Reimagining Malaria Treatment Packaging to Improve Adherence Among Gold Miners in Guyana

December 2022, Marrakech, Morocco

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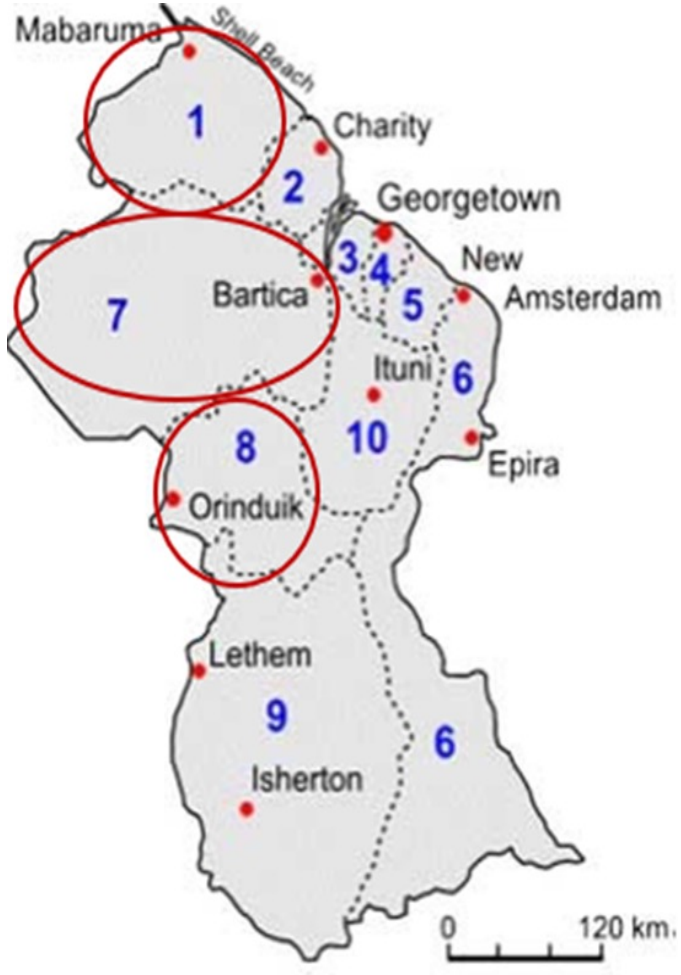
Background on Malaria Situation

- Malaria prevalence in Guyana is highest among men in the hard-to-reach malaria-endemic mining communities in the hinterland regions
- Mining activities create favorable environments for mosquito breeding
- Malaria services are also limited in remote areas, including the hinterland regions
- Adherence to malaria treatment regimens among miners was also low

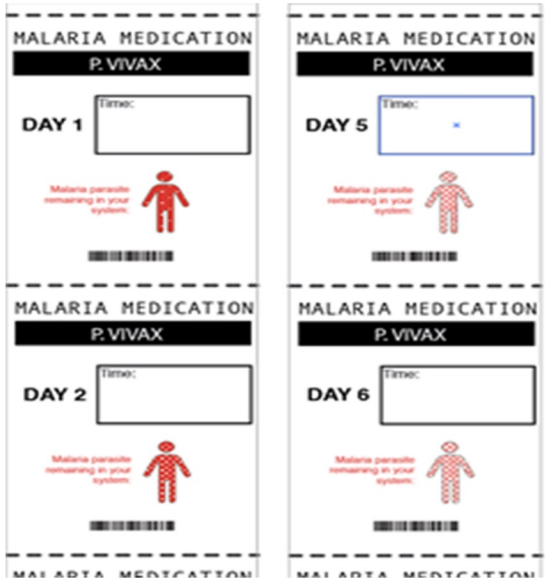


Key Insights from Formative Research

- Gold miners feel that the malaria treatment regimen is complicated (literacy, different types of malaria with different treatment regimens, unclear instructions for when to take the medication)
- Many miners only take enough medicine to treat the symptoms and stop taking treatment after a few days
- Some miners also believe that the parasites remain, and 'raise up" when immunity is low
- Most miners do not know that malaria parasites can be eliminated from the body after taking the entire treatment

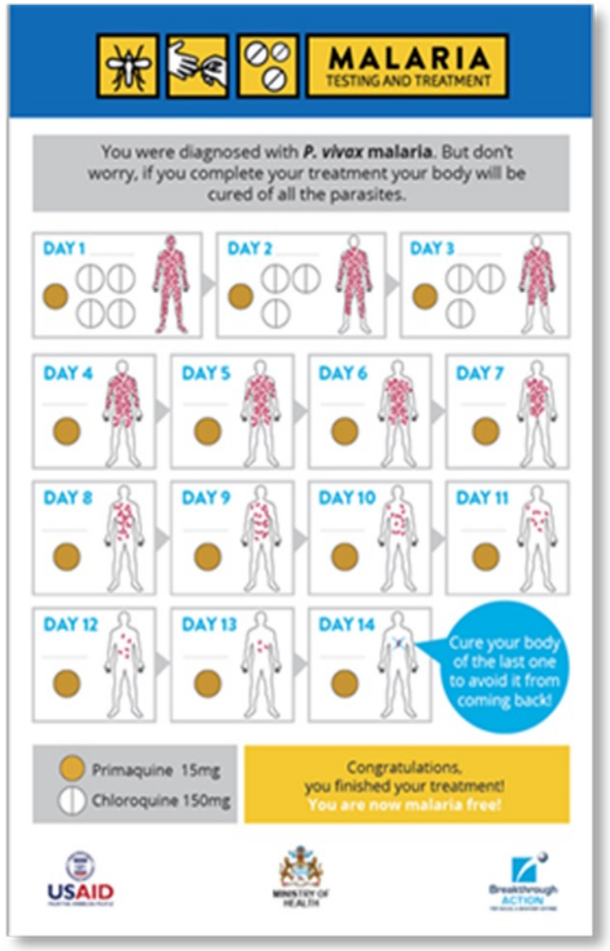
The Big Idea

- Simplify the treatment regimen by redesigning malaria packaging
- Initial prototype was a linear, perforated tablet strip that separates daily prescribed dosages into individual packets
- Each packet would give clear instructions on when to take each dose and encourage treatment completion by including a visual representation of how parasites in the body are reduced each day the treatment is taken until the parasites are eliminated after the final dose



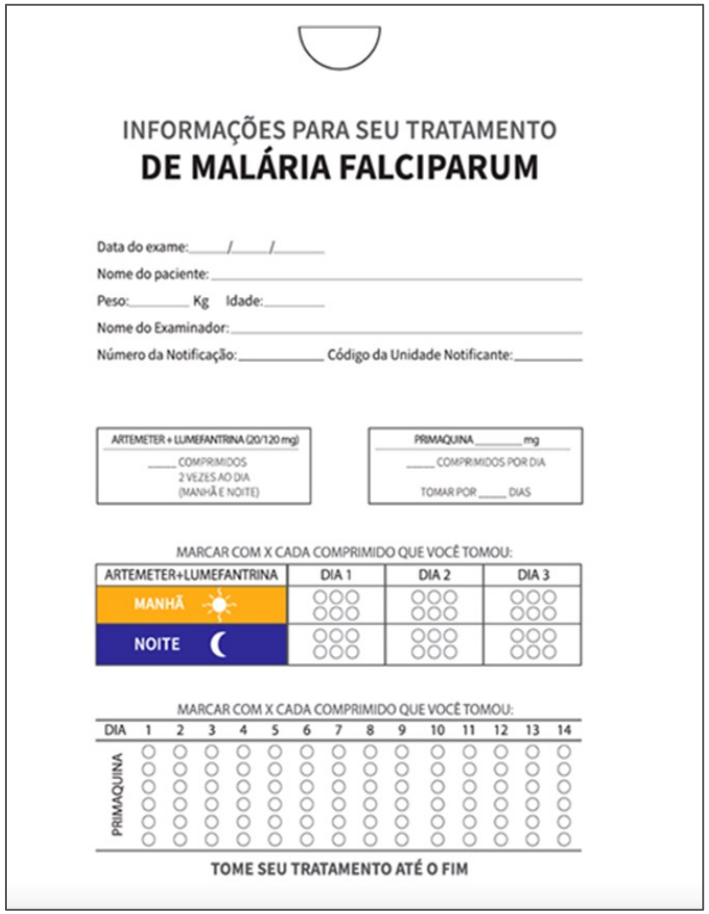
Advancing the Big Idea

- We designed Treatment Adherence Handouts to show how the parasites are eliminated from the body when persons fully adhere to their treatment
- Testers started using the cards to explain the treatment regimen. Miners became familiar with them



Learning from Stakeholders

- Held discussions on repackaging medications with other MOH Departments, partners and donor
- Met with the Guyana Food and Drug Department and the Materials Management Unit to understand the feasibility and sustainability of repackaging malaria tablets
- Met with PAHO/WHO who piloted a similar intervention in Brazil



INFORMAÇÕES PARA SEU TRATAMENTO
DE MALÁRIA FALCIPARUM

Data do exame: ____/____/____
Nome do paciente: _____
Peso: _____ Kg Idade: _____
Nome do Examinador: _____
Número da Notificação: _____ Código da Unidade Notificante: _____

ARTEMETER + LUMEFANTRINA (20/120 mg)
____ COMPRIMIDOS
2 VEZES AO DIA
(MANHÃ E NOITE)

PRIMAQUINA _____ mg
____ COMPRIMIDOS POR DIA
TOMAR POR ____ DIAS

MARCAR COM X CADA COMPRIMIDO QUE VOCÊ TOMOU:

ARTEMETER+LUMEFANTRINA	DIA 1	DIA 2	DIA 3
MANHÃ	○○○ ○○○	○○○ ○○○	○○○ ○○○
NOITE	○○○ ○○○	○○○ ○○○	○○○ ○○○

MARCAR COM X CADA COMPRIMIDO QUE VOCÊ TOMOU:

DIA	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PRIMAQUINA	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○	○	○	○	○	○	○	○	○	○	○	○	○	○
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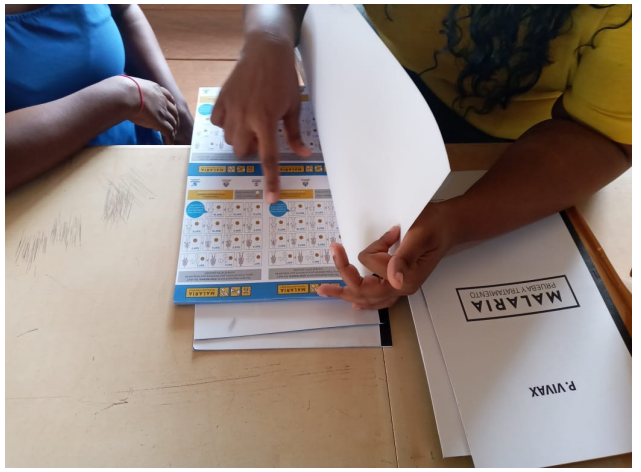
TOME SEU TRATAMENTO ATÉ O FIM

Design Requirements for the Prototype

- Visually illustrate instructions for taking malaria treatment
- Show how parasites are eliminated from the body after completing treatment
- Weather-resistant packaging that can be easily transported in the hinterland regions

Key Results

- Medications could not be de-blistered or removed from their primary packaging for pharmacologic integrity reasons
- Cost analyses further eliminated certain prototypes
- Miners and testers felt the envelopes were durable, understandable and would improve adherence



Pilot of Redesigned Packaging

- The envelopes were piloted with 23 miners and 17 volunteer malaria testers in the hinterland regions

- The final prototype for testing consisted of three water-resistant envelopes visualizing the treatment regimen and diminishing parasites in the body for *P. falciparum*, *P. vivax*, and mixed malaria infection

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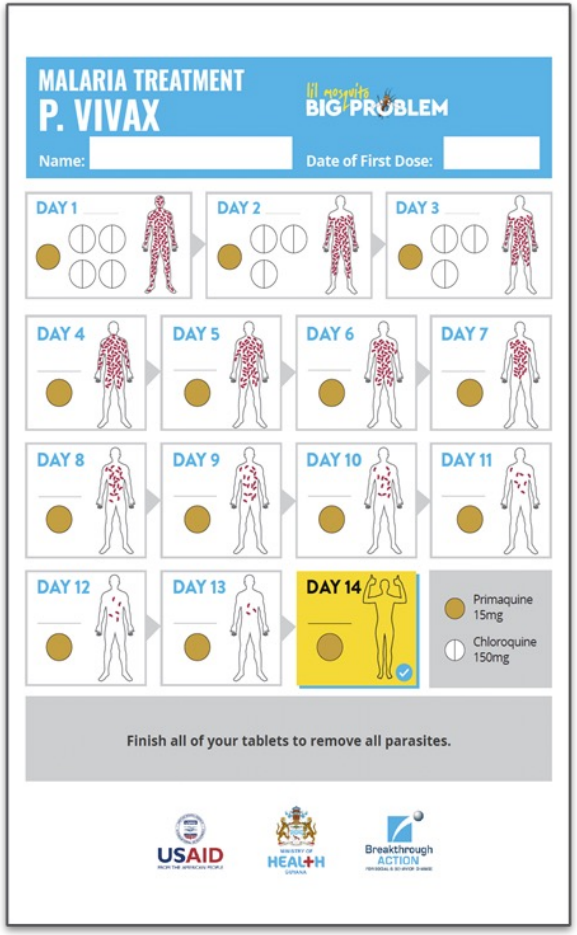
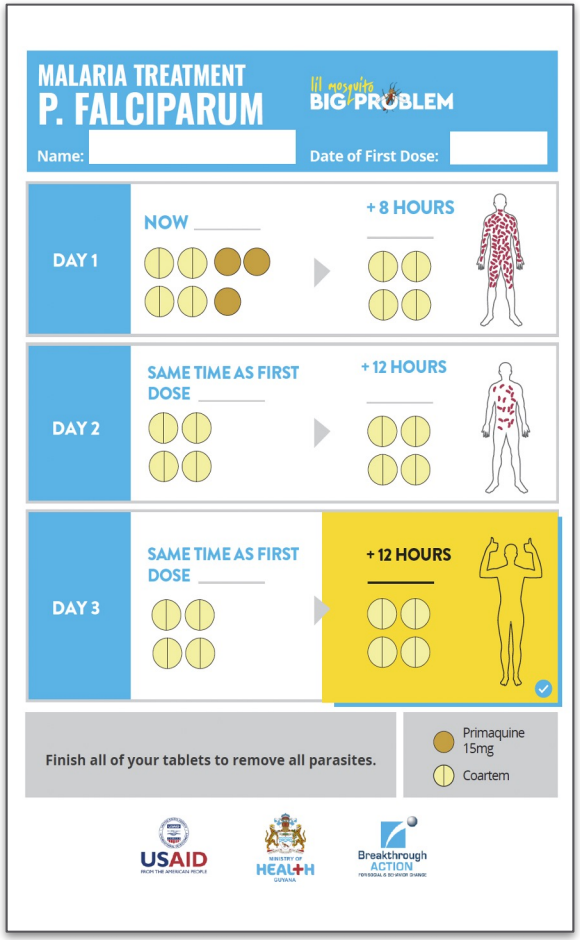
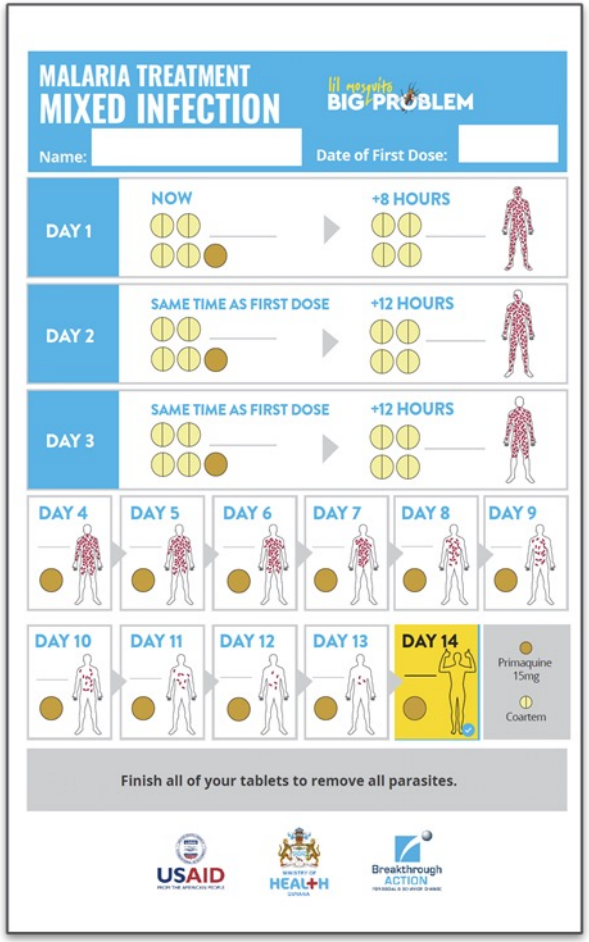
The Final Solution







The Final Solution

Conclusion

- Envelopes have successfully simplified complicated treatment regimens, increased awareness that malaria can be cured, and motivated adherence among miners
- Multi-sectoral and international collaboration was critical to ensure viable repackaging
- The MoH has commenced dissemination of the envelopes
- Monitoring is being conducted to gain further insights from implementation

Implications for the Field

- Using human-centered design processes to conduct formative research expanded our thinking and creativity in finding potential solutions to improve malaria treatment adherence and simplify treatment packaging that would resonate with our audience
- Understanding the feasibility and sustainability of this intervention before designing is critical to ensuring its future success
- Digital technology, including Zoom and WhatsApp, allowed us to discuss the designs with regional Vector Control staff who work closely with miners and testers and provided invaluable feedback on various prototypes
- Bringing together stakeholders from multiple sectors helped ensure a broad range of perspectives were brought to this shared challenge, and their involvement in the design and implementation was critical

Thank You

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