- They should be simple to use.
- The content should be relatable to the miners in order to make an impact on this target audience.
- The information contained should be pertinent and interesting to both the miners and volunteer testers since many people in the mining community believe they have all the required knowledge about malaria due to past experiences with the disease.

DON'Ts

- The counseling cards should not be big.
- The content should not be exhaustive and complicated since many volunteer testers have other responsibilities.

Branding and Job Aid Materials



DOs

Branding

- Make the brand self-explanatory for people with low literacy.
- Create a logo that is appealing and easy to remember.
- Make sure the logo can catch attention and be identified from a distance.
- Be literal. Use icons to express the service.
- Make sure the logo can be easily described in words for radio and other nonvisual communication channels.

Job Aid Materials

- Make sure materials are durable, laminated, and waterproof.
- Provide materials that can be useful for the job they perform, such as flashlights and gloves.
- Provide materials that make the tester's job official, certified, and known, such as treatment guidelines, certificates, and signs.
- Provide materials with information from the training for consultation.
- Make sure every tester has everything necessary to perform their job.
- Testers' materials can be only in English, but if they are also provided with materials to hand out to patients, make sure it is also translated to Portuguese and Spanish.
- Always use the partners logos on branding materials: USAID on the left, MOPH on the center, and Breakthrough ACTION on the right.



DON'Ts

Branding

- Don't use political parties colors.
- Don't create an all-text logo.
- Don't create conceptual and abstract artwork.
- Don't use image of blood when relating to testing because it might scare people off.

Job Aid Materials

- Don't give the testers uniforms; they are volunteers and perform other roles outside the RDT program and would not be able to use it.
- Don't use other partners' logos without approval.
- Don't provide materials that are not functional for a tester's role. They can be considered gifts and be given to others.
- Don't provide extensive guidelines only for testing content. Testers quickly learn it through repetition and don't use the material anymore.
- Don't share information about testers, such as phone numbers and pictures, without their consent.

Products



DOs

Tablet Strip

- Make the information printed on each packet easy to read as well as easy to understand for those who are unable to read.
- Include a graphical representation of parasites in the body decreasing over time as the user completes the treatment regimen.
- Make the packets durable and waterproof but still easy to open.
- Use existing technology where possible.

Adherence Wristband

- Produce the wristband in three different colors to correspond to the three types of malaria diagnosis: *P. vivax*, *P. falciparum*, and mixed.
- Make the battery life last the entire duration of the treatment regimen.
- Make the light, vibration, and/or sound alerts noticeable to a user in a loud outdoor setting.
- Make the wristband free or low cost to the user.
- Keep branding consistent with tester logos and branding.
- Make the wristband fashionable and comfortable to wear.



DON'Ts

Tablet Strip

- Don't make the packing difficult or expensive to prepare for each patient.

Adherence Wristband

- Don't make the wristband require any programming from the tester/pharmacist or user.
- Don't make the wristband fragile or loose to wear.
- Don't make the alerts annoying or burdensome.

Approach and Program

DOs

Approach

- Consider PCL a holistic approach that optimizes and improves every phase of the RDT program. All phases are interdependent and rely on each other for the program's success.
- Include all stakeholders in decision-making. Solutions must work in every part of the chain.
- Restructure internal processes and make sure possible and feasible interventions are created.
- Always pretest and iterate new solutions.
- Whenever possible, partner with different health sectors inside MOPH to expand the outcomes.
- Make sure everybody in the process is trained and up to date on new policies and systems.
- Make sure everyone in the program has all the equipment and materials needed to perform their job accurately.

RDT Program

- Create feasible deadlines for reporting and stick to them.
- Track everyone involved in the program and make sure each region always has enough active testers.
- Perform refreshment trainings frequently.

DON'Ts

Approach

- Don't stipulate top-down decisions. If people do not feel that they are part of the process, they might not be willing to change their previous behavior.
- Don't aim for goals you can't deliver. If you start too big and cannot accomplish a goal, the whole process can be compromised and people can get demotivated.
- Don't work in isolation.
- Don't ask people to do tasks they are not prepared or equipped to do.
- Don't leave anyone inside the program without direct supervision.

RDT Program

- Don't spend more than a month without supervision visits/calls to regions.
- Don't let regions be without a sufficient number of active testers.
- Don't let hospitals and testers be without sufficient supplies.
- Don't rely only on handwritten physical archives.

9. Implementation Plan

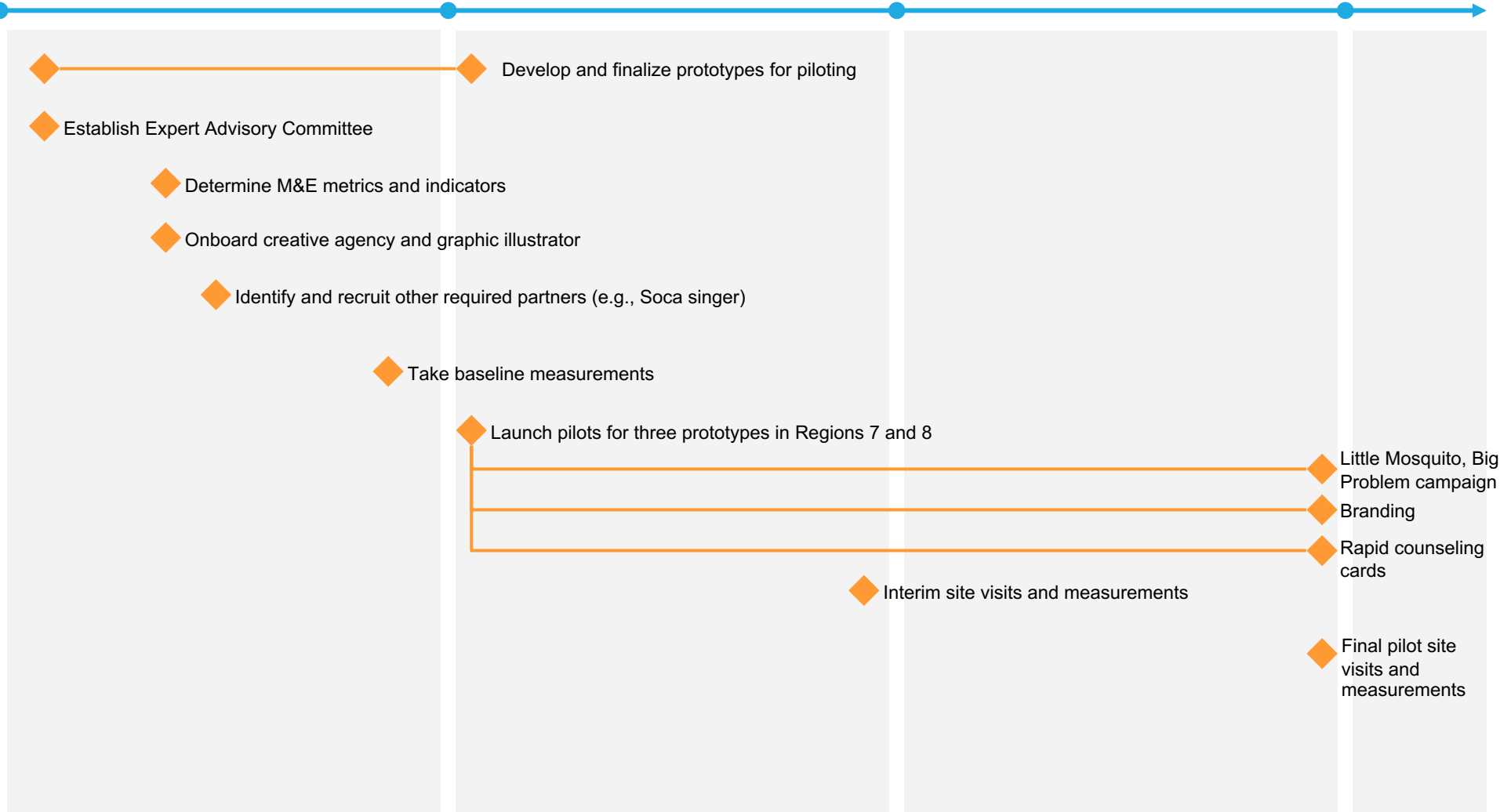
Implementation Plan (High-Level Overview)

May 2019

June

July

August



Annex: Brochures

Imagine...

That completion of the correct treatment is natural for every miner who becomes infected with malaria.

You know some miners do not take their full course of treatment; they only take enough to feel better so they can go back to work.

Our idea is **that innovative packaging of malaria treatment with an accompanying reminder wristband will encourage and motivate miners to complete the malaria treatment.**

So, miners will become cured of malaria, have less frequent relapses, and avoid becoming resistant to drugs.

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**Innovations in
Treatment
Adherence**

Innovative ways to help miners understand and remember how and why to take and complete malaria treatment

The Idea

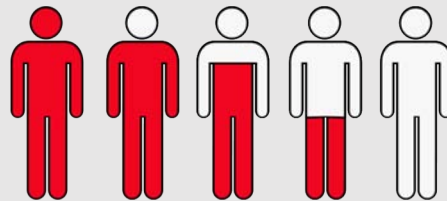
Miners often do not complete their malaria treatment—particularly the 14-day *P. vivax* regimen. They often stop treatment after a few days, when they feel better. They are also largely unaware that malaria can be cured, and that parasites can be eliminated from the body. They believe that once you have malaria, the parasites remain in your body and “rise up” in the future.

To address these challenges, a tablet strip and reminder wristband work together to simplify treatment, provide treatment reminders, and encourage treatment completion.



How it Works

Daily dosages of medication required for a particular strain of malaria are separated into flexible, waterproof packets that are attached in a linear tablet strip. Important information about the medication, including the time it should be taken, is noted on each individual packet. Illustrations on the packaging demonstrate how malaria parasites are reduced in the body as treatment is taken. Packaged by a local supplier, treatment strips for *P. vivax*, *P. falciparum*, and mixed infections are available at health facilities and malaria RDT sites in mining communities.



Tablet strips are dispensed together with a small, waterproof, brightly colored reminder band that is placed on the client’s wrist once they test positive for malaria. The client presses a button to activate an electronic alarm as soon they take their first dose. The wristband is preprogrammed to sound/buzz at appropriate dosage intervals, serving as a reminder to take the medication on time. The miner presses the same button to silence the alarm. The brightly colored band and its alarm also serve as a signal to others that the miner is taking malaria treatment so they can support adherence. Separate bands are created for different types of malaria.



Measuring success

We will know if our idea is working if we see:

1. Reduced number of miners with relapses of malaria
1. Increased number of miners reporting that they completed their treatment
1. Increased knowledge of malaria treatment
1. Percentage of miners who wear the wristband for the full course of treatment

Imagine...

That everyone in Regions 7 and 8 goes for Ministry of Public Health (MOPH)-approved malaria testing as soon as they experience malaria symptoms, completes their MOPH-approved treatment, and sleeps under a long-lasting insecticidal net (LLIN) every night.

You know miners do not view malaria as a serious problem; they do not know that malaria parasites can be completely eliminated from the body, and they usually stop treatment after a few days when they feel better.

Our idea is to saturate Regions 7 and 8 with entertaining and educational messages meant to improve knowledge, attitudes and positive practices related to malaria prevention, testing and treatment.

So, everyone in Regions 7 and 8 has the information, resources, and skills they need to prevent and treat malaria.

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**Little Mosquito,
Big Problem**

A multi-channeled social and behavior change (SBC) campaign to raise malaria risk perception and encourage malaria testing, treatment and prevention behaviors

The Idea

Little Mosquito, Big Problem is a SBC campaign that targets mining camps and communities in malaria-endemic Regions 7 and 8.

The campaign objectives are to increase the proportion of the target audience who:

- Feels they are at risk of malaria and understands that malaria is a serious problem
- Understands how malaria is transmitted, why it is important to test for malaria as soon as symptoms occur, and why it is important to use and complete MOPH-approved treatment
- Knows where they can go for MOPH-approved testing and treatment
- Tests for malaria within 24 hours of experiencing symptoms
- Completes MOPH-approved malaria treatment as directed
- Sleeps under an LLIN every night

The campaign uses a highly visual, low-literacy approach. It is implemented through multiple, mutually reinforcing communication channels that are easily accessible by miners, and it is implemented in four phases, each three months long, focusing progressively on (1) risk perception, (2) testing, (3) treatment, and (4) LLIN use. The campaign is implemented with higher intensity during times of the year when malaria risk is highest.

How it Works



The Little Mosquito, Big Problem Soca song, dance and music video, performed by a famous Guyanese musician, is launched at a public event and takes Guyana by storm.



Attention-grabbing billboards and posters are placed at highly trafficked locations.



Comical mini-drama radio spots (30–60 seconds in length) air on national and local radio stations.



A popular miner social media personality, created together with Guyana Geology and Mines Commission, Vector Control Services (VCS), Public Relations/Health Promotion Unit, other units within MOPH, and other ministries, infuses posts about daily life in the camp with messages on malaria, occupational health and safety, HIV, and other topics.



Local radio and television stations invite guests (e.g., VCS, testers, miners) to appear on radio/TV talk shows once a month. Shows feature testimonials and allow listeners to text/call in with questions.



A series of short video clips help visualize and further explain the messages given on other channels.

In each case, the call to action is to go for free MOPH-approved malaria testing and treatment services where the branded RDT logo is displayed.



Measuring Success

We will track the percentage of respondents who:

1. Have heard or seen a message on malaria in the last three months.
2. Can accurately recall such messages.
3. Feel personally at risk of malaria.
4. Feel that malaria is a serious problem.
5. Know how malaria is transmitted, that malaria can be cured, and where they can access MOPH-approved malaria testing and treatment services.
6. Sought MOPH-approved malaria testing and treatment services within 24 hours of experiencing malaria-like symptoms.
7. Completed their MOPH-approved malaria treatment.
8. Slept under an LLIN the previous night.

Imagine...

That miners are able to get quick information about malaria suited to their particular situation from trained people whom they trust in their communities.

You know how miners are busy and do not want to wait a long time for medical services.

Our idea is to use a rapid, tailored counseling system to increase miners' knowledge about malaria.

So, the miners are educated about the threat and seriousness of malaria and can take steps to either prevent the disease or get tested and treated as soon as symptoms appear. It will also help them understand their role in disrupting malaria transmission.

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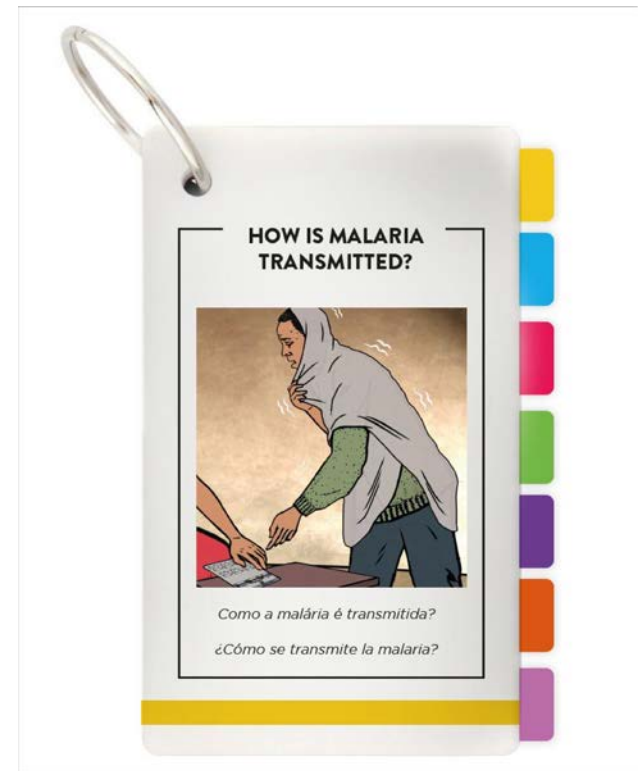


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Rapid Counseling Cards

Counseling cards used by testers/promoters to provide rapid, tailored and effective counseling to miners/clients on malaria

The Idea

The counseling cards will be packaged as a small booklet that contains pertinent information about malaria prevention, transmission, and treatment. The cards, which each include an image on the front and supporting information on the back, are meant to support malaria testers and/or health promoters to provide rapid and accurate counseling to miners/clients. The cards are color coded and work together with an orientation form that will allow testers/promoters to tailor counseling sessions according to clients' needs. Testers/promoters will be able to quickly identify the appropriate counseling card, which will have color-coded tabs that are linked to a matching system on the orientation form. This package will also include a directory of area trained testers so they can refer clients, if needed.



How it Works



Testers/promoters will ask clients a short series of questions through an orientation form to identify gaps in clients' malaria knowledge and behavior.



The orientation form will be accompanied by a set of counseling cards, color coded to match the questions and responses on the orientation form.



The front of the counseling cards will contain an image to show the client, while the back will contain key talking points for the tester/promoter.



This design will allow testers/promoters to tailor counseling sessions based on responses to the orientation form.



All testers/promoters will be trained on how to use the orientation form and counseling cards.

Testers will have access to a directory of area trained testers in the event they need to refer clients to another location.



Measuring Success

- Percentage of clients who participated in counseling sessions
- Percentage of counseling sessions conducted by testers/promoters
- Percentage of clients who reported testing after counseling session
- Percentage of clients who reported completing treatment after counseling session

Imagine...

A future in which the services provided by local testers is so accessible and of such a high standard that self-diagnosis and self-treatment of malaria symptoms become an illogical alternative for miners.

You know how miners are often unaware of testing and treatment services nearby.

Our idea is to make the services offered by Ministry of Public Health (MOPH) testers high quality, easily recognizable, and readily accessible to miners and other members of the community.

So, the MOPH-trained volunteer testers become the trusted first point of call for the testing and treatment of malaria.

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Branding Malaria Testing & Treatment Services

Increasing the visibility and quality of free MOPH-approved malaria testing and treatment services

The Idea

The tester's toolkit aims to achieve three major objectives:

1. Ensure testers feel appreciated, confident, and well equipped to perform their assigned tasks.
2. Increase awareness among miners about trained testers and the services they provide in Regions 7 and 8.
3. Raise awareness and build trust in malaria testing and treatment approved by MOPH.



How it Works

Testers who successfully complete the MOPH training are given and oriented on a prepackaged toolkit containing:

- A durable, waterproof box with a handle to hold all of their supplies
- A guide to the different treatment regimens, located on the inside cover of the box
- Testing supplies (MOPH-approved rapid diagnostic tests, treatment, gloves, cotton)
- Rapid counseling cards to enable efficient, effective, tailored counseling
- A flag indicating the availability of free malaria testing and treatment services to place outside of the testing site
- Signage and posters for the testing site
- A flashlight to better enable the tester to conduct their work in the evenings
- A sharps container
- Reporting forms
- A laminated certificate with their photograph

Testers install the flag and hang the signs/posters at their locations. As part of their monthly (periodical) supervision visits to replenish stocks and conduct site investigations, the regional VCS team follows up to see if testers adhered to the guidelines and fully understood how to use the materials in the kit.



Measuring Success

- Average number of tests completed per month before and after receiving the kit (*for testers who have previously been trained*)
- Percentage of trained testers with flag/signage posters placed at their site
- Percentage of community members who know where to access free MOPH-approved malaria testing and treatment services
- Percentage of testers who feel confident in their ability to provide high-quality malaria testing and treatment services

Imagine...

An enhancement of the existing rapid diagnostic test (RDT) program that supports testers to test and treat malaria patients to a high standard, while providing accurate and reliable reporting to the Ministry of Public Health (MOPH).

You know how mining is done in areas where medical facilities are difficult to access, testers face frequent stock-outs of tests and treatment, and reporting rates are low.

Our idea is **an improved RDT approach whereby testers are supported by a network of services and health professionals.**

So, testing, treatment, and reporting performed by testers is consistent, accessible, and of the highest quality.

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PCL Approach to RDT Program

The PCL (Participants, Content, Logistics) is a program incorporating distribution hubs, mobile brigades, health promoters, and referrals with the objective of improving services provided through the RDT program.

The Idea

The positive outcomes created by the Little Mosquito, Big Problem social and behavior change campaign and the branding of malaria service delivery points can only be sustained with adequate adjustments to the RDT program to ensure that MOPH-recommended testing and treatment is accessible at all times by miners. The PCL approach aims to diagnose and address gaps in the current RDT program related to PCL in order to ensure that the program can meet the demands that its complementary interventions will generate.

The PCL approach will address scaling up of testers, antimalarials, and other malarial commodities in difficult-to-access mining areas, with an overall aim of breaking transmission and decreasing disease burden. Hubs will be established for distribution, reporting, medical supplies, and training, facilitated by the mobile brigade. Malaria promoters will ensure that knowledge about malaria is shared within mining communities. RDTs will be supported by implementing a referral form that caters for cases that testers are not equipped to manage.



How it Works

The PCL approach is made up of several integrated components:

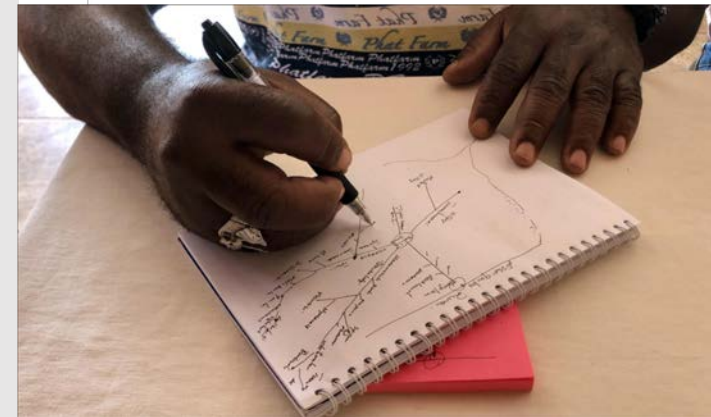
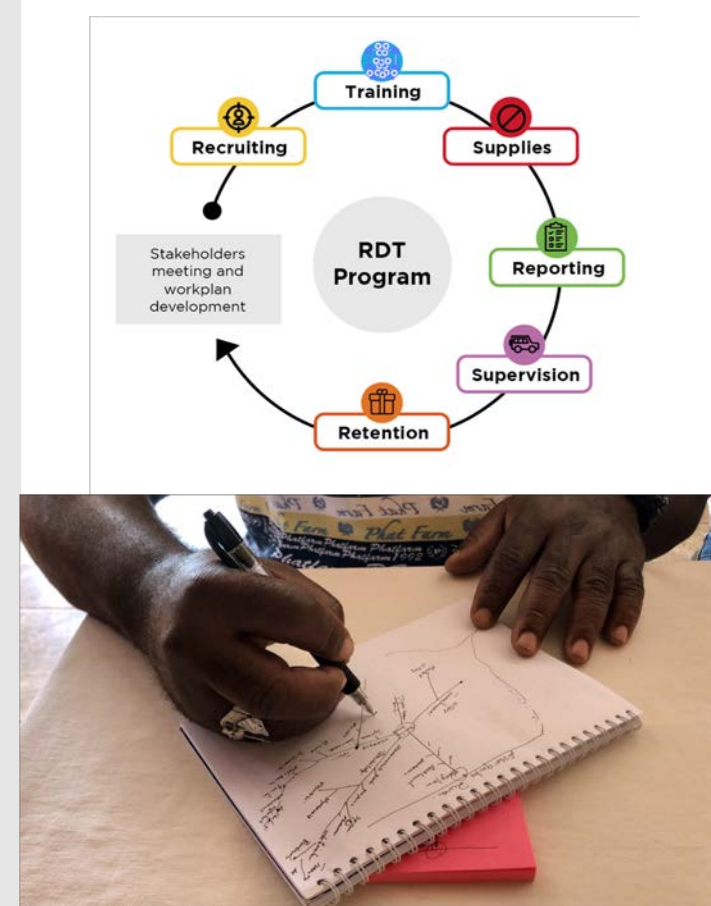
Mobile brigade teams, based in strategically located hubs, will be composed of a doctor/medex/nurse, community health worker, malaria microscopist, monitoring and evaluation officer, and driver. These teams will facilitate bimonthly distributions of medication and medical supplies, as well as conduct supervisory visits, collect data, and provide training opportunities to far-flung areas or small-scale mines that do not have access to testing and treatment.

Health promoters will be trained as volunteer malaria peer educators. The role of the health promoters will be to support testers by advocating for MOPH-approved testing and treatment services, as well as provide accurate advice to miners and members of the community.

A streamlined referral system creates a formal and simpler way for a miner to be referred from one testing site to another testing site or medical facility. Such referral would be necessary in the event of:

- A test, drug, or medical supply shortage.
- A complicated and/or severe case of malaria that a volunteer tester is not qualified to address.

This system also aids with the accountability of tests and drugs supplied to miners at testing sites.



Measuring Success

- Percentage increase in the consistency of reports received from service locations
- Improved timeliness of reporting from service locations
- Decrease in shortages of malaria drugs and medical supplies
- Number of referrals made between testing sites and facilities
- Increased number of people testing and completing treatment in mining communities