Communication Strategy for Malaria Control

Co-operative Republic of Guyana

2014-2016

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Foreword

In many ways effective communication is crucial for all public health professionals, and is particularly important for malaria control professionals. Effective communication with policy makers ensures that policy decisions are evidence-based and tailored to the needs of specific populations. This document provides action items to be led by Guyana's Vector Control Services (VCS). It should serve as a roadmap to guide all VCS managers and specialists in communication activities for malaria prevention and control. This guiding document makes recommendations and provides tools to assist public health professionals in Guyana to advance their work by effectively using existing networks, the media, and messaging to strengthen approaches for the implementation of integrated and sustained malaria prevention and control activities. It identifies strategic approaches to put malaria on the national political agenda, as well as reach affected populations with specific calls to action. At this time, malaria control efforts should be strengthened through communication, collaboration, and mobilization, to ensure sustained efforts to reduce the national malaria burden for years to come.

Operating within the Ministry of Health, the staff of Guyana's VCS is the intended audience for this document in order that they be empowered to implement communication strategies that reinforce the broader objectives of the national malaria control strategy. Capable and committed human assets who can perform the actions necessary to achieve results are fundamental to effective communication. This communication strategy outlines some of the human and other assets (e.g. time, materials, communication channels, public events on the horizon) that may be harnessed in the communication process, including those that are external to VCS.

What Does it Mean to Become an Effective Communicator and Advocate for Malaria Control?

Stewardship in health entails effective advocacy and good communication. Advocates may come from any segment of society. How they support their issue or cause depends on their official or unofficial roles: private citizens can speak out in favor of an issue, promote it among their peers, and call upon elected officials to pay more attention to it; elected officials and the news media can speak on behalf of private citizens; government appointees may represent the official policy on the issue; and public opinion leaders can persuade private citizens, provide third-party validation of the cause, or criticize the government's position on the issue. Attitude-shifting activities can be carried out among community members, religious leaders, and health professionals before communication for policy change begins in earnest.

These activities use facts or emotional appeals to lay the groundwork and ensure that a critical mass of society is aware of and supports the issue at hand. Subsequently, advocates can leverage this critical mass to intervene in public policy through various tools (such as TV or radio shows, public gatherings, petitions, hearings and spontaneous media coverage, meetings, etc.) in order to influence priority-setting. Strategic engagement in communication activities makes it possible to change the way an issue such as malaria is viewed by decision-makers, as well as to achieve a specific policy approach that is in the public interest. On behalf of health consumers, VCS staff should use evidence-based information to promote changes in policy and practice to lead Guyana towards the implementation of important measures for preventing the spread of infectious diseases. In the context of Guyana's participation in the Amazon Malaria Initiative (AMI) and the Amazon Network for the Surveillance of Antimalarial Drug Resistance (AMI/RAVREDA), it is important that VCS staff help to incorporate practices such as the three-level approach to medicine quality control, a set of standard operating procedures for pharmaceutical supply chain management, proper diagnosis and treatment of malaria, and appropriate methodologies for ongoing disease surveillance.

VCS staff should become public health advocates on behalf of the population that benefits from VCS' activities by using the evidence base for malaria control to create a more inclusive and better-informed

policy process. Effective communication of VCS' malaria control mission to target audiences can pave the way for the institutionalization and sustainment of malaria prevention and control efforts in Guyana for generations to come.

Essential Elements of Health Communication

- Clear objectives
- Knowledge and information about the topic
- Understanding of the environment and knowledge of historical and cultural dimensions
- Ability to operate within networks
- Feasible strategy
- Excellent communication skills

Current Status of Malaria Control in Guyana

Malaria control efforts are presently concentrated in Guyana's endemic regions, which are 1 (Barima-Waini), 7 (Cuyuni-Mazruni), 8 (Potaro-Siparuni), and 9 (Upper Takutu-Upper Essequibo). Prevention and control interventions consist of epidemiological surveillance, monitoring of resistance to antimalarial drugs, distribution of insecticide-treated mosquito nets (ITNs), vector surveillance and indoor residual spraying (IRS), improvement of access to diagnosis and treatment, training and refresher courses on microscopic analysis techniques, introduction of rapid diagnostic tests (RDTs) for malaria where needed, pharmaceutical management performance improvement, quality assurance and control of pharmaceuticals and other supplies, as well as quality assurance of diagnosis and treatment.

After the achievement of a significant decline in the total number of cases of malaria in the early 2000s as compared to the 1990s, Guyana's total number of cases of malaria subsequently increased between 2007 and 2012. The total number of cases remained relatively stable from 2012 to 2013. VCS has pointed out the close correlation between the intensification of mining activities in the hinterlands, particularly in gold mining, and the increase in malaria incidence from 2007 to the present. The remoteness of mining camps and conditions that are conducive to the breeding of the main malaria vector are generally considered the main reasons for the elevated malaria risk associated with mining. Population mobility is an additional determinant that has made proper diagnosis, treatment and tracking difficult; along with internal migration, a recent influx of Brazilian and Chinese nationals into the mining areas has been observed. Given the high level of investment and important revenue generated by the mining sector in the Guyanese economy, mining is likely to continue for the foreseeable future, presenting a significant challenge for malaria control. A similar situation exists related to the logging industry.

Elevated malaria incidence coupled with the remoteness of mining areas has led to a high demand for antimalarial medicines in the informal private sector. Self-diagnosis and self-treatment is the norm among people working in these conditions. Mine workers tend to obtain medicines from the foremen of the mining operations or private shop owners who sell over-the-counter drugs such as Artecom. The use of Artecom and other non-approved medicines are widespread in endemic regions, presumably because individuals are desperate to access medicines when they fall ill and cannot or will not take the time away from mining to be treated. Dosing and completion of treatment is highly irregular, given the lack of correct information in remote regions about which medicines to use, how to obtain them, and how to use them properly. People in hinterland regions may be unaware of the importance of completing all doses with the correct medicines in order to avoid reduced efficacy of medicines used to treat malaria.

Mobile malaria control teams from central VCS go directly to mining and logging camps to control the vector population, diagnose, treat, and eliminate disease reservoirs for malaria. Professionals from VCS

in Georgetown, joined by regional teams of VCS staff based in health facilities in the field, travel to mining and logging camps equipped with all materials needed for diagnosis, including microscopes, and treatment with the correct antimalarial medicines. Teams also perform field-based mass blood surveys and fever case surveys (active detection using blood smear analysis). The periodicity of this field work is approximately every three months, for 6-8 weeks at a time. The Ministry of Health and the Global Fund (GFATM) provide the resources for this work in hard-to-reach areas. As of July 2014, Guyana had procured Rapid Diagnostic Tests (RDTs) based on PAHO/WHO guidelines disseminated during the 2013 Annual AMI/RAVREDA Evaluation Meeting in Peru, and plans to begin initial roll-out by local staff in two of its endemic regions, 7 and 8, where microscopic analysis is unavailable (PAHO 2014).

There is currently a Malaria Information System that runs on Epi Info software at the central VCS office. Nonetheless, VCS lacks real-time data, because reports with data collected from the regions take months to reach central VCS and in some cases data is not transferred to central VCS from the field at all. As a result, interventions are planned using old data from past epidemiological scenarios. VCS seeks to improve this state of affairs by implementing improved information and communication technologies to detect malaria outbreaks early on in order to take action to control or prevent emerging epidemics. It is hoped that a tool will be developed to improve the recording of infection sites. A feasibility study will be conducted in 2014-2015 to evaluate the potential scale-up of the use of mobile technology to improve disease surveillance, with GFATM, GT&T, and the Gold and Diamond Miners Association as partners.

Where external quality control is concerned, VCS recognizes room for improvement at different levels towards ensuring that when thick blood slides are taken from the hinterland regions of the country, they are checked twice by staff working locally and then sent to central VCS. In the future, VCS would like to implement polymerase chain reaction (PCR) as a main diagnosis method to improve accuracy of diagnosis.

The stability of qualified human resources is a persistent problem within VCS. Although there is a core group of highly qualified, highly experienced staff, when individuals retire it is difficult to find and train replacements. The same situation has repercussions in terms of communication for malaria control. The VCS director occasionally gives interviews to the Government Information Agency. However, VCS currently lacks a specific person who is trained as a spokesperson for malaria control communication and/or social mobilization. In terms of development of information, education and communication (IEC) collateral materials, VCS largely relies on the Pan American Health Organization (PAHO). Medical school students have also been enlisted to contribute to materials development for VCS.

In addition to the mining, logging, and related populations, VCS recognizes the importance of reaching young people with messages about malaria prevention and control. Whereas they are the next generation, it is important that school-aged children be aware of the risk of malaria and specific actions that can be taken to address this challenge in the future. While some schools have set up malaria health clubs and committees in the past and a few still exist, it has been challenging to maintain the momentum for them to continue. Many such groups have become inactive. In the meantime, VCS does not currently have direct programmes to engage with schools.

VCS sometimes collaborates with professionals from other areas in the Ministry of Health, especially those working with other communicable diseases such as TB and HIV, as well as maternal and child health. As for other government ministries, VCS coordinates with the Ministry of Amerindian Affairs, which facilitates work with Guyana's Amerindian peoples in endemic regions, and the Geology and Mines Commission, which regulates mining activities throughout the country. To a lesser extent, VCS interfaces with the Ministry of Natural Resources and the Environment and the Ministry of Education.

While limited, some collaboration occurs with the private for-profit sector and with non-governmental

organizations (NGOs). The Gold and Diamond Miners Association has supported a few VCS activities with more actions being planned, and VCS has engaged with the Forest Products Association. These budding strategic alliances are important in light of the presumptive correlation between mining and logging activities and malaria in the hinterland regions. In addition, VCS has established a relationship with the international NGO Food for Peace, which has provided some materials (e.g. morphine, basic medicines), but not antimalarials or bednets. VCS has begun working with the Red Cross in 2014.

General Malaria Control Objectives

Specific short-term efforts for communication and advocacy usually support a long-term vision. In the case of Guyana's VCS, the main objectives for malaria control are to:

- Promote early and reliable malaria diagnosis through the provision of diagnostic services to all suspected cases of malaria in the affected areas, with the use of microscopy, or appropriate technologies such as rapid diagnostic tests (RDTs) in areas where microscopy is unavailable.
- Increase use of appropriate, effective treatment.
- Plan and implement selective and sustainable preventative measures.
- Detect malaria early to control or prevent epidemics.
- Strengthen local capacity.
- Prevent the re-introduction of malaria to areas where it was eliminated, including the coastland.

Specific Communication Objectives

- Promote malaria prevention and control through improved institutional communication, outreach, and community mobilization.
- Present AMI/RAVREDA's evidence-base and recommended practices to policymakers to guide the development of long-term policies and budgets for malaria prevention and control.
- Increase the visibility of malaria in Guyana:
    - Raise awareness among mining populations and stable populations in endemic regions about the dangers of improper antimalarial medicine use. Warn health care consumers of the dangers of purchasing antimalarial medicines without a prescription.
    - Raise awareness about malaria among the next generation of Guyanese and promote preventive behaviors.
    - Raise awareness about malaria among key decision makers in Georgetown to increase their understanding of the continuing importance of disease surveillance, diagnosis, and treatment.
- Engage NGOs, the private sector, and schools as partners in sustainable, community-based malaria prevention and control.

Intermediate Communication Objectives Necessary to Obtain Results

- Identify or introduce human assets essential to completing the short and long-term goals of the strategy.
- Equip human assets of VCS and/or its local allies with the tools and knowledge about communication and advocacy to effectively promote malaria prevention and control among the target audiences.

Key Messages by Target Audience

- For everyone:
    - Sleeping under a bed net treated with insecticide can help prevent malaria.
    - It is important to be diagnosed by a physician, nurse, or health worker as soon as you think you might have malaria.
    - The correct medicines to cure malaria are chloroquine and primaquine or ACTs (Coartem). Once you have a prescription, you can get these medicines for free at the nearest public health facility.

- For miners and other mobile populations (i.e. loggers, sex workers, cooks):
    - It is important to be diagnosed with a blood test (microscopy or RDT) if you think you have malaria, because the type of malaria you have determines what medicine you must take to be sure that the malaria will be cured.
    - RDTs are available to diagnose malaria in Regions 7 and 8.
    - Over-the-counter antimalarial medicines such as Artecom are harmful to you and others. This is because they are not as effective at treating malaria as chloroquine and primaquine, and ACTs, which are medicines that you can get for free at public health facilities if you have a prescription.
    - Artecom and other over-the-counter medicines do not cure malaria. Malaria can still be transmitted to other people when mosquitoes bite you and then bite others around you.
    - Once you have gotten chloroquine and primaquine or ACTs (brand name: Coartem) to treat malaria, it is important to finish all of the medicine at the correct times. Do not save some of the medicine for later. If you do not take it all, the malaria can come back.

- For indigenous and riverine populations in endemic regions:
    - It is important to see a community health worker to get diagnosed as soon as you think that you might have malaria.
    - Once you have gotten chloroquine and primaquine or ACTs (brand name: Coartem) to cure malaria, it is important to finish all of the medicine at the correct times. You will not be cured if you save some of the medicine for later.

- For private shop owners and pharmacy workers who dispense over-the-counter antimalarial medicines, especially Artecom:
    - It is important to diagnose all suspected cases of malaria with microscopy or RDTs, because different types of malaria infection must be treated with different medicines.
    - Over-the-counter medicines like Artecom are not approved to treat malaria, because they do not work as well as the official medicines, chloroquine and primaquine and ACTs (i.e. Coartem).
    - The sale of Artecom and other over-the-counter medicines is harmful because these medicines do not cure malaria. They may suppress the symptoms, but the malaria parasite is still present. Customers' use of these medicines allows malaria parasites to develop resistance, making malaria more difficult to cure.

- For school-aged children throughout Guyana:
    - Malaria is a serious disease that is carried from person to person by infected mosquitoes. The main symptoms are fever and fatigue.
    - Malaria can be prevented, and it can also be treated.

    - Sleeping under a mosquito net treated with insecticide during the rainy season is an important way to help prevent malaria. When the mosquito net is used correctly, mosquitoes will not enter.

- For government decision-makers and opinion leaders:
    - Routine surveillance is important to avoid reemergence of malaria in the long-run.
    - Routine monitoring of medicine quality is important to prevent or contain antimalarial drug resistance.
    - Improvements are needed to provide universal access to diagnosis and treatment in the hinterlands regions.

Expected Results

The expected results of communication and advocacy for malaria control are:

- Increased awareness among target populations about the dangers of malaria and proper prevention, diagnosis, and treatment.
- Reduced demand for non-approved, over-the-counter antimalarial medicines such as Artecom.
- Reduced supply of non-approved, over-the-counter antimalarial medicines such as Artecom.
- Stronger communication across different government entities occurs with greater frequency.
- Strengthened support base for malaria control through the formation of partnerships and coalitions with associations, researchers and academic institutions, NGOs, the private sector, cooperation agencies, and other stakeholders.
- Increased human and financial resources for malaria control through establishment of Programme activities together with NGOs and private companies.
- Strengthened information sharing with other Guyana Shield countries.

Communication and Fact-Based Advocacy Activities for Malaria Control

A – Disseminate new agreements and technical guidelines related to malaria control to all levels of the national health system in order to ensure that such arrangements are institutionalized as policy and implemented in practice.

Supporting actions:

1 – Provide information and give interviews to the Government Information Agency to disseminate new agreements or guidelines for malaria control via official bulletins. This dissemination channel offers the added possibility of being carried by the news media.

2 – Make malaria treatment guidelines and other protocol available for download from the Ministry of Health website, under VCS. If not possible, establish a Facebook group for the purpose of document sharing.

3 - Hold workshops to train VCS staff and community health workers in endemic regions about new guidelines and practices. Distribute informational materials to serve as reminders of what was learned.

4 - Train health professionals throughout the country in malaria diagnosis to improve the identification of symptoms, including in regions without disease transmission (e.g. coastland). Also, consider holding

trainings for the faculty of health sciences at the University of Guyana and cohorts of medical school students.

B – Present VCS' malaria control work to different levels of government to raise awareness, ensure alignment, and solicit ongoing support.

Supporting actions:

1 – Maintain regular communication (in-person and by phone, email) with both the Materials Management Unit (MMU) and the National Public Health Reference Laboratory to ensure the coordination of activities.

2 – Meet at least quarterly with the Guyana Geology and Mines Commission, to share epidemiological information and find mutually beneficial solutions to challenges in mining areas. Maintain in-person, phone, and email contact.

3 – Take advantage of mobile teams' travel from central VCS to the endemic regions to schedule meetings with Regional Democratic Councils and toshaos in villages with elevated malaria transmission regarding malaria control efforts. This will help to raise awareness, establish trust, and secure their commitment to local malaria control activities.

4 – Schedule visits for elected officials and opinion leaders to see firsthand the activities being undertaken by VCS in order to advocate for the importance of malaria control work. Take the opportunity to introduce visitors to VCS staff and Programme beneficiaries to show the meaning and impact of VCS' work. Invite journalists to accompany these visits.

5 – Schedule an onsite presentation of VCS' malaria control work for other Ministry of Health staff who work in maternal and child health, other communicable diseases such as TB and HIV, adult, adolescent, and childhood illness, and the CFO's office. Discuss areas of overlap with other health service delivery.

6 – Send emails about World Malaria Day, Malaria Day in the Americas, and other malaria awareness events to Ministry staff working on related health topics. Invite their participation.

7 – Seek international recognition by submitting a nomination form (available on the PAHO website) for VCS to be considered as a Malaria Champions of the Americas finalist, with a webcast awards ceremony held at PAHO headquarters in Washington, DC on Malaria Day in the Americas.

C – Provide accessible information to improve decision-makers' ability to understand the importance of the malaria control, by distributing policy briefs that link to full technical reports.

Supporting actions:

1 – Send information about VCS' malaria control activities and international cooperation via AMI/RAVREDA to the Government Information Agency for inclusion in official bulletins. Besides reaching decision-makers directly, the Government Information Agency offers the added possibility of being carried by the news media, which helps raise awareness and visibility of malaria (see number 4, below).

2 – Make presentations and policy briefs available for download via the Ministry of Health website. Whenever possible, use high quality photographs to help illustrate the point that malaria control improves and saves lives.

3 – Send policy briefs and reports to national information centres, universities, and health committee members in parliament.

4 – Choose a reliable, well-known communication outlet and provide personal stories on the improvement of health conditions in regions where malaria is well controlled, or where gaps in service delivery remain. Consider holding informal meetings with journalists, and provide them with valuable, fact-based information. Notify the media of specific outreach events, levels of malaria risk, and VCS achievements; strategic dates can be used for the communication of basic facts about malaria at times when a critical mass of people will be exchanging relevant information. Such dates include World Malaria Day and Malaria Day in the Americas (see Figure 1, below).

Figure 1. Coordinated Timing of Malaria Outreach Events

February	Mashramani "Mash" and Republic Anniversary (23)
April	World Malaria Day (25) and Lethem Rodeo (31), pre-rainy season
May	Start of rainy season in endemic regions
September	End of rainy season, period of greater mobility, Amerindian Heritage Month (celebration dates vary)
November	Malaria Day in the Americas (25)
December	Christmas (25) and New Year's Eve (31), period of greater mobility/intensified travel

D – Cooperate with evaluations carried out by Guyanese and international organizations, cooperation agencies, donors, researchers, and academic institutions.

Cooperation with outside evaluators builds the evidence base, and assessments of the VCS can serve as useful tools to demonstrate the important contributions the Programme is making in order to attract more resources to malaria control in the future.

Supporting actions:

1 – Schedule in-person or telephone interviews with evaluators.

2 – Respond to requests for information by providing available data, educational materials, copies of reports, etc.

3 – Request to receive copies of final evaluation reports.

E – Establish partnerships with the private sector to help eliminate malaria.

The best partners normally have an inherent interest in the health objective at hand, such as the benefit private companies receive from keeping the workforce healthy and/or by increasing sales. It may help to

provide information to businesses about the experiences in other countries, where private companies distributed mosquito nets or provided diagnosis and treatment.

Supporting actions:

1 – Work through the Gold and Diamond Miners Association to make owners and managers of companies in the extractive industries aware of the increased risks of malaria among their workers.

2 – Identify other private companies that could become partners in the implementation of prevention programs, such as mobile providers GT&T and Digicel.

3 – Assess gaps in available resources or human capacity and request that private sector partners fill these gaps to complement ongoing activities with VCS' target populations. Consider requesting specific support for communication activities or supplying of materials.

F – Engage with shop owners and pharmacies that sell over-the-counter antimalarial medicines to provide information and education.

Supporting actions:

1 – Develop an IEC campaign about proper diagnosis and treatment, including a warning about the risk of using non-approved over-the-counter medicines such as Artecom. Consider developing or transcreating IEC materials in different languages such as Chinese for private pharmacy and shop owners (as needed).

2 – Hold in-person informational sessions to train pharmacy and shop owners about proper use of antimalarial medicines. Leave behind additional IEC materials (brochures, etc.) to be distributed to customers.

3 – Present alternative products to be sold by these vendors in remote areas, such as RDTs and/or approved medicines; train vendors on their proper use. This will provide an alternative financial incentive for vendors to stop supplying potentially harmful over-the-counter medicines.

4 – Subsequently, perform spot checks of pharmacy and shop owners who have participated in trainings.

G– Raise awareness of proper prevention, diagnosis, and treatment among gold miners and other mobile populations.

Supporting actions:

1 – Use results of household survey sponsored by the GFATM to orient communication activities that will support improve access to proper prevention, diagnosis and treatment.

2 – Conduct specific qualitative research on the behaviors of miners and other populations in mining areas to determine best communication approaches to use. Consider innovative methods of inquiry such as key informant interviews, photo-voice, social media, etc.

3 – Design and launch an IEC/BCC campaign based on research findings, to inform about proper prevention, diagnosis, and treatment of malaria. This should include specific campaigns in Regions 7 and 8 to encourage at-risk populations to use newly-available RDTs. (Refer to key messages for this audience above.)

- Develop IEC materials that can be understood from different cultural perspectives. More than simple translation, transcreation of materials adjusts key messages based on

alternative frames of reference, and will be essential for successful social and behavior change communication. This is particularly important because of the diverse populations that travel to mining areas in Guyana's endemic regions (e.g. Patamona-speaking Amerindian peoples, Brazilian and Chinese nationals).

- Take advantage of gatherings for Mashramani in February, rodeos and other sporting events, Amerindian heritage festivities in September, as well as Christmas and New Year's to raise awareness through information booths, speakers, and performances (refer to Figure 1 above).
- Prioritize activities or materials distribution in towns that are common transit points to mining areas.

H – Establish or strengthen existing school committees and health clubs in communities in order to reach young people with messages about malaria control.

Supporting actions:

1 – Identify communities with existing health committees or clubs, and send regional VCS staff to speak with them about malaria control.

2 – Enlist the support of Community Service Officers (CSOs), Voluntary Service Officers (VSOs), US Peace Corps volunteers, and NGOs to serve as the catalysts to help establish, revive or sustain these school committees and clubs together with the schools' headmasters and parents.

3 – Work with health committees and clubs to organize specific school-based activities for students across all regions to take part in each year. Ideally, awareness days in the schools should coincide with Malaria Day in the Americas celebrated each year on November 6. Activities may include demonstration of the proper use of mosquito nets, games, and theater presentations to provide malaria education.

I – Exchange epidemiological data and other information on malaria control activities with key Guyana Shield actors and stakeholders in order to jointly address malaria in border areas and among mobile populations.

Supporting actions:

1 – Arrange meetings with relevant officials from AMI/RAVREDA partner countries in the Guyana Shield sub-region and make presentations to them about epidemiological findings and regional malaria control activities.

2 – Exchange information with Guyana Shield actors and stakeholders by sending monthly emails with national epidemiological data.

3 – Provide AMI technical partners with print-ready information that can be disseminated through the AMI website and AMI's various channels.

J – Seek partnerships with other government ministries, associations, researchers and academic institutions, the private sector, public opinion leaders, cooperation agencies, and other malaria control stakeholders.

Power increases when individual organizations come together to form a coalition around important issues. Partnerships with outside groups can be very beneficial to help fight malaria in Guyana.

Supporting actions:

1 – Facilitate the VCS team's participation in seminars and conferences hosted by outside groups (University of Guyana, NGOs, and government entities).

2 - Hold meetings with local researchers and cooperation agencies to analyze data and establish common goals.

3 - Build alliances with public opinion leaders who can serve as "champions of the cause" and can help keep malaria on the national agenda.

Communication Strategy Assessment, Monitoring and Adjustment

Monitoring of communication activities consists of the regular collection and analysis of performance indicators (see below). Monitoring, or formative evaluation, provides evidence as to whether activities are on the right track toward achieving a target, or if adjustments are needed. Process indicators provide information on how the activities are being implemented, including information on who is participating and whether the quality of delivery is adequate. In this case, exposure to messages about malaria control via a variety of communication channels is the main indicator for process measurement.

On the other hand, outcome indicators provide information on the results of the awareness-raising activities that were carried out, including attainment of the desired beliefs about health behaviors. Inclusion of belief indicators is based on the health belief model or the theory of reasoned action, both of which state that individuals must first believe in the rationale and importance of behavior change before they take action. Lastly, a few indicators measure the target populations' performance of the desired behaviors, such as the use of mosquito nets. It should be noted that while a correlation may be noted between exposure to malaria messages and the use of mosquito nets, proper diagnosis, proper treatment, and completion of treatment, it will be very difficult to attribute any of these behaviors to a specific campaign or communication channel.

Suggested indicators for use by VCS include:

Process Indicators:

- VCS has created one (1) new dissemination channel to share information about malaria with target audiences (e.g. Facebook page, Ministry web page, newsletter, email listserve) by September 2015
- Two (1) news releases about malaria have been sent to the Guyana Information Agency each year
- Two (2) information sessions have been held with private shop owners regarding the sale of artemisinin monotherapies and/or other over-the-counter medicines to treat malaria each year
- Four (4) coordination meetings have been held with the Geology and Mines Commission each year
- 1,000 units of IEC materials about malaria have been distributed to people in mining areas each year
- Proportion of the population in mining areas that can recognize at least one of the primary symptoms of malaria increased to 50% (from 11.3% at baseline in 2005)
- Proportion of the population in mining areas who know that the correct treatments for malaria are ACTs or chloroquine and primaquine increased to 50% (from 30% at baseline in 2005)

Outcome Indicators:

- Proportion of the mining population that had suspected malaria in the last six months and sought confirmation of diagnosis with an RDT or microscopy increases to 75% (62.4% at baseline in 2005)

- Proportion of the mining population that had suspected malaria in the last six months and obtained one of the approved antimalarial medicines through the public sector increases to 60% (19% at baseline in 2005)
- By 2016, annual budget for malaria prevention and control activities to be executed by VCS has increased 25% over the 2014 annual budget

A note on indicators: Clear guidelines for inclusion must be provided for both the numerator and the denominator. Generally, the number of survey respondents makes up the denominator; however, in some cases local residency or having had malaria in the last six months may be requirements for respondents' inclusion in the denominator.

Once the strategy has been defined, the next steps are to build a start-up work plan and budget, and to train VCS staff and other health professionals in communication techniques so that they may roll out the strategy in phases.

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