



Lil Mosquito, Big Problem Campaign: Phase I

► Introduction

Formative research conducted by Breakthrough ACTION and stakeholders early in the project showed that gold miners working in the interior and hard-to-reach regions of Guyana viewed malaria as routine and commonplace. They believed that getting malaria “in the bush” was inevitable and not a significant concern when it happened. They also considered life in these areas to be inherently risky; work in the mines was dangerous, and the health risks posed by the job outweighed those of malaria. Breakthrough ACTION used this insight to co-create the Lil Mosquito, Big Problem (LMBP) social and behavior change (SBC) campaign for mining communities in the malaria-endemic hinterland regions of Guyana, with a focus on Regions 7 and 8. The campaign was designed using a human-centered design (HCD) approach that engaged the Ministry of Health (MOH), mining organizations, and miners every step of the way.



► Interventions

LMBP is a multi-channelled, evidenced-based SBC campaign to increase malaria risk perception, while simultaneously increasing miners’ confidence in their ability to practice recommended malaria behaviors. The campaign used a highly visual low-literacy approach to increase the proportion of gold miners perceiving themselves to be at risk of malaria, testing for malaria within 24 hours of experiencing symptoms, completing MOH-approved treatment, and sleeping under a long-lasting insecticide-treated net (LLIN) every night. The campaign used a mix of animated characters (mainly “Mike the Miner”), live actors, and real miners in the local mining context to appeal and relate to the intended audience. The LMBP materials carried a campaign logo, brand colors (blue, yellow, and white), and a slogan. The materials were first piloted early in 2019 and then brought to scale later that year. The campaign, which ran from 2019–2024, used the following channels to communicate with the intended audience:

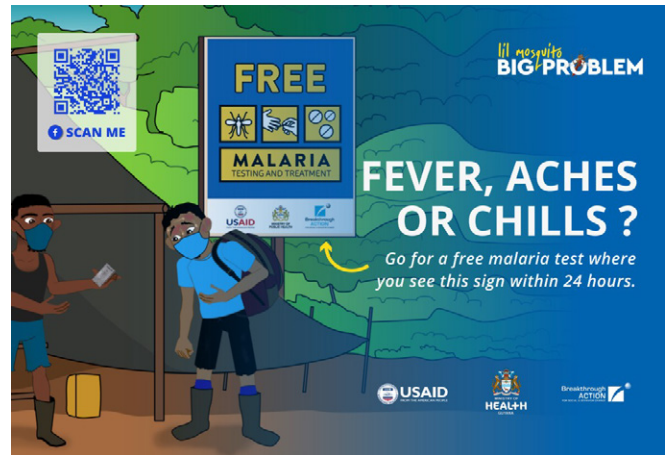
“Jungle Feevah” radio serial drama: This eight-episode, entertainment-education mini-series served as the original centerpiece for the LMBP campaign and the lead-in for several other products. The mini-series had both animated

and radio versions that dove into the life of the fictional miner, Mike, and his work in the mines, his interactions with fellow miners, his relationship with his family, and his experience with malaria.

Campaign theme song and music video: “Big Problems Coming” is a Soca song performed by Brandon Harding, a popular Guyanese artist. The catchy song uses phrases from the local dialect to position the little mosquito as a big problem that can transmit malaria but can be addressed through testing and full adherence to treatment following a positive test. Breakthrough ACTION produced an animated music video to accompany the song and illustrate its key messages.

Radio spots: Four radio spots featuring conversations between miners or between miners and their partners elevated the seriousness of malaria in mining areas and encouraged prompt care-seeking, adherence to treatment, and correct and consistent LLIN use. The spots addressed behavioral barriers identified during the HCD research, such as the concern that using an LLIN can cause a rash and the tendency to stop taking treatment once symptoms start to go away.

Live actor TV spots: Two types of video-recorded live actor spots (one-minute each) were used to promote malaria prevention, testing, and treatment messages on social media and television. Some featured real-life gold miners sharing their experience with malaria and steps they took to prevent and/or overcome the disease. Others used performance actors who employed Guyanese Creole and humor to highlight issues such as how to obtain and maintain an LLIN; the importance of getting tested as soon as symptoms such as fever, headache, joint pains, or vomiting appear; and the importance of adhering to the MOH-approved treatment.



Facebook page: The LMBP Facebook page initially presented posts from the perspective of the fictional miner Mike detailing his experience with malaria and giving advice on malaria prevention, testing, and treatment adherence. Based on feedback from miners during monitoring visits, Breakthrough ACTION subsequently used the page as a platform to share materials related to the LMBP campaign, disseminate malaria-related information, and spotlight real-life malaria champions in the regions. During the height of the COVID-19 pandemic, Breakthrough ACTION integrated subtle COVID-19 prevention messages into the social media content. For instance, the characters wore masks to cover their mouth and nose.

DVDs: A package of audio-visual materials, including the theme song, “Jungle Feevah” animated miniseries, and four radio spots were placed on DVDs and distributed to





Errol Alphonso
Gold Miner/ Trained Volunteer Malaria Tester

mining camps, local restaurants, shops, and other public places. Given the very limited internet access in these areas, providing the audio-visual materials in a digital format was essential to expanding reach.

Banners/billboards: Banners highlighting prompt care-seeking were initially mounted on fences at ports of entry (airstrips, boat landings), health facilities, and highly trafficked junctions by project and/or MOH staff. Later, they were placed in wooden frames as billboards to improve their durability. The content was provided in English, Spanish, and Portuguese.

Road signs: Road signs were placed near tester locations, which were previously poorly or not identified, to promote testing and treatment sites throughout Regions 7 and 8.

Brochures: “Malaria: What You Should Know” bi-fold brochures used simple language and illustrations to describe how malaria is transmitted; highlight malaria symptoms; outline when and where people should go for a malaria test and why they should complete their treatment; show the benefits of LLINs; and explain how to care for their nets. Developed in English, Spanish, and Portuguese, the brochures were primarily distributed to health facilities and formal mining camps and displayed in waiting and dining areas. Community members could also obtain the brochures at community talks by malaria community groups that were formed as a part of an MOH initiative. MOH field staff replenished supplies of brochures during follow-up visits.

Posters: The colorful posters promoted prompt care-seeking, treatment adherence, and LLINs. Posters in English, Spanish, and Portuguese were distributed to mining camps, testing locations, health facilities, restaurants, hotels, and transportation hubs. The posters were produced in vinyl material to withstand exposure to weather and environmental conditions in the interior.

Branded flash drives: Breakthrough ACTION integrated popular music with malaria messages by influential DJs on flash drives branded with the LMBP logo. The MOH and project staff distributed the flash drives to bars and shops in mining communities and transportation providers that traverse interior locations.



► Results

Breakthrough ACTION conducted a rigorous mixed-methods, theory-based evaluation of the project to assess the reach and behavioral impact of its SBC activities. Cross-sectional quantitative surveys conducted in 2019 and 2022—pre- and post-intervention, respectively—measured key results from the project’s two primary interventions: (1) the LMBP campaign, and (2) support to the volunteer malaria tester (VMT) program. Breakthrough ACTION also conducted qualitative interviews with 19 VMTs, regional Vector Control Services/National Malaria Programme (VCS/NMP) supervisors, mining camp managers, and VCS/NMP staff in Regions 7, 8, and 4 in 2022. Key findings included the following:



I think the radio initiative was good because radio is mostly used in the interior. There’s a lot of radio usage, and to be honest, every time we go in the interior, at some point in time, wherever we are, we hear it. We hear a Little Mosquito, Big Problem. We hear the ads; we hear the different drama. Sometimes you go in the backdam, and you find persons who have taped it.



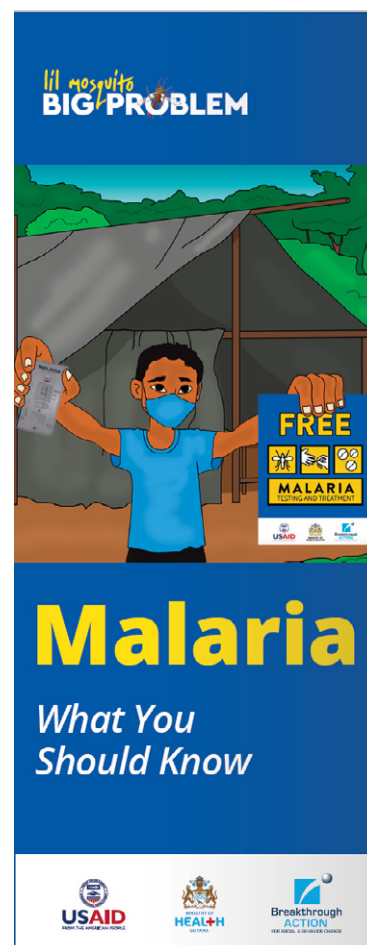
I like that they have done is actually use real-life scenarios in the radio ... the video and posters on the radio and the video shows you can see and hear what are the effects of actually contracting malaria. Also, you can hear what are the effects of not using the treatment or not going to see a tester.... that’s why I love it and I know the testers love it as well.

- Qualitative interview participants appreciated the multi-channel, mixed-material approach of the campaign, which expanded reach in remote locations. Participants also found the LMBP campaign materials both relevant and realistic. At post-test, 77% of miners recalled at least one LMBP campaign component and one-third (32%) of the miners knew about the VMT program.
- Miners exposed to both LMBP and VMT components of the program demonstrated a significantly greater mean ideational score around malaria prevention, testing, and treatment than those who were exposed to either one of the two components (LMBP or VMT) or those exposed to neither intervention.
- Five LLIN-related ideational factors showed statistically significant improvement from pre- to post-intervention:
 - Miners reporting knowledge of ways to prevent malaria increased from 35% to 39% ($P \leq 0.05$).

- Miners who reported discussing malaria prevention with others increased from 18% to 22% ($P \leq 0.05$).
 - Miners who stated they know where to get a free LLIN if they need one increased from 65% to 71% ($P \leq 0.001$).
 - Miners who perceived that other miners own an LLIN increased from 48% to 61% ($P \leq 0.001$).
 - Miners who believed that LLINs are effective for preventing malaria increased from 59% to 72% ($P \leq 0.001$).
- Two ideational factors related to prompt care-seeking were significantly higher in the 2022 post-intervention survey:
 - Knowledge of causes and symptoms of malaria increased from 35% to 39% ($P \leq 0.05$).
 - Miners' confidence in VMTs' ability to test and treat for malaria (perceived response efficacy) increased from 51% to 58% ($P \leq 0.001$).
- After controlling for miners' socio-demographics and their mining context, miners with higher ideation scores were:
 - 1.4 times more likely to use LLINs ($P \leq 0.001$).
 - 2.2 times more likely to report prompt care-seeking behavior ($P \leq 0.05$) behaviors.
- Certain behaviors also showed a statistically significant increase between pre- and post-intervention:
 - Ownership of an LLIN among miners increased from 41% in 2019 to 48% in 2022 ($P \leq 0.05$).
 - Miners with fever who promptly sought care increased from 37% to 48% ($P \leq 0.001$).
 - Miners with fever who sought a test for malaria increased from 47% to 58% ($P \leq 0.01$).

▶ Lessons Learned

- **Immersive discovery interviews and “listening to learn” yielded deep contextual and behavioral insights that shaped the strategic direction of the campaign.** Breakthrough ACTION's HCD approach involved extensive qualitative and observational research with miners, VMTs, mining camp managers, and others in small, mid-size, and large mining camps, at landing sites, and in other in situ locations in the interior, allowing the design team to experience first-hand the challenges of living and working in the backdam. This enabled the design team to better empathize with the audience and accurately reflect their daily life in the campaign executions, from depictions of sleeping spaces to use of local dialect and leisure activities. These conversations with the end users also shed light on important social and behavioral determinants influencing malaria testing, treatment, and prevention, such as the high perceived susceptibility and low perceived severity of malaria infection that resulted in the name of the campaign.
- **Multi-purpose field visits conducted jointly with regional VCS/NMP provided invaluable opportunities to monitor implementation and adjust the campaign accordingly.** From these field visits, the team learned that TV spots that featured real miners and humor appealed greatly to the priority audience. While the campaign initially utilized an animated approach, pivoting to TV spots that featured real people resonated with miners since they enjoyed seeing themselves or people they knew, and were more likely to engage with social media content. The field visits also provided practical opportunities to identify and replace posters and road signs that had become defaced or damaged and to resupply VMTs with treatment adherence envelopes and other SBC materials.
- **Effectively reaching gold-mining populations in the hinterland regions requires innovative dissemination strategies.** Gold miners do not follow a “typical” schedule or have easy access to traditional forms of media. They are often in the mining pit by 6:00 am and stay there until 6:00 pm. This informed Breakthrough ACTION Guyana's media scheduling; the project



needed to broadcast radio and television spots very early or very late in order to reach the intended audience. While Breakthrough ACTION maintained a baseline level of radio/TV presence, it also evolved its media strategy to place ads during popular sporting events, such as the Caribbean and Indian Premier League cricket tournaments and the Olympics, which were widely viewed by miners. Print materials had to be durable in order to remain intact; for instance, the project shifted from paper-based posters and banners to vinyl ones owing to the heat, rain, and dust common in the mining camps. Other print materials were laminated and/or UV-protected. The distribution of the campaign song and radio spots interspersed with popular music via flash drive was one of the most widely appreciated dissemination channels.



- Merging malaria topics with other health and entertainment content helps keep the campaign content fresh and interesting.** Continuously generating novel content for one vertical health area was a challenge for Breakthrough ACTION early in the project. Knowing that message fatigue is likely if content is overly repetitive, Breakthrough ACTION embraced the challenge of developing content that was unique and engaging, while striking a balance in tone that was simultaneously serious and humorous, informal yet trustworthy. The project utilized several approaches to develop varied content, such as the inclusion of non-health-related stories about life in the mines, the modeling of COVID-19 prevention behaviors through portrayals of animated characters wearing face masks, addressing malaria myths and misconceptions that were captured during field visits, capitalizing on popular music and DJs to share malaria content, and using special days/periods such as Mosquito Awareness Week, World Malaria Day, and Malaria Day in the Americas to highlight progress and promote calls to action for malaria elimination. Mining communities expressed interest in learning more about other health topics, such as HIV, dengue, typhoid, and mental health. Future SBC efforts could consider a fully integrated health approach that looks holistically at the top health concerns of the intended audience.
- Seasonality influences implementation.** While malaria is present year-round, it is more prevalent during and immediately after rainy season. Breakthrough ACTION designed its activities to take this seasonality into account, implementing high-intensity media buys during this time and running “maintenance-level” broadcasts at other points in the year. As rainy season is no longer highly predictable, scheduling required some flexibility. Additionally, travel to the interior during/immediately after rainy season was extremely difficult. The project did its best to ensure dissemination of any physical materials to the mining regions in advance of the rains. The team also learned that the TV signal from the only cable company that reaches the hinterland is less reliable during the rainy season. Therefore, the project extended media buys for some period prior to and after the rainy season.

- **The LMBP SBC campaign is reliant on the accompanying service delivery infrastructure to succeed.** Where SBC generates demand, the appropriate “supply-side” service delivery mechanisms must also be in place to meet this demand. The service delivery complement to the LMBP SBC campaign was the strategic placement and replacement of VMTs to provide free malaria diagnostic and treatment services. Thus, needs included on-going training, supportive supervision, and restocking of malaria commodities and supplies. Miners are a highly mobile, transient population, however, which meant that there was high turnover of VMTs and frequent gaps in services. Additionally, regional VCS/NMP resource constraints hindered their ability to rapidly recruit and train replacement VMTs and ensure a continuous supply of rapid diagnostic tests, treatment, reporting forms, and other necessary supplies for VMTs. This fragile service delivery infrastructure was a significant challenge for the SBC campaign. In the future, the VCS/NMP will need to take on supervisory visits. Hopefully, partnerships with the private sector through the Memorandum of Cooperation and strategic advocacy efforts for increased resources following the SMART advocacy training will help to strengthen the malaria service delivery infrastructure.



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