RBM Partnership To End Malaria

Guidance for Interpreting Results from the Malaria Indicator Survey Social and Behaviour Change Communication Module

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Abbreviations, Acronyms and Key Terms

ACT	Artemisinin-based combination therapy
ANC	Antenatal care
CCP	Johns Hopkins Center for Communication Programs
DHS	Demographic and Health Survey
HMIS	Health management information system
IPTp	Intermittent preventive therapy of malaria in pregnancy
IRS	Indoor residual spraying
ITN	Insecticide-treated net
KAP	Knowledge, attitudes, and practices
M&E	Monitoring and evaluation
MBS	Malaria Behavior Survey
MIS	Malaria Indicator Survey
RBM	RBM Partnership to End Malaria
SBC	Social and behavior change
SMC	Seasonal malaria chemoprevention

Introduction

What is the Malaria Indicator Survey Social and Behavior Change module?

Malaria control and elimination depends, in large part, on human behavior. Understanding populations' malaria-related knowledge, attitudes, and practices can be useful for improving social and behavior change (SBC) programs. Malaria Indicator Surveys (MIS) are one potential source of this information. Several countries have added SBC questions to past MIS surveys, and there is growing demand for standard questions and indicators. In 2019, the RBM Partnership to End Malaria (RBM) Social and Behavior Change Working Group (WG) created an optional malaria SBC module that can easily be adopted by countries planning MIS surveys. The module contains:

- Survey questions (placed at the end of the women's questionnaire)
- Guidance for interviewers/data collectors
- Templates for tables
- Guidance for how to interpret table results (this document)

The questions in the MIS SBC module collect information on select factors that influence behavior: knowledge of ways to prevent malaria, perceptions of risk, confidence in one's ability to practice specific malaria behaviors (self-efficacy), attitudes, beliefs about one's peers/community members (norms), and exposure to malaria messages. It complements other parts of the core MIS module, which collects data on behavior such as net use, care-seeking, and intermittent preventive treatment in pregnancy (IPTp) uptake as well as recall/exposure to malaria messaging and media utilization (i.e., frequency of using TV, radio, newspapers, and other sources).

This document is designed for individuals who review MIS reports with the aim of improving SBC activities. It is intended to help them understand how the data can be used to inform SBC programs. As noted above, there are several ways to collect data on malaria-related knowledge, attitudes, and behaviors. The MIS is one method, and, like all methods, it has strengths and limitations that should be factored into a reader's interpretation of results. These considerations are discussed below.

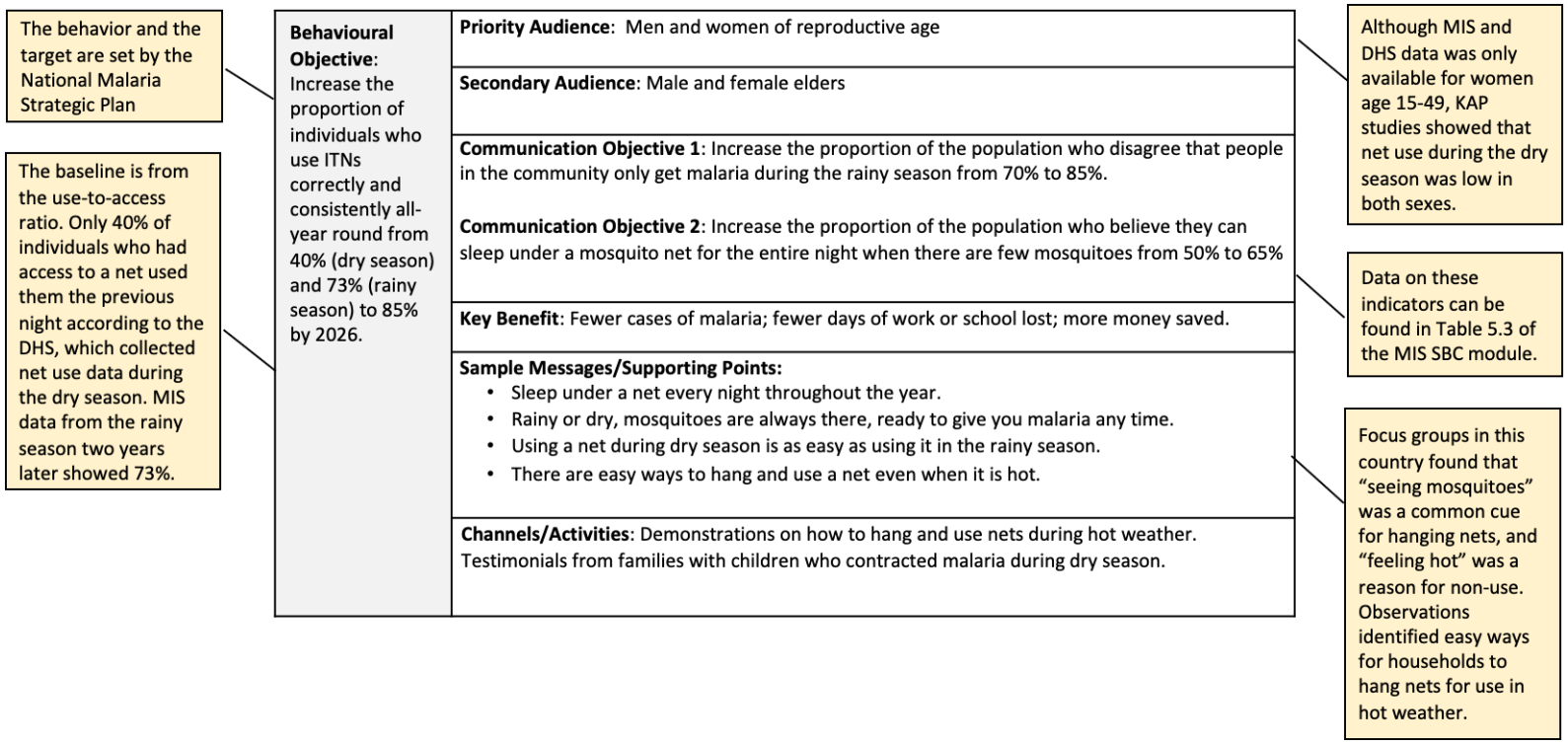
How can MIS SBC data be used?

The MIS SBC module can, ***in combination with other data sources*** (see below), help SBC practitioners produce, evaluate, and modify SBC programs. Since the MIS SBC module only has 14 standard questions, the module alone may not be sufficient for developing a new SBC program from scratch. However, **it can provide valuable direction** for where SBC efforts should focus, such as:

- Which populations need to be targeted with SBC activities.
- How to frame SBC messages.
- Potential channels for disseminating information or encouraging public dialogue.

With this information, SBC program planners can develop or update communication strategies, set intermediate targets, monitor progress, and justify funding requests (Figure 1). Information from knowledge, attitude, and practice (KAP) surveys such as the Malaria Behavior Survey (MBS), qualitative data (such as key informant interviews and focus groups), and other data sources can then be used to glean more insights on people's motivations and inform the development of locally specific messages.

Figure 1. MIS data, in combination with other data sources, can inform a social and behavior change communication strategy



Having a standard questionnaire allows programs to measure progress over time and across countries—one can see how indicators shift across the years as subsequent MIS surveys are done. If conducted within six months of a campaign, results from the MIS SBC module can also be used to explore the general population's recall of relevant SBC messages and its influence on malaria knowledge, attitudes, and practices (recall may be less accurate if obtained after six months).

Caution is warranted, however, in interpreting results. For example, due to resource limitations or low media penetration, many SBC activities are only implemented in specific communities or districts, while the MIS is often designed to produce precise results only at national or regional levels. While positive trends at national or regional levels can suggest that SBC efforts at the district and sub-district levels are making a difference, any improvements observed will, at best, appear incremental. Targeted evaluations carried out in actual program areas will give a more precise picture of whether and how much impact was achieved as well as insights on which specific approaches worked better. However, conducting targeted evaluations will require additional resources and may not be feasible for many programs.

How was the module developed?

A committee comprised of representatives from the Demographic and Health Surveys (DHS) Program and the RBM SBC Working Group reviewed and selected indicators and questions based on the following criteria:

1. **Evidence-based**: They have been tested in multiple contexts and have been found to be significant predictors of behavior.
2. **Feasibility for fieldwork**: Survey interviewers need minimal probing and training to ask the selected questions, an important factor because the full survey is lengthy to administer.
3. **Programmatically useful**: The data could be used to identify what types of malaria messages to promote and how to frame them.

Data from KAP surveys implemented in multiple countries over more than ten years (including, but not limited to Liberia, Mali, Nigeria, Madagascar, and Côte d'Ivoire) were analyzed to identify the most promising questions. The Malaria SBCC Indicator Reference Guide was also used as a key resource (RBM Partnership to End Malaria, 2017).

After the initial round of selection, the proposed questions, indicators, and tables were pretested with a broader set of RBM SBC Working Group members, including country representatives, at the 2019 annual meeting. The module also underwent DHS Program technical review prior to finalization.

The strengths and limitations of the MIS SBC Module

Although the MIS is a useful source of data, it may not provide all the data needed to inform an SBC campaign, or a five-year national SBC strategy. Below are the strengths and limitations of the MIS (in general) and of the SBC module (in particular) that should be considered when interpreting the results for SBC programs. Because of these limitations, several data sources (e.g., KAP surveys, qualitative studies, health facility surveys, SBC monitoring data, MBS surveys, and health management information systems (HMIS) should be reviewed with the MIS wherever possible when designing SBC programs. Secondary analyses may also be necessary to make full use of MIS data.

Strengths	Limitations
• The MIS SBC module provides standard indicators and questions, facilitating comparisons across countries and assessing changes over time. • Questions are based on behavioral theory and evidence and have been tested in multiple settings for comprehensibility and predictiveness. • Some question options can be customized for country context. • The MIS interviews women 15–49 years old, a common target audience for malaria SBC. • The standard tables are easy to understand and program planners can identify audience segments that need to be prioritized. • The quantitative results are useful for understanding what proportion of respondents think or act in a specific way.	• The MIS SBC module is not as comprehensive as a KAP or MBS survey. • The sample size of the MIS is meant for obtaining precise estimates at national and/or regional levels. However, many SBC activities are at the sub-regional level. • Other influential audiences, such as male partners and mothers-in-law are not interviewed by the MIS.1 • The standard tables do not control for confounders such as access to services. Secondary analyses are needed to understand the most impactful behavioral factors. • Statistics do not fully explain why people hold those beliefs or how they adapt their practices in response to those beliefs. • It may be difficult to time an MIS to evaluate a recent SBC program (ideally at most six months post-implementation).

[1] Although some countries may wish to use the module in the DHS survey to capture men's perceptions, it may be difficult to do so because of the costs (the DHS survey is even longer than the MIS). Moreover, the MIS contains a wealth of other indicators related to malaria interventions that provide useful context for the data collected by the SBC module.

Behaviors connected to the MIS SBC module

The SBC module has 14 questions that contribute to nine priority indicators divided into the following types of behavioral factors: recall, knowledge, risk, self-efficacy, attitudes, and norms.

Some of these indicators can be applied to any or all malaria behaviors. A few—due to the wording of the question—can only be applied to insecticide-treated nets (ITNs) and care-seeking. The indicators and applicable malaria behaviors, as well as the MIS tables in which they are found, are summarized in the table below.

Indicator	MIS table	Applicable malaria behaviors
Percentage of women age 15–49 who have seen or heard a malaria message in the past six months (recall)	5.1 Media exposure to malaria messages	Any malaria behavior
Among women age 15–49 who have seen or heard a malaria message in the past six months, percentage who cite specific sources for malaria messages (recall)		Any malaria behavior
Percentage of women age 15–49 who state there are ways to avoid getting malaria (knowledge)	5.2 Knowledge of ways to avoid malaria	N/A (this is a precursor to the next indicator and was added to improve the flow of the interview)
Among women age 15–49 who state there are ways to avoid getting malaria, percentage reporting specific ways to avoid getting malaria (knowledge)		ITN use, IPTp uptake, and indoor residual spraying (IRS) acceptance. Potentially seasonal malaria chemoprevention (SMC) uptake depending on context.
Percentage of women age 15–49 who perceive that their families and communities are at risk from malaria (perceived susceptibility)	5.3 Malaria susceptibility, severity, and self-efficacy	Any malaria behavior
Percentage of women age 15–49 who feel that the consequences of malaria are serious (perceived severity)		Any malaria behavior
Percentage of women age 15–49 who are confident in their ability to perform specific malaria-related behaviors (self-efficacy)		ITN use
Percentage of women age 15–49 who have a favorable attitude toward specific malaria-related behaviors (attitudes)	5.4 Attitudes toward malaria-related behaviors and malaria norms	ITN use Care-seeking
Percentage of women age 15–49 who believe the majority of their community currently practice specific malaria-related behaviors (social norms)		ITN use Care-seeking

Why don't some indicators (self-efficacy, attitudes, and social norms) cover IPTp, IRS, and SMC?
Unlike questions about perceptions of malaria risk, or recall of malaria messages, questions about self-efficacy, attitudes, and social norms need to be specifically worded to match the behavior of interest. For example, it is not programmatically useful to have a general question about one's ability to practice all malaria behaviors (self-efficacy), one must ask about each behavior. Adding questions on self-efficacy, attitudes, and norms for IPTp, IRS, and SMC would substantially increase the number of questions in the MIS SBC module, which would have significant cost implications. The MIS, which is already a lengthy questionnaire, has little room for additional questions. Moreover, the sample size for the MIS is powered to generate precise estimates at the national or regional level while IRS and SMC activities are usually implemented in discrete, sub-regional areas.

Using the MIS to inform SBC programs

General tips for looking at MIS tables

- **Compare current levels with targets**: Is there significant room for improvement? The return on investment may be lower in areas where behavioral uptake is at 73% vs. those where it is at 45% (compared to a target of 80%).
- **Compare trends over time**: Are they improving or worsening? Is the rate of improvement slowing down?
- **Look for sub-groups of interest**: Differences between rural vs. urban, wealth quintile, regions, education level, and age groups are depicted in MIS reports. Which groups are performing best? Worst?
- **Look for outliers**: Are there unusually high numbers, surprisingly low numbers, or unique/unexpected results? What might explain these results?
- **Look at related indicators**: Are there similar patterns? If care-seeking rates are low in Region X, are perceptions of risk also low in that region?

Examine data on malaria behaviors

The MIS provides a useful starting point for understanding which behaviors and populations should be prioritized. It has indicators covering net use, IPTp, care-seeking, diagnosis, testing, and use of appropriate antimalarial drugs. SBC interventions may be needed for the populations where behaviors are lower than desired.

The box above lists the first questions one should consider when assessing which behaviors to prioritize and in which populations. These questions can also be used for looking at the behavioral factors/SBC indicators in the next section.

When behavioral uptake is low, first check if lack of access to services or commodities is inhibiting improvements in behavior. SBC efforts to boost IPTp uptake, for example, will have limited success when stock-outs of sulfadoxine/pyrimethamine (SP) are prevalent. When examining uptake of malaria interventions from MIS data, consider doing a secondary analysis or triangulating MIS results with other data sources. HMIS data and health facility surveys provide data on stock-outs. Some community-based surveys (e.g., the MBS and DHS) measure the proportion of households within five kilometers of a facility and other access measures. For nets, the use-to-access ratio (UAR) is the best net use indicator to examine since it more accurately accounts for access to a net. UAR data for all countries can be found at the ITN Access and Use Report website as well as in some MIS reports.

Poor access does not mean SBC programs should be curtailed. Rather, it means that SBC and service delivery programs need to work closely to ensure that demand is raised where access is less of an issue, requiring more specific targeting. Boosting demand where there are no commodities can create dissatisfaction and reduce trust in the health system.

When behavioral uptake is low, check if the behavior of another group is affecting this indicator. For example, addressing provider misconceptions around SP and rapid diagnostic tests (RDTs) may improve the IPTp, malaria testing, and artemisinin-based combination therapy (ACT) treatment rates shown in MIS reports. Providers usually serve as gatekeepers for these interventions but the MIS only interviews community-based females age 15–49. Health facility assessments and qualitative research may provide useful insights on provider-related issues and specific ways SBC programs can help improve provider behavior.

When behavioral uptake is low, look at the indicators in the SBC module (next section). Low rates of exposure to SBC programs and low levels of knowledge; perceptions of risk and efficacy; and attitudes and norms can individually—or in combination—contribute to reduced rates of desired behaviors.

When behavioral uptake is high, consider maintaining SBC efforts to promote those behaviors and monitor to see if improvements are sustained over several years. Moreover, dig further into the data to identify high-risk sub-groups whose behavioral uptake has room for improvement. In areas or populations where high levels of the behaviors appear to persist, SBC efforts can likely be continued, albeit at a lower intensity. Instead of continuous media activities, for example, try "pulsing" using intermittent, planned spikes in TV and radio spots throughout the year.

Examine data on the factors that influence behavior

The malaria SBC module collects information on multiple factors that influence behavior. These factors are: recall/exposure to malaria messaging, knowledge of ways to prevent malaria, perceptions of risk, confidence in one's ability to practice specific malaria behaviors (self-efficacy), attitudes, and beliefs about one's peers/community members.

Evidence suggests multiple factors have a cumulative effect on behavior; in other words, SBC activities are more likely to be effective when they incorporate or seek to boost the levels of multiple factors (Storey et al., 2018). Generally, then, it is ideal to have high rates for factors with evidence suggesting they affect the uptake/maintenance of a particular behavior. When evidence is missing, a secondary analysis of MIS, KAP, or MBS data can be done to identify relevant factors for a specific or similar setting. High rates for a relevant individual factor does not mean that it should be eliminated from an SBC program; rather, it suggests that maintaining some level of messaging for this factor will be necessary (to prevent reversals). At the same time, the emphasis should be on other factors that may not be performing as well.

These behavioral factors are often measured during formative research to understand why people are not adopting or maintaining certain behaviors. They are also assessed during the monitoring and evaluation phases. Because changes in these factors usually precede behavior change, improvements suggest that SBC efforts are on the right track, even if increases in behavioral uptake appear minimal. Such data can be used to justify support for SBC activities and advise on potential areas for adjustments and reprogramming, if necessary.

Except for recall and knowledge, all of the factors are based on "indexes," in which multiple questions measuring several dimensions of a behavioral factor are asked and the results are summarized into one indicator. **The overall indicators, or indexes, are useful for obtaining a general sense of where the population stands for each behavioral factor. However, the results of each question are more useful for crafting specific messages/approaches**.

Because the MIS is already a lengthy survey, only a few SBC questions could be added to the standard module. For this reason, most of the index-based indicators are comprised of only one or two questions, and many potentially common beliefs are not included. Therefore, **there may be other unmeasured beliefs/components of each behavioral factor at play. KAP studies or MBS reports can point programs to additional widespread beliefs that might be worth including in SBC messaging**.

The standard MIS tables can be helpful for gleaning a general sense of which factors need the most improvement and in which demographic groups (age, urban/rural, region, education level, and wealth quintile). Those who wish to assess whether SBC exposure contributed to behavior change or those who wish to identify the most impactful factors in a given context will need to conduct a secondary analysis using appropriate statistical methods. While it might be possible to compare two or more MIS tables to see if regions with lower behavioral uptake also have lower rates of specific factors, such comparisons are merely suggestive. As much as possible, it is ideal to conduct secondary analyses since these can control for confounding factors such as socioeconomic status, access to services and commodities, as well as use the most appropriate/relevant denominators (e.g., having had a live birth in the past two years for IPTp or having a child under five for care-seeking).

MIS SBC Module Table 5.1: Exposure to malaria messages

Key indicators

Percentage of women age 15–49 who have seen or heard a malaria message in the past six months
Numerator: Number of women who have seen or heard a malaria message in the past six months
Denominator: Total number of women age 15–49
Question: In the past six months, have you seen or heard any messages about malaria?
Among women age 15–49 who have seen or heard a malaria message in the past six months, percentage who cite specific sources for malaria messages
Numerator: Number of women who cite specific sources for malaria messages
Denominator: Total number of women age 15–49 who have seen or heard a malaria message in the past six months
Question: Where did you see or hear these messages?

How can this data be used?

Exposure to information is the critical first step to changing perceptions and behavior. This table allows users to compare sources of malaria messages. Common sources of information and the percentage of people in each country that say they saw or heard a malaria message from that source are shown all at once. This is useful for knowing the reach of recent malaria communication efforts. It is a sign of how widely SBC activities have penetrated the target audience and whether they were reached in a memorable way.

This table can help answer the following questions:

- **Did the campaign reach a critical mass in the targeted demographic group?**

  If recall rates are high, a large portion of the target group was exposed to malaria messaging. This implies that the selection of channels recently used to deliver malaria messages is appropriate. It can also mean that the content of the malaria messages is memorable. This data can serve as reinforcement for programs to continue using these choices.

If recall rates are low, then more efforts to reach the target group are needed. Perhaps the choice of channels should be changed, or the timing and frequency of messaging need to be adjusted or boosted. Similarly, there may be a need to make materials and messages more memorable, such as by harmonizing their branding, increasing the use of emotion, or using more popular/relevant spokespeople.

If recall rates are low, the timing of SBC activities vis-à-vis data collection may be a factor. Since the question asks about the past six months, low rates may reflect a lack of recent SBC activities. Extending the recall period in the question, however, could increase the likelihood that participants will not remember their exposure experiences accurately (also known as recall bias). Ideally, though, SBC programs would be active in the lead up to and during rainy seasons (the same period as MIS data collection) in order to motivate populations to practice healthy malaria behaviors during high transmission periods.

- **Did the channels/sources used by the SBC program perform as expected?**
  For example, if the SBC campaign primarily used radio, but CHWs were more commonly cited as a source of malaria message than radio, then more exploration is needed since one would expect higher reach from a radio station. Perhaps the radio station has a different footprint than expected, radio spots aired at the wrong times, or local election stories dominated airwaves. Such lines of inquiry can help with fine-tuning activities.

What additional information may be helpful?

Media habits and literacy. The DHS (and soon, the MIS) collects information on the types of media (e.g., radio, TV, newspaper, phone, internet) that respondents use and how often. Both surveys also collect data on literacy levels. This is useful for identifying and using the channels that the target groups use most often, as well as for designing written materials.

Survey design/analysis considerations:
Answer choices may be customized: common options include radio, television, health worker, community health worker, poster/leaflet, community event, friends or family, social media, other.

MIS SBC Module Table 5.2: Knowledge of specific methods to avoid malaria

Key indicators

Among women age 15–49 who state there are ways to avoid getting malaria, percentage reporting specific ways to avoid getting malaria
Numerator: Number of women reporting specific ways to avoid getting malaria
Denominator: Total number of women age 15–49 who state there are ways to avoid getting malaria
Question: *Are there ways to avoid getting malaria?* *(If yes) What are the things people can do to prevent themselves from getting malaria?*

How can this data be used?

Increasing access to accurate information is critical to facilitating appropriate prevention behaviors. Inaccurate knowledge or misinformation may lead to individuals believing they are taking proper precautions when, in fact, they are not. This table compares prevention knowledge for different demographic groups. Understanding which groups most need accurate information about prevention behaviors is essential to effective malaria messaging.

This table can help answer the following questions:

- **How much of the population is aware that sleeping under a net is a way of preventing malaria? IPTp? IRS? What about SMC and other government-recommended methods? These questions can be rephrased as the following sub-indicators:**
  - The percentage of women age 15–49 who name sleeping under a mosquito net/ITN as a means of avoiding getting malaria.
  - The percentage of women age 15–49 who state taking preventive medication (SMC, IPTp) as a means of avoiding getting malaria
  - The percentage of women age 15–49 who state having house sprayed with insecticide (IRS) as a means of avoiding getting malaria

  Knowledge of IRS and SMC would ideally be high in the regions where they are implemented. Similarly, awareness of net use and IPTp would be ideally high among all women age 15–49.

  If knowledge levels are high: SBC programs should shift from "factual" types of prevention messaging (e.g., "sleep under a net to prevent malaria") to other types of framing (e.g., to evoke fear/concern, to empower, to place social pressure) and/or promotion of other benefits (e.g., practical, financial, emotional, social) associated with that prevention behavior.

If knowledge levels are low: There is a need to educate people about effective ways to prevent malaria. This table allows program planners to identify geographic areas and populations where efforts to boost correct knowledge are needed.

- **How widespread are misconceptions about how to prevent malaria?**
  Common misconceptions may persist despite high levels of knowledge about effective methods. For example, a substantial proportion of the population may believe that keeping surroundings clean may be an effective way of protecting against malaria while also believing that net use is protective.

  Secondary analyses can measure the proportion of respondents who believe in practices that are not recommended by the National Malaria Control Strategy as a means to prevent malaria. Sample indicators could include:

  - Any misconception about prevention methods: The percentage of women age 15–49 with misconceptions about malaria prevention. People who believe in the effectiveness of measures that are not recommended by the National Malaria Control Programs would count in the numerator.
  - Specific misconceptions: The percentage of women age 15–49 who state that [insert misconception, (e.g., keeping surroundings clean/remove standing water)] prevents malaria.

  If misconceptions are widespread, SBC programs can attempt to dispel them in their messaging, while reinforcing the correct methods at the same time.

  If misconceptions rates are low, SBC programs should check if levels of knowledge about appropriate methods are also high.

What additional information may be helpful?
Knowledge of prevention behaviors can be compared to actual behavior. For example, for the areas where the net UAR is low, the proportion of women age 15–49 who are aware of nets as a prevention method and the level of misconceptions can be examined to see if there might be a need to address knowledge gaps in these areas. Similar comparisons can be done for IPTp (recognizing that there are limitations around how to measure IPTp in the MIS, as noted above), and IRS. Caution should be taken in interpreting these results, however, since these associations are merely suggestive, and may need a multivariate analysis, as explained above.

Survey design/analysis considerations:
There is room for two additional answer choices that are country-specific. These can be based on the National Malaria Control Strategy or common misconceptions.

MIS SBC Module Table 5.3: Risk (perceived susceptibility and perceived severity) and self-efficacy

Key indicators

Percentage of women age 15–49 who perceive that their families and communities are at risk from malaria (perceived susceptibility)
Numerator: Number of women who disagree that people in the community only get malaria during the rainy season, or agree that when a child has a fever they almost always worry it might be malaria
Denominator: Total number of women age 15–49
Question 1: *People in this community only get malaria during the rainy season. Do you agree or disagree?*
Question 2: *When a child has a fever, you almost always worry it might be malaria. Do you agree or disagree?*
Percentage of women age 15–49 who feel that the consequences of malaria are serious (perceived severity)
Numerator: Number of women who disagree that getting malaria is not a problem because it can be easily treated, or disagree that only weak children can die from malaria
Denominator: Total number of women age 15–49
Question: *Getting malaria is not a problem because it can be easily treated. Do you agree or disagree?*
Question: *Only weak children can die from malaria. Do you agree or disagree?*
Percentage of women age 15–49 who are confident in their ability to perform specific malaria-related behaviors (self-efficacy—for nets only)
Numerator: Number of women who agree that they can sleep under a mosquito net for the entire night when there are lots of mosquitoes, or agree that they can sleep under a mosquito net for the entire night when there are few mosquitoes
Denominator: Total number of women age 15–49
Question: *You can sleep under a mosquito net for the entire night when there are lots of mosquitoes. Do you agree or disagree?*
Question: *You can sleep under a mosquito net for the entire night when there are few mosquitoes. Do you agree or disagree?*

How can this data be used?

Feelings of fear (risk) and control (self-efficacy) can be strong motivators. People are more likely to practice the desired behavior when they feel that they are both at risk *and* able to take action. But if they feel that they are unable to do something about it or that their actions will not be effective, then they will be unlikely to adopt the behavior. Conversely, while people may feel confident they can take certain actions to control malaria, they may not actually practice these actions if they do not feel that they are at risk or if they feel the consequences of malaria are minimal. According to an evidence review, SBC activities that emphasize specific actionable behaviors are more likely to succeed compared to activities that focus only on raising risk perception (Health Communication Capacity Collaborative, 2017a).

Some definitions: Risk has two components—the likelihood of a specific event occurring (perceived susceptibility) multiplied by the magnitude of consequences associated with that event (perceived severity) (Douglas, 1986). "Self-efficacy" refers to an individual's confidence in their ability to perform a specific behavior. Generally, SBC programs should ensure perceptions of risk are based on transmission patterns in the local area, and that the population feels that they can act effectively.

Perceived susceptibility—is malaria a danger to my community?

In the MIS SBC module, perceived susceptibility to malaria is assessed using two survey questions. The first question measures the percentage of women aged 15–49 who believe that malaria can only happen to them during the rainy season. The second question measures the percentage of women aged 15–49 who worry that their child has malaria whenever their child has a fever. Any respondent who disagrees with the former statement or agrees with the latter counts as someone with perceived susceptibility to malaria; alternatively, each statement can be reviewed on its own and used to inform malaria messaging. Rates of perceived susceptibility can be compared to the net UAR, care-seeking practices, and IPTp uptake.

> **When perceived susceptibility is high,** SBC programs should continue some level of messaging about one's susceptibility to malaria, since maintaining the community's perception of vulnerability will be helpful to sustaining their vigilance. The emphasis, however, can be shifted to other types of messages. Program planners can begin by examining whether the rates of perceived severity and self-efficacy are also high; they can also check levels of knowledge, attitudes, and norms.
>
> **When perceived susceptibility is low**, SBC programs should highlight individual, household, or community risk of contracting malaria and the need to take action. SBC programs can also educate the public about behaviors that put them at higher risk, such as not using a net at night, or failing to attend antenatal care visits and take IPTp.

Perceived severity—do I believe that the consequences of malaria are severe enough to warrant taking active measures?
In the MIS SBC module, women who disagree that getting malaria is not a problem because it can be easily treated, and women who disagree that only weak children can die from malaria are both counted as having high perceived severity.

> **When perceived severity is high,** SBC programs should maintain some level of messaging about the severity of malaria infection, but shift the emphasis to other types of messages. One can start by examining whether perceptions of self-efficacy and susceptibility are also high.
>
> **When perceived severity is low,** SBC programs should work to increase the community's perception that malaria infection can be dangerous. People who believe that they are at risk of contracting malaria may not practice the desired behaviors consistently if they believe that malaria is a mild disease. SBC programs can showcase testimonials of people who have died from malaria or suffered serious complications. In this two-minute spot, for example, Ali Hassan Mwinyi, a former President of Tanzania, talks about the time two of his children died of malaria. Other negative consequences (e.g., financial, social, academic) can also be demonstrated in ways that seem realistic but serious.

Self-efficacy—do I feel confident that I can practice healthy malaria behaviors?

The two self-efficacy questions in the standard MIS SBC module focus on net use, since these questions have been statistically significantly associated with behavior change in several countries. Additional self-efficacy questions for net use and other behaviors can be found in the Malaria Social and Behavior Change Communication Indicator Reference Guide and on the MBS website. Respondents who agree with any of the two statements count as having self-efficacy; however, it is more useful for SBC programs to examine the percentage who agree with each statement to inform specific malaria messaging. It should also be noted that the denominator for self-efficacy needs to be further adjusted in a secondary analysis; only the percentage of respondents who have the confidence to use nets among those with access to ITNs will be meaningful.

> **When self-efficacy is high**, SBC programs should maintain some level of messaging about the feasibility of healthy malaria behaviors, but shift the emphasis to other types of messages. High levels of self-efficacy would ideally be accompanied by relatively high levels of corresponding behaviors. If this is not seen in the data, supply-side factors, gender roles, and social norms should be examined.

When self-efficacy is low, SBC programs should demonstrate what people can do to prevent and control malaria. Such activities should show that the behaviors are easy to implement for people like the target population. Potential barriers, such as cost, access, discomfort, time/effort, and health worker attitudes can be preempted in these messages/activities. The behaviors can also be simplified through the provision of instructions/job aids and visual/environmental cues.

What additional information may be helpful?

Levels of risk and efficacy can be compared to the corresponding malaria behaviors reported in the MIS. Further qualitative research may prove helpful in understanding contextual factors related to each indicator (as well as the other indicators in the MIS SBC module), particularly when the indicator is not moving in the preferred direction or at an appreciable rate. For self-efficacy, issues around gender roles, household decision-making, and access to commodities and services should also be examined.

Survey design/analysis considerations

- **Perceived susceptibility**: The use of reverse-coded items aims to reduce bias by preventing respondents from falling into a response pattern. However, this may pose challenges during data analysis. Analysts should be clear on which questions are inverted, and how the results are to be interpreted.
- **Self-efficacy** questions should be precise and refer to specific circumstances. For example, perceived self-efficacy to take a child to a health facility may require more than self-confidence in some contexts (particularly where permission of the head of household is required). Therefore, questions that are not context-specific may be poor measures of self-efficacy. Program designers and researchers should also pay careful attention to available data on service delivery and commodity availability to ensure self-efficacy questions are not merely quantifying service or commodity availability.
- **Self-efficacy**: In certain languages the active verb, *can*, or its conditional form, *could*, are important distinctions. Pre-testing ways to ask about self-efficacy may be necessary, as it is important not to conflate one's ability to do something given their own set of personal, social, and environmental constraints with the judgement that an action is hypothetically performable. An accurate response will measure the respondent's assessment that all of the conditions necessary to perform this behavior are present in their current situation. As such, it is important to pose the question concretely, and not in the hypothetical.

MIS SBC Module Table 5.4: Attitudes toward malaria-related behaviors and malaria norms

Key indicators

Percentage of women age 15–49 who have a favorable attitude toward specific malaria-related behaviors (attitudes)
Numerator: Number of women who disagree that they do not like sleeping under a mosquito net when the weather is too warm, or disagree that when a child has a fever, it is best to start by giving them any medicine they have at home
Denominator: Total number of women age 15–49
Question: *You do not like sleeping under a mosquito net when the weather is too warm. Do you agree or disagree?*
Question: *When a child has a fever, it is best to start by giving them any medicine you have at home*. *Do you agree or disagree?*
Percentage of women age 15–49 who believe the majority of their community currently practice specific malaria-related behaviors (norms)
Numerator: Number of women who agree that people in the community usually take their children to a health care provider on the same day or day after they develop a fever, or agree that people in the community who have a mosquito net usually sleep under a mosquito net every night
Denominator: Total number of women age 15–49
Question: *People in your community usually take their children to a health care provider on the same day or day after they develop a fever. Do you agree or disagree?*
Question: *People in your community who have a mosquito net usually sleep under a mosquito net every night. Do you agree or disagree?*

How can this data be used?

Favorable attitudes

People who view a behavior favorably/positively are more likely to adopt a behavior. Respondents with favorable attitudes toward a behavior anticipate beneficial outcomes (e.g., prompt care-seeking ensures peace of mind), or feel that the behavior has positive attributes (e.g., sleeping under a net feels cozy). Conversely, respondents with unfavorable attitudes believe the behavior can be harmful (e.g., sleeping under a net can cause infertility) or the commodity/product has negative attributes (e.g., white nets remind me of burials).

In the MIS SBC module, the proportion of respondents with favorable attitudes toward specific malaria behaviors is calculated as the proportion of women age 15–49 who disagree with at least one of the two statements. Assessing the response rates to each statement can inform specific net use and care-seeking SBC activities, respectively.

When the proportion of respondents with favorable attitudes is high, SBC programs should maintain some messaging promoting the positive benefits and attributes of the desired malaria behaviors while placing an emphasis on other behavioral factors.

When the proportion of respondents with favorable attitudes is low, SBC programs should attempt to boost these levels. Malaria commodities, services, and behaviors can be framed in positive ways. For example, if most women say they dislike using the net when it is warm, SBC messaging can point out that it is warm both inside and outside the net, and that in fact nets can provide a good night's sleep through the prevention of nuisance biting and malaria. For care-seeking, SBC programs can emphasize the positive benefits of prompt care-seeking and/or portray the act of delaying care in a negative light.

Norms

Beliefs about what others do and what others think we should do often guide a person's actions. These types of beliefs are called "norms." SBC programs can influence behaviors if they portray certain behaviors as socially unacceptable or socially desirable. This indicator measures the proportion of surveyed individuals who believe that prompt care-seeking for children and net use every night are commonplace in their community. Social norms may also be present when many people personally oppose/have negative attitudes toward some practices but still perform them (UNICEF 2015).

In the MIS SBC module, the indicator counts all respondents who agree with at least one of the two statements provided. For crafting specific messages, however, it is more useful to assess the proportion who agree with each statement.

When norms are high, it could be posited that SBC programs are successfully building a critical mass that will eventually lead to behavior change. As with the other behavioral factors, this does not mean that social norms messaging/approaches should stop; rather, some social norms approaches should be continued but the emphasis should shift to other behavioral factors.

When norms are low, SBC programs should frame net use or care-seeking as socially desirable and commonplace. If behavioral uptake is higher than perceived norms, it might be worth informing people that their perception of the norm is at odds with actual practice.

What additional information might be useful?

- **For attitudes:** The proportion of women who agree/disagree with specific attitudinal statements can be compared to the levels of those who practice the corresponding behavior. Having high levels of the specific attitudes measured in the standard MIS SBC module does not exclude the possibility that there may be other major attitudinal barriers at work; these can be detected through KAP surveys and qualitative research.
- **For norms**: Qualitative research can be helpful for understanding who the reference groups are—these are the people who influence the target audience—and which of them support/enforce and which oppose or resist the norm. For example, for a target audience of women age 15–49, reference groups who support prompt care-seeking could include their mothers-in-law and health workers, while reference groups who resist it could include some husbands. Qualitative research can also be helpful for understanding the benefits and sanctions earned from conforming to or violating norms, and for identifying other norms that could be leveraged in support of the behaviors of interest (e.g., the norm that men treat children as gifts from God could be dramatized in a community drama to encourage men to invest in prompt care-seeking under the approving eyes of friends and family) (Breakthrough Action, 2020).

Survey design/analysis considerations:

- **Attitudes:** These questions are also reverse-coded (see above).
- **Norms**: "Community" does not refer to a specific geographic area but to the individual's own definition of their community—this can be their family, friends, neighbors, or schoolmates. The module does not define "community" for them because we cannot know to whom people compare themselves.
- **Norms:** Storey and Kaggwa (2009) used DHS data from 1995, 2000, and 2005 to show how social norms and exposure to SBC influenced contraceptive use over time.

Epidemiological considerations

Seasonality

Ideally, SBC programs would be active in the weeks before, during, and immediately after the rainy seasons to motivate populations to practice healthy malaria behaviors. SBC programs can also play an important role in sustaining healthy malaria behaviors during lower-transmission periods.

The malaria SBC module includes several questions that can help with ascertaining perceived susceptibility (all behaviors), self-efficacy (net use only), and attitudes (net use only) during lower-transmission periods. For example, if the proportion of people who disagree that they are only at risk during the rainy season is low (perceived susceptibility), SBC programs can work to increase the perception that malaria remains a risk during the dry season. If few respondents feel confident that they can use nets when there are few mosquitoes (self-efficacy), or a large proportion do not like using a net when the weather is warm (attitudes), SBC programs can model examples of outdoor and year-round net use and promote the ease of continuing to use a net throughout the year (since it is already hung).

Although there are questions about perceptions related to lower-transmission periods in the MIS SBC module, these questions are asked during the rainy season. Countries with highly seasonal malaria may be interested in collecting SBC data during the dry season and comparing it to MIS data to better understand how seasonality affects people's malaria beliefs and ability to practice healthy malaria behaviors year-round. While it is unlikely that knowledge of prevention methods will vary significantly by season, levels of the other behavioral factors may wane during lower-transmission periods. Some adjustment may be needed to the questions to match the season of interest.

Low-transmission contexts

In low, very low, and zero-transmission areas, gains in malaria control and elimination may be quickly reversed if populations fail to sustain healthy malaria behaviors; vector control and appropriate case management need to be sustained at high levels even in these settings. The questions in the MIS SBC module may be useful for the following purposes (Health Communication Capacity Collaborative, 2017b):

- Help SBC programs maintain levels of perceived severity. Actual susceptibility to malaria will decrease, but declining natural immunity will make imported cases more severe.
- Monitor SBC implementation (recall). Malaria may not be top-of-mind for residents of areas where significant morbidity and mortality may be attributed to other health issues.
- Monitor trends in behavioral factors in key populations. Decreasing malaria transmission will shift demographic importance from pregnant women and children under five to include adults and men as all ages and both sexes lose acquired immunity. SBC interventions will also need to focus on new parasite reservoirs (adolescents and adults) as well as mobile populations to control seasonal outbreaks and epidemics.
- Sustaining normative support and favorable attitudes for maintaining a culture of net use and care-seeking.

Some questions may need to be adjusted to reflect interventions such as IRS or mass drug administration.

Conclusion

As noted above, the behavioral factors have a cumulative effect on behavior change. Having high rates of a factor does not mean it should be omitted in SBC strategies and programs; rather, it means that these rates should be sustained, and efforts should strive to bolster other factors that, according to evidence, may be impactful for raising and sustaining behavior.

The MIS SBC module can help SBC programs identify—in broad terms—those other factors. It can also help programs pinpoint the most important populations and channels on which to focus. To some extent, if timed well and with sampling limitations taken into account, conducting secondary analysis of MIS SBC data can be used to monitor the effectiveness of SBC efforts. Pairing results from the MIS SBC module with information from other data sources (e.g., KAP surveys, MBS surveys, and qualitative research), factoring in the epidemiological context, and using secondary analyses can create SBC programs rich with local insights, making them more effective.

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