



Malaria Social and Behavior Change Communication Indicator Reference Guide: Second Edition

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Acronyms

| | |
|----------------|---|
| ACT | Artemisinin-based combination therapy |
| ANC | Antenatal care |
| CCP | Johns Hopkins Center for Communication Programs |
| DHS | Demographic and Health Survey |
| EPPM | Extended Parallel Processing Model |
| HMIS | Health management information system |
| IPTp | Intermittent preventive therapy of malaria in pregnancy |
| IRS | Indoor residual spraying |
| IST | Intermittent screening and treatment |
| ITN | Insecticide-treated net |
| KAP | Knowledge, attitudes, and practices |
| LMIS | logistics management information system |
| M&E | monitoring and evaluation |
| MDA | Mass drug administration |
| MERG | Monitoring and Evaluation Reference Group |
| MICS | Multiple Indicator Cluster Survey |
| MIS | Malaria Indicator Survey |
| RBM | Roll Back Malaria Partnership |
| RDT | Rapid diagnostic test |
| SARA | Service Availability and Readiness Assessment |
| SBCC | Social and behavior change communication |
| SMC | Seasonal malaria chemoprevention |
| SP | Sulfadoxine-pyrimethamine |
| SPA | Service Provision Assessment |
| SUA | Speak Up Africa |
| USAID | United States Agency for International Development |
| WHO | World Health Organization |

Introduction

Malaria funding has increased exponentially over the past 15 years and many countries are rapidly scaling up malaria control activities to meet ambitious global objectives. Social and behavior change communication (SBCC) has been a critical component of effective malaria control strategies. Despite its important role, however, robust monitoring and evaluation (M&E) of SBCC programs has been challenging. One of the major barriers is a lack of clarity about appropriate indicators.

Background

In 2011, 15 organizations initiated the effort to develop standard malaria SBCC indicators by sharing their survey tools. In 2012, an expert committee grouped the indicators into themes and compared them to the SBCC indicators in the **Family Planning and Reproductive Health Online Indicators Database**¹ and the **Household Survey Indicators for Malaria Control**².

The RBM SBCC Working Group released the first edition of the **Malaria SBCC Indicator Reference Guide** in 2014. Over the next three years, the working group actively sought feedback on the guide from its members. Members conferred on changes during in-person meetings in Baltimore, Maryland, USA, and at the annual meeting in Dakar, Senegal, in 2016. The expert committee, which eventually became the M&E Task Force, drafted both editions of the indicator guide.

What's New in the Second Edition

The second edition offers:

- A more streamlined set of priority indicators with less emphasis on experimental indicators.
- Inclusion of health providers as a target audience.
- Consideration of data sources beyond national household surveys.
- Additional guidance on how to select and prioritize indicators for different purposes—specifically, programmatic design, implementation, and evaluation.
- Additional guidance and examples on data use and interpretation.
- A more user-friendly layout—key resources, such as survey questions and theories, are now in the annexes.

Objectives

This guide provides program staff, government personnel and donors with a set of priority indicators for tracking the results of malaria SBCC programs. It aims to:

- Compile indicators that stakeholders have found useful.
- Define these indicators so they can be used consistently.
- Facilitate SBCC M&E by making indicators and survey questions available in one place.
- Provide examples and suggestions for choosing indicators, tailoring them for local contexts, and using them at different stages of a program cycle.

Intended Audience

This guide was developed for several groups:

- SBCC and M&E officers at national malaria control programs.
- Managers and staff at organizations responsible for implementing SBCC activities.
- Researchers and M&E staff tasked with assessing the progress and achievements of SBCC programs.
- Representatives of donor agencies.

How to Use the Guide

Readers can use the guide to:

- Select indicators for M&E plans and funding proposals.
- Collect data to inform the development of an SBCC activity.
- Communicate the goals of an SBCC activity to stakeholders.
- Monitor intermediate outcomes in order to modify programs for maximum impact and share those results.
- Collect data to assess the outcomes of the program.
- Compare results over time and across programs.

Organization

The guide is organized in three parts:

- **Part 1** introduces the M&E Framework and provides broad guidance on selecting indicators and data sources, as well as gender considerations.
- **Part 2** provides details on each of the 17 priority indicators. The indicators fall into several categories: recall, knowledge, risk and efficacy, norms, attitudes, behaviors, and program outputs. Each indicator reference sheet contains detailed information on the indicator's purpose, definition (including numerator and denominator), disaggregation, data use and interpretation, and strengths and limitations. Like the RBM MERG's household survey indicators guide, this guide suggests additional indicators related to the priority indicators that may be of interest to programs. Results on these indicators can be obtained by conducting sub-analyses on the priority indicators or by collecting additional data.
- **Part 3** consists of annexes that include a discussion on how the selected indicators and theories of behavior change can be used to understand how SBCC activities work, a checklist for reporting on the quality of the malaria SBCC activity and its results, and survey questions that can be used to measure the indicators.

Limitations

This guide does not represent an exhaustive list of all malaria SBCC indicators. Instead, it recommends indicators that programs are likely to find most useful and suggests how these indicators can be adapted to specific interventions, such as seasonal malaria chemoprevention; audiences, such as seasonal workers; and epidemiological contexts, such as epidemics.

¹ MEASURE Evaluation 2017

² RBM Monitoring and Evaluation Reference Group 2013

There are other indicators that may be useful in planning or assessing an SBCC activity that this guide does not directly address. Specifically, the authors of this guide recognize that health provider behaviors—and factors that influence those behaviors—play a critical role in malaria prevention and treatment. While this guide considers health providers as a target audience for which behaviors and behavioral factors can be measured, further guidance is needed on the best approaches to measure health provider behaviors, namely for adherence to national guidelines for case management and prevention of malaria in pregnancy. Developing this health provider guidance is outside the scope of the current version of this document. Readers may wish to consult malaria health facility surveys (including the Service Provision Assessment [SPA], available on the Demographic and Health Survey (DHS) program website), the RBM SBCC M&E Task Force, or the RBM MERG for further guidance on this topic.

This guide does not include some indicators that may influence uptake of certain behaviors:

- Satisfaction with health services
- Availability of malaria commodities, such as drugs and tests and access, to services
- Media access and preferences
- Community participation, leadership, social cohesion, and collective self-efficacy

Since these measures may be important in understanding the target audience's behaviors, users are advised to triangulate data from other sources as much as possible.

Where to send comments or questions

We welcome your feedback on this document. Comments from users have made this a better resource for the malaria SBCC community. Please send thoughts and suggestions to the M&E task force co-chairs: Angela Acosta (angela.acosta@jhu.edu), Jessie Butts (jbutts@cdc.gov), and Mariam Nabukenya Wamala (nabukem@yahoo.com).

Summary List of Priority Indicators

This indicator guide contains 17 priority indicators divided into the following categories: recall, knowledge, risk and efficacy, norms, attitudes, behavior, and program outputs. Some indicators include sub-indicators (called additional indicators below), which can be ascertained through additional questions or sub-analyses.

Recall

1. Proportion of people who recall hearing or seeing any malaria messages within the last six months

- Additional indicator 1.1. Proportion of people who recall hearing or seeing specific malaria messages
- Additional indicator 1.2. Proportion of people who recall hearing or seeing a message through communication channel "X" (reported by each specific communication channel)

Data sources

DHS, Malaria Indicator Survey (MIS), Multiple Indicator Cluster Surveys (MICS); other community surveys; health facility surveys, if adapted to providers

Uses

Assess the reach of general SBCC activities or a specific campaign

Knowledge

2. Proportion of people who name mosquitoes as the cause of malaria

- Additional indicator 2.1. Proportion of people who name only mosquitoes as the cause of malaria

3. Proportion of people who know the main symptom of malaria is fever

- Additional indicator 3.1. Proportion of people who know the danger signs and symptoms of severe malaria

4. Proportion of providers who know the only way to accurately diagnose malaria is with a test (rapid diagnostic test [RDT] or microscopy)

5. Proportion of people who know the treatment for malaria

6. Proportion of people who know proven preventive measures for malaria

- Additional indicator 6.1. Proportion of people with misconceptions about effective malaria prevention practices
- Additional indicator 6.2. Proportion of people who are aware that IPTp is a way to protect a mother and her baby from malaria during pregnancy

- Additional indicator 6.3. Proportion of providers who know the national guidelines for IPTp dosing (timing and frequency)

Data sources

DHS, MIS, MICS; other community surveys for indicators 2, 3, 5, and 6; health facility surveys for indicator 4, and other indicators adapted to providers

Uses

- Formative research to inform the design of SBCC activities
- Audience monitoring and evaluation if knowledge was targeted for the intervention

The indicators in this section can be adapted to specific target audiences, such as pregnant women, as well as more specific types of knowledge, such as health provider knowledge of IPTp dosing schedule. The adaptation of indicators may require different data collection approaches.

Risk and Efficacy

7. Proportion of people who perceive they are at risk from malaria (perceived susceptibility)

8. Proportion of people who feel that consequences of malaria are serious (perceived severity)

9. Proportion of people who believe that the recommended practice or product will reduce their risk (response efficacy)

10. Proportion of people who are confident in their ability to perform a specific malaria-related behavior (self-efficacy)

Data sources

DHS, MIS, MICS (on a country-by-country basis); other community surveys; focus group discussions or other qualitative research; health facility surveys if adapted to providers

Uses

- Formative research to inform the design of SBCC activities may also help identify reasons for non-adoption of certain behaviors among the target population, such as barriers to net use or reasons for health providers not using RDTs
- Audience monitoring and evaluation if risk/efficacy were targeted for the intervention
- The indicators in this section can be adapted to specific target audiences, such as caregivers, and must be adapted to a specific product, service, or behavior.

Norms

11. Proportion of people who believe the majority of their friends and community members currently practice the behavior

Data sources

HS, MIS, MICS (on a country-by-country basis); other community surveys; focus group discussions or other qualitative research

Uses

- Formative research to inform the design of SBCC activities may also help identify reasons for non-adoption of certain behaviors among the target population
- Audience monitoring and evaluation if norms/attitudes were targeted for the intervention
- This indicator can be adapted to specific target audiences, such as health providers, and must be adapted to a specific product, service, or behavior.

Attitudes

12. Proportion of people with a favorable attitude toward the product, service, or behavior

Data sources

DHS, MIS, MICS (on a country-by-country basis); other community surveys; focus group discussions or other qualitative research

Uses

- Formative research to inform the design of SBCC activities may also help identify reasons for non-adoption of certain behaviors among the target population
- Audience monitoring and evaluation if norms and attitudes were targeted for the intervention

This indicator can be adapted to specific target audiences, such as health providers, and must be adapted to a specific product, service, or behavior.

Behavior

13. Proportion of people who practice the recommended behavior

Beneficiary behaviors

- Sleep under ITNs: Proportion of population that slept under an ITN the previous night
- Additional indicator 13.1. ITN use-to-access ratio. The proportion of the population using nets, among those people who have access to one within their household
- Attend antenatal care (ANC) early and throughout pregnancy: Proportion of women who attended at least one, two, and three ANC visits during last pregnancy
- Seek care for fever: Proportion of children under five years old with fever in the last two weeks for whom advice or treatment was sought the same or next day following the onset of fever

Data sources

DHS, MIS, MICS; other community surveys

Provider behaviors

- Provide IPTp per national guidelines: Proportion of pregnant women at ANC who received IPTp according to national guidelines
- Provide malaria case management per national guidelines (testing and treatment)
- Proportion of fever cases receiving a malaria diagnostic test
- Proportion of tested cases treated/not treated according to test results

Data sources

Health facility survey, ANC register review

Note: Proxy indicators for these provider behaviors may be obtained from household surveys such as the DHS, MIS, and MICS. These include:

- Proportion of women who received three or more doses of IPTp during ANC visits during their last pregnancy
- Proportion of children under five years old with fever in the last two weeks who had a finger or heel stick
- Proportion receiving an artemisinin-based combination therapy (ACT) among children under five years old with fever in the last two weeks who received any antimalarial drugs

Uses

- Formative research to identify the priority/problem behavior
- Evaluation to determine if SBCC activity contributed to measured change in behavior

It is important to triangulate this data with data measuring access to and availability of the product or service, such as net access or commodity availability.

Measuring beneficiary and health provider behaviors separately will help determine the extent to which low IPTp uptake, testing, and/or ACT treatment rates may be due to health provider performance compared to care-seeking behavior or availability of commodities.

Program Outputs

- Number of materials produced
- Number of people reached
- Number of SBCC activities carried out
- Number of people trained

Data sources

Activity reports, such as media monitoring reports, broadcast certificates, community mobilization activity reports, training reports, ICT reports, or dashboards

Uses

Informs managers whether activities are being completed as planned. This information in evaluation reports informs readers of the scale and intensity of the program, helping them gauge the quality of the intervention being assessed. Always report a target—for example, as a denominator—to provide context

Part 1: Guidance on Selecting and Monitoring Indicators

Framework for Monitoring and Evaluating Malaria SBCC Programs

Monitoring and evaluation frameworks summarize how programs are supposed to work. They are helpful for thinking through programmatic objectives and understanding whether the planned activities and strategies are the most appropriate ones to use.

The framework in Figure 1 illustrates how SBCC activities influence behavior change. It shows the pathways through which program outputs influence outcomes at multiple levels and can contribute to health impacts. Notably, the framework provides a list of indicators for each step in the process. This framework shows how effective SBCC requires that messages reach the target audience, that those messages influence how people think or feel about malaria, and, finally, that they adopt behaviors that will protect them from malaria. Using the framework language, we focus on SBCC activity outputs to realize intermediate outcomes; these in turn influence behavioral outcomes, which ultimately lead to health impact—decreased malaria burden.

The framework groups indicators by result levels:

- **Program Outputs.** These indicators reflect the number of SBCC activities completed. They indicate whether results are sufficient to reach and resonate with the target population.
- **Intermediate Outcomes.** The indicators at this level assess the direct effect of SBCC activities on audiences. Decades of research in HIV/AIDS, family planning, and malaria have shown that knowledge is not the only determinant of behavior. Perception of risk, response efficacy, self-efficacy, norms, and attitudes are also associated with an increased likelihood of behavior change.³
- **Behavioral Outcomes.** Over time, increased exposure to SBCC activities and changes in the intermediate outcomes may lead to a greater proportion of the population practicing the desired malaria-related behaviors.
- **Health Impact.** SBCC activities can contribute to a reduction in malaria-related morbidity and mortality by reaching general and target populations and influencing their knowledge, attitudes, and behaviors.
- An **Enabling Environment** is necessary to support SBCC activities. An enabling environment is characterized by policies promoting healthy malaria-related behaviors, the availability of and access to commodities, and a strong infrastructure for health service delivery. Programs should assess whether low uptake of a behavior is due to attitudinal factors, limited access to commodities, service delivery issues, or policy barriers. While this guide does not provide indicators for all of these issues, interested users can adapt indicators from the [Family Planning and Reproductive](#)

[Health Online Indicators Database.](#)

Selecting and Adapting Indicators

This guide provides a list of recommended SBCC indicators for malaria programs to consider when planning behavior change activities. The authors do not suggest that program planners automatically adopt all indicators; instead, program planners should choose the indicators and questions most relevant for their needs.

In this section, we present recommendations for selecting indicators for specific program needs, tips for adapting indicators for different contexts or behaviors, and suggestions for selecting questions for different data sources.

Selecting Indicators Based on Program Needs

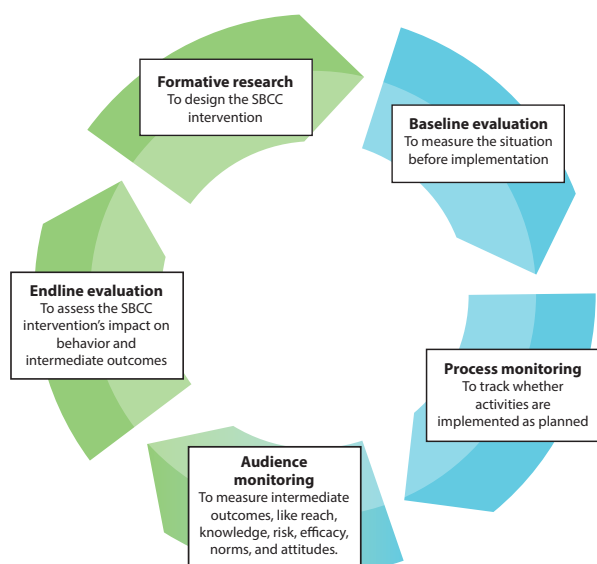
Figure 2 identifies and summarizes each of the different M&E stages during the life of a program. Certain indicators are more relevant at specific stages.

Formative research

In the initial stage of designing an SBCC activity, more data are needed for exploratory analyses than will be needed later for M&E of specific program activities. Relevant indicators include those measuring behaviors as well as those that measure potential influencers of behavior change: knowledge, perceived risk and severity, self-efficacy, response efficacy, norms, and attitudes.

If relevant, indicators for both beneficiaries and providers should be considered at this stage. Ideally, these indicators will be complemented by other data, such as access to services and commodities, demographic information about the target population, media habits, and qualitative data that could provide more in-depth information on why people behave or feel a certain way. Triangulating data on behaviors with data on access and availability of key commodities will help determine whether an SBCC activity is likely to have an impact on behavior change, or whether efforts to improve other aspects of the service delivery environment—such as commodity management or reporting—need to be part of the broader program as well.

³ Alaii 2003; Panter-Brick 2006; Baume 2009; Atkinson 2009; Gies 2009; Lover 2011; Wijesinghe 2011; Pulford 2012; Beer 2012; Keating 2012; Kaufman 2012; Bowen 2013; Koenker 2013; Bauch 2013; Hill 2013; Diala 2013; Boene 2014; Boulay 2014; Koenker 2013; Russell 2015; Cundill 2015; Strachan 2016; & Kilian 2016.

Figure 2. Monitoring and Evaluation Needs During the Life of a Program

Formative research should start with existing data sources and may include large household surveys, such as the DHS, MIS, and MICS; smaller community surveys; knowledge, attitudes, and practices (KAP) surveys; health facility surveys; and even routine health information systems (RHIS), including the health management information system (HMIS). Additional formative data collection activities may be needed to fill gaps in knowledge. For example, if care seeking for fever is identified as a “problem” behavior, but existing data sources do not address what the barriers are, a targeted household survey may be needed. Qualitative data, including focus group discussions and/or key informant interviews, can also be useful to complement quantitative data. Data on the availability of products and services may be available in household surveys, health facility surveys, program data, and logistics management information systems (LMIS).

Baseline evaluation

After gathering this wide range of information for formative research, programs can develop a strategy based on what they identify as the priority/problem behavior(s); the key behavioral determinants to be addressed by the program, such as knowledge, perceived risk and severity, self-efficacy, response efficacy, norms, and attitudes; and the most appropriate communication approaches to reach the intended audience. The resulting strategy will articulate the SBCC program's behavioral objectives (the behavior targeted for SBCC), communication objectives (the behavioral factors identified as influencing behavior uptake), key messages, communication channels, and activities.

The behavioral and communication objectives then inform selection of the outcome indicators for evaluation. Baseline data may already be available from formative research. The outcome indicators chosen at this stage will be the same indicators used for endline evaluation. Data on recall should also be collected. Measuring recall at baseline can help explain why rates of certain behaviors are low, what other malaria SBCC activities being conducted by other partners in nearby areas, and to what extent self-reported behaviors are accurate, rather than desired or exaggerated (social desirability bias).

Data sources may include (alone or in combination): large national household surveys, smaller community surveys, health facility surveys, exit interviews, and potentially routine health information systems.

Process monitoring

Data should be collected and analyzed throughout program implementation to ensure activities are being implemented as planned, according to the strategy. Indicators relevant for process monitoring, also known as outputs, include the number of materials produced, number of people reached, number of SBCC activities carried out, and the number of people trained.

Data sources for process monitoring generally include project or activity reports, supervision reports, and media monitoring reports. Data should ideally be reviewed and discussed with the entire SBCC activity team at least every two or three months in order to address issues and adjust activities in a timely way.

While output-level data are useful for managing programs, they do not provide information on the effect of SBCC activities.

Audience monitoring

Since evaluations occur periodically, often every two to five years, audience monitoring can help managers see whether the desired changes are starting to occur in the target population. Audience monitoring, also known as outcome monitoring, allows programs to make a stronger case for the continuation of support for SBCC activities and provides evidence for adjustments and reprogramming, if necessary.

The most important audience-monitoring indicator is audience recall of malaria messages. Additional audience-monitoring indicators should include the target behaviors and the behavioral factors—knowledge, perceived risk and severity, self-efficacy, response efficacy, norms, and attitudes. These are the same indicators measured at baseline and endline. As with the process monitoring indicators, programs can use this information to adjust activities mid-stream.

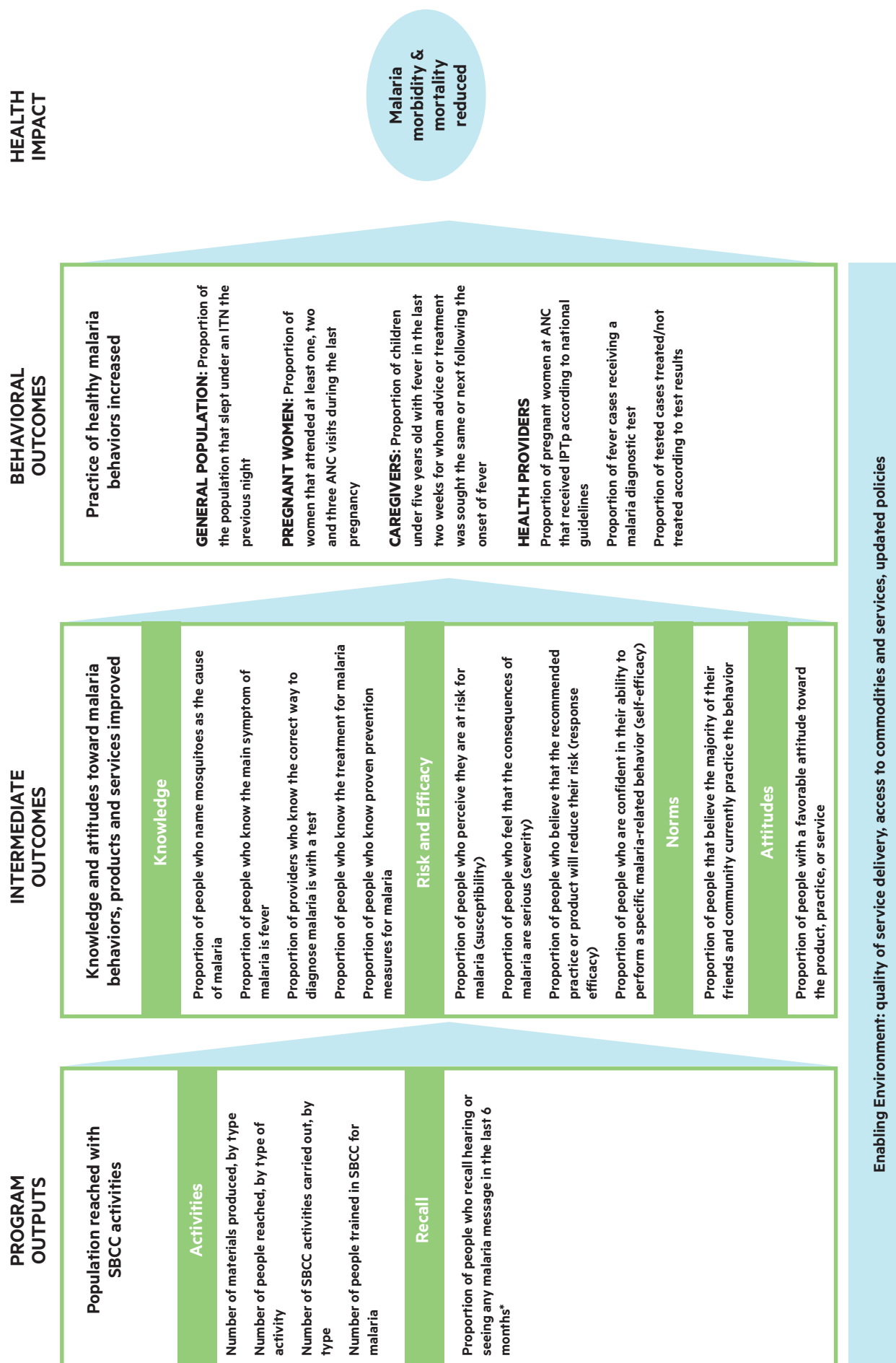
Rapid surveys, omnibus surveys, or exit interviews from, for example, an event or health facility visit, can provide data for audience monitoring. If sufficient data resources are available, a midline evaluation survey can also be implemented.

Endline evaluation

Indicators used for the baseline survey and audience monitoring, if applicable, should be used again for the endline survey. This allows evaluators to assess changes in behavior and behavioral factors—knowledge, perceived risk and severity, self-efficacy, response efficacy, norms, and attitudes—in the target audience (Box 1). Collecting data on recall is necessary to demonstrate that any measured changes may have been in response to SBCC activities.

The main data sources for endline evaluation should be consistent with baseline data collection and, again, may include large national household surveys, smaller community surveys, health facility surveys, exit interviews, and routine health information systems. Qualitative data collection, such as interviews and focus groups, will provide additional explanatory context to results—including why something may or may not have worked—and will help inform future interventions.

Figure 1. Framework Linking SBCC Activities to Behavioral Outcomes and Health Impact



Box 1. A note on evaluating impact:

While program managers want to definitively measure the impact of SBCC activities on identified behaviors, it is difficult to attribute specific SBCC activities to measurable changes in behavior. Changes in behavior may take time and the methods required to quantitatively isolate the effects of SBCC on behavior change often require a high level of statistical capacity as well as financial resources. This should not discourage programs, however. Instead, they should ensure that SBCC M&E plans include recall and intermediate outcomes—changes in knowledge, perceived risk and severity, self-efficacy, response efficacy, norms, and attitudes—as these outcomes can all be measured, both as intervention monitoring to gauge how SBCC activities are received and to adjust programs as needed, as well as to evaluate whether programs had the desired impact on the target population.

Process and audience monitoring data should be made available to evaluators. This allows them to track the sequence of results and identify weaknesses and strengths in the program. Including an appropriate control or comparison group in the evaluation design further strengthens evidence that SBCC contributed to measured changes.

Adapting Indicators

While this guide helps facilitate the standardization and comparison of indicators across countries, countries should adapt indicators to their specific context and needs rather than promoting a “one-size-fits all” approach.

As malaria epidemiology shifts in countries—due to gains in malaria control and environmental factors, among others—SBCC activities will need to adapt to these changing contexts. New interventions and behaviors will become relevant, target audiences may shift, and other behavioral factors, such as risk perception, may become more important. The indicators in this guide can be adapted to the following interventions:

- Seasonal malaria chemoprevention (SMC)
- Larviciding
- Intermittent screening and treatment (IST)
- Mass drug administration (MDA)—uptake and effectiveness
- Outbreak response
- Passive and active case detection
- Other ITN behaviors—outdoor sleeping, ITN care and repair, and ITN purchasing

If these interventions are pertinent to a country’s malaria context, the indicators in this guide can be adapted to measure the uptake of the relevant behaviors as well as the related behavioral factors, such as efficacy and attitudes.

Similarly, many of the indicators can be adapted to other audiences, such as health providers and mobile populations. Information on the determinants of provider’s behaviors can be obtained by adapting the indicators on risk, efficacy, norms, and attitudes.

Understanding for example, the extent to which providers believe that sulfadoxine-pyrimethamine (SP) is effective for malaria prevention in pregnant women, the presentation of certain symptoms is more accurate than an RDT in diagnosing malaria, or how malaria susceptibility and severity changes as an area transitions from high or medium to low transmission could be useful in developing SBCC activities targeting providers.

It is useful to assess how results from these SBCC indicators change over the years so that SBCC activities can be adjusted to best address changing behaviors and perceptions. For example, it is important to understand how risk perception changes as transmission declines and how this may impact behaviors like ITN use or malaria case management services provided by health providers.

For indicators that have been adapted, countries should document the revised indicator definitions and methods of measurement. This will help ensure the data is consistently collected and the results are correctly interpreted, particularly for comparisons with other countries or programs.

Generally, it is more useful to track the same locally specific indicators over time than to use identical, but hard to interpret, indicators across countries. Adapting indicators can also increase local ownership and capacity in the M&E of malaria SBCC.⁴

See Annex 4 for case studies on choosing or adapting indicators and questions based on the M&E stage and type of intervention.

Selecting Questions and Indicators for Specific Data Sources

See the next section on Selecting Data Sources for guidance on selecting indicators for DHS, MIS, MICS, KAP surveys, and other data sources.

Data Sources

The data used for measuring indicators in this guide can come from various sources, as summarized in the Summary List of Indicators. Each data source will be **more** or **less** relevant depending upon the behavior of interest and target audience, and each has its strengths and limitations.

This guide recommends using multiple data sources for a comprehensive understanding of malaria-related behaviors. Selection of appropriate sources is driven by:

- 1. Who and what you are measuring:** For example, if health providers are the target population, health facility-based data collection will be needed. If net-use behaviors are targeted, household- or community-based data collection is more relevant.
- 2. Geographic scope:** For a national or regional SBCC activity, adding questions to a national-level survey like the DHS or MIS may be ideal if the timing is right for baseline/endline. For interventions focused on a smaller geographic area, DHS or MIS surveys will likely not provide enough data for their target area for the results to have enough statistical power. More locally focused data sources will need to be used instead.

⁴ MEASURE Evaluation 2017.

- 3. Available resources:** If resources are limited, programs should consider using smaller rapid surveys, adding questions to existing surveys, or exploring use of routine data collection sources, such as HMIS.

Triangulating data sources is ideal and can provide programs with valuable context. For example, programs may wish to review survey results on SBCC indicators while at the same time looking at HMIS service delivery data and program activity reports. By examining them together, programs can better understand the context and factors that may have influenced the results seen.

Household Surveys: DHS, MIS, and MICS

The core modules for the DHS and MIS already measure recall and behaviors. There is one question for recall of any malaria SBCC messages, as well as a question on where the respondent saw or hear the message. There are also several questions to measure behaviors—net use, ANC attendance, IPTp, care seeking, testing, and treatment with ACTs. These indicators/results should be used for formative research and evaluation whenever they are available.

The ability to add SBCC indicators and questions to the MIS and DHS varies from country to country. Some countries are able to add many questions, while others can only add one or two, depending on the overall number of questions in the survey and the buy-in or interest in SBCC among stakeholders. If countries can add only one or two SBCC questions to the DHS or MIS, adding question 103 - what specific malaria messages the person recalled (net use, IPTp, or testing) - may be the useful option.

Including a question about exposure to specific malaria messages enables programs to assess the reach of recent efforts, which is the first prerequisite to demonstrating impact.

Each indicator for intermediate outcomes (perceptions of risk, norms, attitudes, and knowledge) require many questions, which makes it challenging for countries to include these indicators in MIS and DHS surveys. Although we conducted an analysis to see if the number of questions could be further reduced for this edition of the guide, the questions that were predictive of behavior change differed from country to country.

Therefore, choosing questions for intermediate outcome indicators for the DHS, MIS, and MICS should be made on a country-by-country basis using available evidence, such as from KAP surveys or qualitative research, on the most likely determinants of behavior and the survey questions that are the best measure for that determinant in that context. We encourage programs and countries to conduct a literature review before prioritizing additional questions for the DHS, MIS, and MICS. Collecting data on the remaining/full list of intermediate outcome indicator questions is usually more feasible with a KAP survey.

Advantages

Using large population-based household surveys to capture SBCC indicators offers countries the benefit of a standardized robust survey instrument that is nationally representative—and usually representative at the next subnational administrative unit, such as a region, state, or county. Household surveys provide valuable data on the status of most behaviors and on access to products and services, such as ITNs and ANC attendance. They are usually implemented

every two to three years so the timing of data collection is, for the most part, predictable.

Limitations

Although some of the indicators in this guide are already standard in these surveys, particularly recall and basic malaria-related behaviors, many, such as risk perception and self-efficacy, are not. Adding questions to large population-based household surveys requires early planning and negotiation, and related costs and logistics should be taken into consideration, such as increased sample size, special training of interviewers, and length of questionnaire.

Large national-level surveys typically cannot provide the subnational estimates required to measure outcomes of a specific SBCC activity targeted to a limited geographic area or to a specific target population. They are also limited in their ability to measure indicators on health service provision (e.g., health service provider knowledge, attitudes, and adherence to guidelines) and to assess the behaviors and behavioral factors among populations of special interest, such as mobile groups.

While it makes sense to take advantage of planned data collection activities like an MIS, they may not be flexible enough to meet all SBCC data needs. A literature review can clearly define these needs before advocating for inclusion of additional SBCC questions in these types of surveys.

Knowledge, Attitude, and Practice Surveys

Advantages

A community-based or household KAP survey will offer greater flexibility and control over what questions are asked and to whom. For example, KAP surveys allow programs to interview caregivers, pregnant women (and their partners and mothers-in-law), youth, minority groups, or a more general population in a given region. KAP surveys are typically designed to measure specific behaviors and behavioral factors for formative research or as part of a project evaluation. In fact, data collected from a KAP survey implemented as formative research may also be used for baseline data collection. KAP surveys can include questions for all SBCC indicators and more. Questions should cover recall and uptake of behaviors, and for each behavior of interest, questions for intermediate outcome indicators should be included.

Limitations

There is currently no standard global KAP survey; each country or program will need to craft or adapt questionnaires and methods for sampling, data collection, and analysis. For this reason, each KAP survey requires someone with expertise in sampling, questionnaire development, implementation, and analysis. Programs need to anticipate these needs and ensure availability of relevant human resource capacity. There may also be cost implications for implementing a separate household survey like a KAP. However, since programs can have more control over the survey instruments and methodology, these costs may be managed.

Health Facility Data Sources

Advantages

Health facility-based data collection activities have great potential for both formative research and SBCC evaluation, particularly for IPTp and case management, which are dependent on client (or caregiver) and health provider knowledge, attitudes, and behaviors. While household surveys can capture fever care seeking and ANC attendance, there are important limitations to what these surveys can tell us about patient-provider interactions; more specifically, they tell us nothing about health provider knowledge, beliefs, and attitudes related to service provision. Health facility data sources that could capture malaria SBCC indicators include health facility surveys such as the Service Available and Readiness (SARA) and Service Provision Assessment (SPA) surveys, register reviews, and HMIS.

A health facility survey is a broad term for a variety of methodologies that can capture different aspects of service provision. A health facility survey/assessment can use one or a combination of the following data collection methods:

- Patient observation
- Patient exit interviews
- Provider interviews

Health facility surveys can also provide valuable data on the availability of commodities and equipment needed for routine service provision, training and supervision of health providers, and staffing levels. An in-depth register review could be added to a health facility survey or conducted independently. Register reviews can reveal important information about how individual patients are managed at a facility; for example, ANC registers can provide details about provision of IPTp for pregnant women and routine distribution of nets.

Routine data or HMIS reports are other potential data sources that are typically accessible and readily available. Ideally, the reports will be used to complement other health facility-based data sources for formative research, monitoring, and even evaluation. Other types of routine data may include LMIS and Outreach Training and Support Supervision reports that may be useful for tracking the availability of commodities and delivery of IPTp and case management services.

Limitations

Methods for health facility surveys designed to assess health provider behaviors and the factors influencing those behaviors—such as knowledge, efficacy, and attitudes—are not currently standardized at a global level.

Provider adherence to malaria case management and IPTp guidelines may be difficult to measure due to observation bias during direct observation of treatment and recall bias during patient exit interviews. Provider interview questions designed to assess behavioral factors around knowledge, risk perception, efficacy, attitudes, and norms for health providers have not been validated to the extent that other questions included in this guide have been.

SPA is one type of health facility survey. Malaria services are sometimes included as a module in the survey, providing an opportunity to address behavioral factors related to service provision. However, SPA surveys are typically limited to formal health facilities and may not include pharmacies and individual doctors' offices.

Caution should be taken when interpreting results from patient exit interviews in health facility surveys because respondents will be community members with the inclination, ability, and opportunity to seek and access health services, and may not be representative of the population.

While an in-depth register review may require fewer resources and logistics than a health facility survey, it can only be used to gain insight into health provider behaviors; it cannot be used to understand related factors influencing behaviors, with the possible exception of commodity availability. Registers may not accurately reveal how a patient is managed, depending upon data-recording practices at a particular facility. In addition, registers may be incomplete, illegible, or missing, particularly if the registers are not stored carefully or for more than a couple years. Laboratory data may be recorded in a separate lab register and difficult to link to outpatient registers.

HMIS data will have similar limitations to register reviews, as they only provide aggregate data that may be of uncertain quality and likely more difficult to interpret. Additional discrepancies may accumulate as data are recorded and compiled across facilities and reported up to higher levels. Again, routine data from registers and HMIS reports may not provide definitive evidence on their own of health provider behaviors, but they can be used to indicate case management, health facility ITN distribution, and IPTp uptake issues, and be combined with other data sources for a more complete picture of patient-provider interactions.

Qualitative Data

Advantages

While the indicators presented in this guide are measured through quantitative data, qualitative data—obtained from key informant interviews, focus groups, and observations—also play an important role. Qualitative data provide rich contextual information investigating the what, when, and how. The data collected are often compelling to readers, help explain quantitative results, and inform future research. The indicators in this guide can be adapted as themes for qualitative questioning and analysis. Questions should be open-ended and worded carefully so they do not lead respondents to believe a specific answer is expected.

Qualitative data is heavily used for formative research; however, primarily quantitative M&E reports can also benefit from quotes and insights provided by qualitative methods.

Limitations

Qualitative methods collect data from a few individuals so the findings cannot be generalized to the population. Unlike quantitative data, they cannot provide accurate estimates of the frequency or prevalence of various perspectives in the population. Moreover, the quality of the research depends heavily on the skills of the researchers, so careful selection and training of data collectors and data analysts is vital.

Activity Reports

Advantages

Activity reports provide crucial information on how well SBCC activities are being implemented, allowing program managers to adjust activities when needed. These reports provide information on trainings and

community mobilization activities, tracking how many activities were conducted and how many people participate. A system should be created for collecting these forms regularly from implementers and checking to ensure they are filled out correctly. Mobile reporting, supervision visits, and data review meetings can further support these channels.

A media monitoring report is a type of activity report created by third-party agencies that track which radio or TV materials are being aired, at what time, and how often. This allows the program to negotiate “make goods” or airings to make up for under-broadcasting. When media monitoring services are not available, broadcast logs can be requested from stations. Station logs can be verified by having community-based listeners also listen to and log the dates and times of broadcasts.

Limitations

Activity reports can sometimes be delayed, incomplete, or of poor quality. Expectations around timeliness should be communicated to team members. Providing standard reporting templates improves completeness and quality.

Omnibus Surveys

Advantages

Omnibus surveys are regularly occurring large surveys conducted by marketing firms. Firms charge for each question added to the survey. Omnibus surveys are often used for audience monitoring to track exposure to key messages and attitudes over time. They occur frequently (quarterly or semiannually), questions are inexpensive, and national- or regional-level samples can be obtained.

Limitations

Omnibus surveys are often biased toward urban areas and their sampling methods are not as robust as household surveys.

Mobile Phone Surveys

Advantages

Surveys conducted via mobile phones can cost significantly less than household surveys. Data collection and analysis is rapid. It is easy to test incentives as well as different ways of phrasing or ordering questions.

Limitations

The usefulness of mobile phone surveys greatly depends on the audience's access to a mobile phone and their time and inclination to answer a mobile phone survey. For example, although a 2017 nationwide mobile phone survey conducted in Ghana was able to reach its sampling targets for 18- to 30-year-olds and had good reach in both urban and rural areas, it fell far short of its sampling targets for pregnant women and caregivers of children under five.

While quick and flexible, mobile phone surveys are limited in the number of questions that can be asked, compared to a household survey. The quality of the responses may also be affected because an interviewer was not there to explain questions the respondent did not understand.

Media Content Analyses

Advantages

Media content analyses are used to track the level of discussion around a topic. For example, a malaria advocacy project might analyze TV, newspaper, and radio news to determine how often politicians are shown as engaged in malaria-related activities or making supportive statements about malaria funding. Such analyses are relatively inexpensive and do not require fieldwork.

Similarly, Facebook, WhatsApp, Twitter, and other social media comments can be quantified and analyzed for frequency and number of engaged users. Social media analysis can examine a wide range of topics, including discussion themes similar to the indicators in this guide.

Because it does not require fieldwork, content analysis is one of the easiest methods of research. It is useful for observing trends over time as part of audience monitoring.

Limitations

The quality and usefulness of media content analysis is limited by the amount of materials available to analyze. Emergencies or highly controversial issues are more likely to generate social media or news coverage compared to regular events. As a result, researchers may not be able to extract as much in-depth or nuanced information on audiences' motivations and perceptions, so it may be helpful to supplement media content analysis with other data collection methods, such as interviews, focus groups, and observations.

Gender

Gender and Malaria SBCC

Gender refers to the socially constructed roles, behaviors, activities, and attributes that a given society considers appropriate for men and women, and the relationships between men and women in a given society. Gender may, therefore, contribute to making people more or less susceptible to malaria infection, may affect prevention and health-seeking behaviors, and likely contribute to different levels of access to SBCC activities. The behavioral factors included in this guide—knowledge, risk perception, efficacy, attitudes, and norms—are often influenced by gender.

Gender should be considered in the design of SBCC activities to ensure that interventions and programs have the greatest impact. Gender differences may require messages and materials to be tailored in order to effectively reach both men and women.

Collecting Data on Gender

Researchers should add questions to expand their understanding of the contribution of gender norms to SBCC exposure, knowledge, attitudes, norms, perceptions of risk and efficacy, and behaviors. At the formative research stage this helps to identify the appropriate target audience and the appropriate messages for that audience. In the later stages of implementation for monitoring and evaluation, gender considerations help measure progress among the target audience.

ITNs

Depending on the data collection tool used, a household schedule is often included at the beginning of household surveys to capture which people slept under the ITN—this schedule provides information on each household member's sex and age. Although only one respondent completes the survey, typically the head of the household, information is collected on all members of the household. This section of the questionnaire can be used to ascertain age and sex differences in net use.

Some of the questions in Annex 3 can be adapted to further explore the role of gender. For example, question 1201—“Generally, in how many households in your community do the members sleep under an ITN?”—looks at social norms and can be adapted to focus on men or women.

A similar approach can be used with question 1307—“For those adults who did not sleep under the mosquito net last night, what were the reasons for not sleeping under the mosquito net?”. Other gender considerations could include: “If there are not enough ITNs for every child in the house, boys should be given ITNs first,” or “The man of the house should decide who receives an ITN or treatment for malaria.”

Case management and malaria in pregnancy

This guide includes some questions that directly measure the role of gender norms around care seeking and ANC. For example, question 1105 is a true-or-false statement: “A pregnant woman needs permission from her husband or other family to go to ANC,” and question 1321 asks, “In your household, who usually makes decisions to purchase medicine when your child has malaria”? If men control decisions related to ANC or to seeking health care for a sick child, then messages targeted at men should be developed.

Questions can also be adapted or created to measure additional gender considerations, such as, “If my child is sick with a fever, I must consult my husband/partner before taking the child for testing and treatment,” and “It is more important for sons to be treated for malaria quickly than it is for daughters so that they (sons) can continue with school.”

Disaggregating Results by Sex

Results on the indicators presented in this guide should be disaggregated by sex—and age, when possible—so that any gender differences between boys and girls or women and men, can be ascertained. For example, disaggregation can provide information on differing attitudes and treatment-seeking behavior for men and women and youth or gender differences in ITN use within a household. Qualitative data around the themes represented by the indicators should also be analyzed by gender.

Part 2: Priority Indicators

Indicator Reference Sheets

The 17 priority indicators in this guide are organized by the following categories: recall, knowledge, self-efficacy, risk, norms, attitudes, and targeted behaviors. The indicator reference sheets describe the definition, purpose, use, interpretation, disaggregation, strengths, and limitations for each indicator. Additional optional indicators are also provided and can be ascertained through survey questions or through subanalyses. Measurement methods are described in Annex 3.

Recall

This indicator measures the reach of SBCC activities. It can be adapted to measure the proportion of people hearing a specific message and can also be modified to identify the channels through which people are receiving messages.

1. Proportion of people who recall hearing or seeing any malaria message within the last six months

- **Additional indicator 1.1:** Proportion of people who recall hearing or seeing specific malaria messages (reported by each specific message)
- **Additional indicator 1.2:** Proportion of people who recall hearing or seeing a message through communication channel “X” (reported by each specific communication channel)

Purpose

Exposure of the target population to SBCC activities is the primary outcome of SBCC. Exposure is the critical first step to increasing knowledge of the products, practices, or services that may influence an individual to adopt or change a behavior. The target populations’ ability to recall messages about malaria is an indicator of how widely SBCC activities have penetrated the target audience. Survey questions can then go further to ask about recall of specific messages and the channels through which the communications were received. This indicator is particularly useful after an SBCC activity has taken place to measure the reach and effectiveness of the messages. The additional indicators also provide information on the effectiveness of different communication channels—and can provide valuable input into the planning for the next SBCC activity.

Definition

This indicator is defined as the proportion of respondents who recall any malaria message that they have either seen or heard in the past six months. Respondents are asked about the type of messages they saw or heard, as well as about specific campaign messages. The additional indicators provide more precision—with regard to the specific messages seen or heard and the communication channel through which the message was transmitted.

Numerator

Number of respondents who recall hearing or seeing any malaria

message during the last six months

Denominator

Number of respondents surveyed

For the additional indicators, the denominator should be “Number of respondents who reporting hearing or seeing a malaria message in the last six months”.

Measurement method

See Annex 3

Disaggregation

This indicator can be disaggregated by various characteristics to provide program implementers with a clear idea of the reach of their program. Data may be disaggregated by, for example, age, sex, residence (rural/urban), geographical area (province/district or malaria endemicity), education levels, and wealth quintiles.

Data use and interpretation

This indicator provides a measure of the reach and penetration of general malaria communications in a target audience. The additional indicators provide information on the relative strength of specific messages in reaching the target audience and the most effective means through which the audience received messages. Results from this indicator can inform future SBCC activities, providing information about the strength of messages and communication channels.

Strengths

- Responses can be tailored to the campaigns and messages relevant to the local context. For example, schools can be added as an answer choice if schools were used as part of the intervention.
- Only a few questions are needed to construct indicators
- The complete-the-phrase and/or recognize-the-logo questions mitigate social desirability bias because they are more specific to actual campaigns

Limitations

- The results may be subject to bias/confounding because of the use of probing, as probing/prompting styles may not be uniform across interviewers.
- The results may be subject to recall bias with a six-month look-back period, and would not capture communication campaigns implemented prior to the past six-month period without risking further bias.
- The primary indicator—recall of any malaria message in last six months—does not provide sufficient detail to inform programmatic decisions, thus, additional indicators are required for more meaningful information.

Knowledge

The following indicators measure knowledge among target populations. These indicators can be measured separately or can be combined to create a composite indicator.

Purpose

These indicators identify knowledge gaps—surrounding the preventive measures, cause, symptoms, and treatment for malaria—in the population. Knowledge indicators are important to identify

in the formative research stages of the cycle, as they help provide explanations as to why certain behaviors may not be adopted and can guide the design and development of SBCC activities.

Better knowledge of malaria's cause, symptoms, treatment, and preventive measures is a foundational step toward changing behavior, such as increasing caregiver use of insecticide-treated nets or care-seeking practices. Members of the target population who know how to prevent getting malaria by avoiding the primary causes, can recognize the first signs of infection, and know how to treat cases, are generally more likely to engage in the behaviors that will protect themselves. Prompt and effective treatment is a key element in successful malaria control because of the rapid onset of illness and severe health outcomes related to *Plasmodium falciparum* malaria, especially among children and non-immune populations. While the use of ACTs has increased in many countries, chloroquine and other non-ACTs are still used in others.

Testing before treatment is very important, especially in an area where substantial SBCC activities are already in place. This indicator is particularly relevant for countries and regions in which malaria is declining and malaria-like symptoms are harder to recognize.

Definition

These indicators are defined by the proportion of people surveyed who know the cause, main symptom, treatment, and preventive measures for malaria. The indicators are broken down by aspect with the numerator measuring the various prevention and control components, while the denominator remains the number of people who were surveyed.

2. Proportion of people who name mosquitoes as the cause of malaria

- Additional indicator 2.1: Proportion of people who name only mosquitoes as the cause of malaria

Numerator

Number of respondents who name mosquitoes/mosquito bites as the cause of malaria

Denominator

Number of respondents surveyed

3. Proportion of people who know the main symptom of malaria is fever

- Additional indicator 3.1: Proportion of respondents who know the danger signs and symptoms of severe malaria

Numerator

Number of respondents who know that the main sign/symptom of malaria is fever

Denominator

Number of respondents surveyed

4. Proportion of providers who know the only way to accurately diagnose malaria is with a test

Numerator

Number of health providers who cite malaria tests (RDT and/or microscopy) as the only way to be certain that a child has malaria

Denominator

Number of health providers surveyed

Data use and interpretation

This indicator can be adapted to measure correct knowledge of malaria diagnosis among community members or caregivers. This indicator as written recognizes the primacy of providers in diagnosis, but it is also known that patients' demand for antimalarials or tests can also influence diagnostic practice. It is theorized that awareness about current diagnostic best practices, combined with perceptions about the reliability and accuracy of malaria tests (response efficacy) helps predict diagnosis and adherence.

5. Proportion of people who know the treatment for malaria

Numerator

Number of respondents who know that the appropriate treatment for malaria is ACTs⁵

Denominator

Number of respondents surveyed

6. Proportion of people who know proven preventive measures for malaria

- Additional Indicator 6.1: Proportion of people with misconceptions about effective malaria prevention practices (sub-analysis of indicator 5)
- Additional indicator 6.2: Proportion of people who are aware that IPTp is a way to protect a mother and her baby from malaria during pregnancy (sub-analysis of indicator 5)
- Additional indicator 6.3: Proportion of providers who know the national guidelines for IPTp dosing (timing and frequency)

Numerator

Number of respondents who know that the primary preventive measures for malaria include using ITNs, taking preventive medication during pregnancy, taking seasonal prophylaxis, or having their house sprayed with insecticide

Denominator

Number of respondents surveyed

Measurement method

See Annex 3

⁵ Depending on the country context

Disaggregation

These indicators can be disaggregated by various characteristics to provide program implementers a clear idea of the knowledge gaps in the population and can identify the particular populations to be targeted. Disaggregation categories can include age, sex, residence (rural/urban), geographical area (province/district or malaria endemicity), education levels, and wealth quintiles.

Data use and interpretation

This indicator provides a measure of the most basic knowledge of selected audience members about the cause, symptoms, treatment, and prevention of malaria. Based on the individual components of the indicators, a composite indicator can be constructed to measure the proportion of people who know the cause of, symptoms of, treatment for, or preventive measures for malaria.

Results from the individual indicators or from a composite indicator can be used for message development and/or prioritization. Based on the rural/urban disaggregation, useful information can also be obtained with regard to selection of communication channels, which may differ depending on the settings.

Strengths

- Relatively few questions are required to measure each knowledge indicator.
- Provides useful formative data to determine target audience's knowledge needs.

Limitations

- The indicator is subject to bias/confounding with use of probing, as probing/prompting styles may not be uniform across interviewers.
- Difficult to link knowledge to any specific SBCC activities without referencing actual messages.

Risk and Efficacy

The following indicators measure the perceived risk from malaria, perceived consequences of malaria, perceived effect of certain products and services in reducing risk, and perceived self-confidence in conducting a specific malaria-related behavior. This indicator category addresses a population's fears and confidence.

The fear component has two parts: severity and susceptibility. Severity refers to how serious people believe the threat (malaria) to be. Susceptibility refers to the belief that the disease or threat can actually happen to them.

The second component of the model is efficacy, or confidence, in one's ability to control or manage the threat or risk perceived. Efficacy is composed of three parts: response efficacy, self-efficacy, and barriers. Response efficacy refers to a perception that a proposed action or solution will actually control the threat. In the case of malaria, a person's belief that ITNs serve as good protection against malaria is an example of response efficacy. Self-efficacy is a measure of self-confidence that a person can perform an action to control the threat. Self-efficacy can refer to a person's confidence in correctly and consistently using an ITN to prevent malaria. The last part of efficacy, barriers, refers to perceptions of factors that may hinder someone from

practicing the behavior to reduce the threat (See Annex 1 for more details).

These indicators are the basis for fear-based appeals, or messages that pose malaria as a threat. Research has shown that individuals can have the knowledge, skills, positive beliefs, attitudes, and intentions toward a specific behavior, yet they avoid engaging in the recommended behavior. Thus, a trigger to motivate action is needed. Research has shown that perceived threat is a powerful trigger to action.⁶

However, too much fear-based messaging can paralyze people from taking action. They may resort to fatalism or attempt to manage their fear in less productive ways, such as through denial. Fear appeals can be balanced by messages that emphasize people's ability to take effective action. Evaluators can expect desirable behavioral responses when people have strong risk perceptions coupled with strong beliefs of self-efficacy toward the recommended response. (For more information, see Annex 1, Extended Parallel Processing Model.)

7. Proportion of people who perceive they are at risk from malaria

8. Proportion of people who feel that consequences of malaria are serious

Purpose

The purpose of these indicators is to measure the respondent's perceived risk of malaria. Perceived risk can be analyzed and interpreted in line with the respondent's behavior and future intentions. Risk perception is defined as a person's beliefs about the likelihood of experiencing negative or harmful consequences from malaria. This definition comprises two distinct dimensions: (a) **susceptibility** to a threat, and (b) **severity** of that threat. Douglas (1985) defines risk as the likelihood of a specific event occurring multiplied by the magnitude of consequences associated with that event.

Information about perceived susceptibility and severity can be useful when designing SBCC activities, as well as during the audience monitoring and evaluation stages, in order to discover whether the target group believes that they are at great risk of contracting malaria and that the consequences of malaria are serious.

Definition

Indicator 7 measures the perceived susceptibility to the threat of malaria, while Indicator 8 measures the respondents' perceived severity of the malaria. Susceptibility and severity are measured by a variety of questions, with the mean score indicating perceived risk and perceived consequences.

Indicator 7

Numerator

Number of respondents who perceive they are at high risk of malaria (people with a mean score of greater than zero)

⁶ Witte 1992

Denominator

Number of respondents surveyed

Indicator 8**Numerator**

Number of respondents who perceive the consequences of malaria are serious (people with a mean score of greater than zero)

Denominator

Number of respondents surveyed

Measurement method

See Annex 3

Disaggregation

These indicators can be disaggregated by various characteristics to provide program implementers information about the population's risk perception and perceptions about the severity of malaria. Disaggregation categories can include age, residence (rural/urban), profession, geographical area (province/district or malaria endemicity), education levels, and wealth quintiles.

Data use and interpretation

Ascertaining perceptions of risk and efficacy can provide important information to implementers regarding why certain behaviors are not being adopted or are being partially adopted. This information is collected during formative research to help highlight key areas on which to focus SBCC activities.

Evaluators may expect undesirable behavioral responses when people have strong risk perceptions but they doubt their ability to enact a recommended response, such as obtaining SP from the clinic during an ANC visit, and/or they doubt the recommended response will work to avert the perceived threat, such as strong rumors that IRS and/or ITNs reduce fertility. Therefore, evaluators must measure perceptions of efficacy when they assess perceptions of risk, so that program staff can devise the best SBCC messages to address the issue.

These indicators should be interpreted in conjunction with other indicators in this guide—in particular, indicators 8 and 9, which measure perceptions of efficacy and confidence in personal ability to perform a malaria-related behavior respectively.

Strengths

- Questions provided relate to indicators on both susceptibility and severity
- The use of reverse coded items will reduce bias by preventing respondents falling into a response pattern

Limitations

- Use of inversions may pose challenges during data analysis. Analysts should be clear which questions are to be inverted, and how the results are to be interpreted.

9. Proportion of people who believe that the recommended practice or product will reduce their risk**Purpose**

This indicator measures response efficacy—the belief that an intervention or solution will control the threat. Before behavior change can occur, people must first be knowledgeable about the change that needs to happen and believe that they will personally benefit from adopting the behavior. Response efficacy combined with self-efficacy (indicator 9) can be good predictors of behavior change.

During the formative research stage, response efficacy measures help programs understand why people are not adopting certain behaviors. If people do not believe a practice or product will reduce their risk, they will be unlikely to use it consistently. Information on response efficacy can be useful in designing SBCC activities as well as during the audience monitoring and evaluation stages, to ascertain whether the target group has been convinced that a certain practice or product will reduce their risk.

Other indicators, such as having a positive attitude toward a product, are also included in this guide since other attributes of a product, such as ease of use, may influence use.

Definition

This indicator is defined as the proportion of the target population surveyed who believe that the recommended practice or product will reduce their personal risk for adverse health outcomes. “Practice” refers to the desired behavior the program is trying to promote among members of the target population, such as complying with IRS spray team instructions, sleeping under an ITN, or attending ANC. Examples of recommended “products”—which accompany recommended practices—include SP for IPTp during pregnancy, ACTs for treating malaria, or ITNs.

Numerator

Number of respondents who believe a behavior or practice will reduce their risk of malaria

Denominator

Total number of respondents surveyed

Measurement method

See Annex 3

Disaggregation

This indicator can be disaggregated by various characteristics to provide information about the population's perceptions about certain products and practices. It may be useful to disaggregate the information by a number of categories, including age, sex, residence (rural/urban), profession, education levels, and wealth quintiles.

Data use and interpretation

The separation of questions into components related to IRS, ITN use, IPTp, diagnosis, and treatment enables researchers to compute a global mean for this indicator, while also maintaining the ability to analyze component-specific metrics. These component-specific metrics can provide more detail than a composite indicator, which may be more useful for adjusting and refining programmatic interventions.

Results from this indicator provide detailed information to program managers that can be used for SBCC activity development and prioritization. Interventions with low response efficacy can be prioritized in SBCC activities. Health providers aware of these results can also place greater emphasis on certain interventions, taking more time to explain the necessity and benefits.

Strengths

- Questions provided in the annex relate to components covering prevention (IRS, ITNs, IPTp), diagnosis, and treatment.
- The use of inversions will reduce bias by preventing respondents from falling into a response pattern.

Limitations

- Use of inversions may pose challenges during data analysis. Analysts should be clear which questions are to be inverted, and how the results are to be interpreted.

10. Proportion of people who are confident in their ability to perform a specific malaria-related behavior

Purpose

Self-efficacy is defined as an individual's self-confidence to perform a specific behavior. Self-efficacy beliefs are different than beliefs about the response efficacy of a particular type of prevention or treatment. However, these beliefs are related, since belief in the effectiveness of the action will encourage adoption of the behavior.

Key behavior change theories and models recognize the importance of perceived self-efficacy in the adoption and sustained practice of a behavior. Bandura (2004) noted that belief in personal efficacy play a central role in personal change. He asserted that self-efficacy is the foundation of human motivation and action.

Self-efficacy measures, like response efficacy above, are important during the formative research stage, to understand why people are not adopting certain behaviors. If people are not confident about their ability to perform a malaria-related behavior, they will be unlikely adopt the behavior. Information on self-efficacy can be useful for designing SBCC activities as well as during the audience monitoring and evaluation stages, to ascertain whether the target group has grown in their confidence in performing a malaria-related behavior.

Definition

This indicator measures perceived self-efficacy, which is the conviction that one can successfully accomplish the behavior required. This indicator measures self-confidence in various components, outlined in the table for measurement methods in the Annex.

Numerator

Number of respondents who cite being confident in their ability to perform a specific malaria-related behavior

Denominator

Total number of respondents surveyed

Measurement method

See Annex 3

Disaggregation

This indicator can be disaggregated by various characteristics to provide program implementers information about the population's confidence in performing malaria-related behaviors. It may be useful to disaggregate the information by a number of categories, including age, sex, residence (rural/urban), profession, education levels, and wealth quintiles.

Data use and interpretation

Questions about perceived self-efficacy should be precise and refer to specific circumstances. For example, perceived self-efficacy at finding resources to take a child with fever to the clinic may depend on the particular context. Therefore, a question that is not context-specific may be a poor measure of self-efficacy.

Information regarding self-efficacy is critical for development of SBCC activities that are appropriate for the audience and context. Disaggregation of this indicator according to sex, age, wealth quintiles, or residence will provide further information to program managers on appropriate messaging to address self-efficacy issues.

Strengths

- Questions provided relate to components covering prevention (IRS, ITNs, IPTp), diagnosis, and treatment.
- The indicator can be measured as a composite of all the components or separately, per component.
- Component-specific metrics can provide useful information on areas in which target populations feel less self-confident; this information could be useful to inform malaria SBCC activities.

Limitations

- Including several questions per component into an established household survey may be difficult. As such, implementers may be limited in the number of questions they can include to measure each component, thereby affecting the validity if analyzed by component.
- There is a risk of social desirability bias with regard to confidence, as the enumerator is not asking for proof of confidence. The respondent may be tempted to note that they are confident in their ability to perform the activity to please the enumerator.

Norms

Social norms—beliefs around common behaviors and expected practices in a group—play a significant role in public health behaviors. There is growing evidence that they may be relevant to malaria-related behaviors, such as net use and net care and repair.⁷

⁷ Russell 2015; Scandurra 2014

11. Proportion of people who believe the majority of their friends and community members currently practice the behavior

Purpose

Social Learning Theory states that people learn by observing what others do. People observe the consequences (either benefit or punishment) of others' actions, evaluate the relevance and importance of those consequences for their own lives, and then rehearse the behavior and attempt to reproduce the action themselves.

As individual behavior is strongly influenced by peers and the community at large, mass media campaigns are important for challenging deeply held beliefs and customs regarding certain health practices, and creating a need or demand for changes in health behavior. Mass media programs can begin to alter behaviors if they portray those behaviors as socially unacceptable, thereby modifying norms.

Even if real behavior change has not yet occurred, when program implementers influence the public's perception to believe change is occurring or has occurred, which in turn affects the attitude toward the practice, it creates the necessary momentum and supportive environment to impact actual change. This indicator measures the persuasiveness of SBCC strategies in influencing the perception that their friends, family, and other fellow community members are adopting the recommended behavior and that adherence to that behavior is increasing, decreasing, or staying the same.

Definition

"Believe" is defined as what the intended respondents understand, discern, or recognize to be true based largely on personal experience or anecdotal evidence.

"Behavior" refers to the desired result the program is trying to achieve among members of the target population. Examples include sleeping under an ITN, using first-line drugs for treating malaria, or going early to ANC.

Numerator

Number of respondents who believe that their friends and community members are practicing the recommended behavior

Denominator

Total number of respondents surveyed

Measurement method

See Annex 3

Disaggregation

It may be useful to disaggregate the information by a number of categories, including age, sex, residence (rural/urban), profession, education levels, and wealth quintiles.

Data use and interpretation

As much as SBCC practitioners take steps to avoid rumors, sometimes misconceptions and negative publicity develop and gain traction, sharply influencing the public's perception of a particular behavior and

possibly exaggerating it. Evaluators must be prepared to deal with this possible outcome and swiftly and efficiently implement a way to reverse public perception and attitudes.

The components on ITN use, IPTp, and health-seeking behavior for children with fever are to be interpreted as stand-alone components. This indicator can be useful in the formative research stages of the cycle—to ascertain a population's views about the popularity of a certain behavior. This information can feed into the development of SBCC activities, ensuring that they are targeted to the population in question. This indicator can also be useful at the audience monitoring and evaluation stages and can serve as a proxy of the success of an SBCC activities.

Strengths

- The components in this indicator can be measured individually and can also be compiled into an aggregate score to reflect how people perceive the health behaviors of people in the communities.
- Relatively few questions are required to measure this indicator.

Limitations

- This indicator is based on personal perceptions and may not reflect the reality of community practices. As such, the data should be interpreted in the context of the questions asked and should be triangulated with other findings from the survey that relate to actual ITN use, IPTp uptake, and health-seeking behavior.

Attitudes

12. Proportion of people with a favorable attitude toward the product, practice, or service

Attitudes refer to the judgments people make about a product, practice, or service. People who view a behavior, such as net use, or a malaria commodity, such as ITNs, favorably are more likely to adopt a behavior.

Purpose

People's actions are often based on beliefs about whether a behavior will lead to positive (or desirable) or negative (or undesirable) outcomes. SBCC activities often address the specific value judgments that encourage or discourage a behavior.⁸

The questions in the Annex provide guidance on how to gauge attitudes toward malaria-related components. Implementers are not expected to add all these questions to an existing survey; rather, they should choose the most relevant questions based on what the country or program has identified as potential barriers or determinants in other related research. Questions can be adapted to the country context or replaced with more appropriate questions.

Implementers with access to a statistician should consider constructing scales so that a predictive index can be developed.

⁸ Fishbein and Ajzen 1975

This indicator can be useful in the formative research stages of the cycle to ascertain a population's attitudes toward a product, practice, or service. This information will feed into the development of SBCC activities, ensuring that they target the population in question. This indicator can also be useful at the audience monitoring and evaluation stages, to assess the extent to which a population's attitudes have changed.

Definition

"Favorable attitude" is defined as a person's positive assessment of a behavior or related construct, such as a specific product or source of service. The assessment is expressed by statements from the respondent that relate the behavior with a positive value held by the respondent.

Numerator

The number of respondents with a mean score of greater than zero for a product, practice or service

Denominator

Total number of respondents surveyed

Measurement method

See Annex 3

Disaggregation

This indicator can be disaggregated by various characteristics to provide program implementers information about the population's attitude to product, practice or service. It may be useful to disaggregate the information by a number of categories, including age, sex, residence (rural/urban), profession, education levels, and wealth quintiles.

Data use and interpretation

The separation of questions into components related to IPTp, ITNs, diagnosis, treatment, and IRS enables researchers to compute a global mean for this indicator as well as component-specific metrics. These component-specific metrics can provide useful information on attitudes toward practices and products, which are important to program managers as they design or refine their interventions. Information regarding attitudes toward a product, practice, or service is critical for development of SBCC activities that are relevant and targeted. Disaggregation of this indicator according to sex, age, wealth quintiles, or residence will provide further information to program managers on appropriate audience targeting to address unfavorable attitudes toward certain products, practices, and services.

Strengths

- This indicator and corresponding questions allow countries to collect and analyze data to determine if useful findings emerge.
- Questions are broad and can be adapted to the country context.
- Countries can ask questions relating to all or some of the components outlined in this indicator description.

Limitations

- Attitudes represent value judgments and are difficult to measure in a standardized way.
- The questions in the Annex will have to undergo validation for each context to ensure they capture the required information.

Behaviors

13. Proportion of people who practice the recommended behavior

Purpose

These are the priority indicators for measuring malaria prevention and control behaviors. SBCC activities aim to influence activities such as ITN use, especially for children under five years of age and pregnant women; timely treatment for malaria, especially for children under five years of age with fever; attending ANC and completion of IPTp during pregnancy. Provider behaviors include appropriate case management with tests and ACTs as well as administration of IPTp.

Definition

Among those in the target population surveyed, the indicator is defined as the proportion of respondents who practice the recommended behavior. "Target population" is defined as the intended population for the program. "Behavior" refers to the desired result the program is trying to achieve among members of the target population.

Beneficiary behaviors

Sleeping under ITNs

Proportion of population that slept under an ITN⁹ the previous night (household members)

Data sources: DHS, MIS, MICS; other community surveys. See MERG 2013 document for detailed information on measuring this indicator, including the numerators and denominators.

Additional indicator 13.1. ITN use-to-access ratio: The proportion of the population using nets, among those people who have access to one within their household

This indicator controls for access to nets. It gives the estimate of the proportion of the population using nets, among those people who have access to one within their household. This indicator provides information on the true behavioral gap because it accounts for insufficient number of nets in the household. The **ITN Access and Use Report, 2017**¹⁰ provides a summary of the use-to-access ratio across and within countries.

"ITN access" is based on the number of ITNs in the household and the number of household members. Over a large sample, it measures the proportion of people who should have access to an ITN. It cannot

⁹ The 2017 standard DHS surveys use the term ITN to refer to all treated nets. No data is being collected on nets that are being dipped in insecticides after manufacturing since insecticide retreatment kits are no longer being distributed or promoted.

¹⁰ Koenker and Ricotta 2017

be calculated on an individual basis. “Use” is the proportion of the population that slept under an ITN the night before the survey.

When the use-to-access ratio is high, consider switching to measuring ITN use maintenance—meaning, ITN use “most nights,” “every night,” “during both the rainy and dry seasons,” and “year-round,” or during each month of the year.

Malaria in pregnancy

Attend ANC early and throughout pregnancy: Proportion of women who attended at least one, two, and three ANC visits during last pregnancy

Data sources: DHS, MIS, MICS; other community surveys

Case management

Proportion of children under five years old with fever in the last two weeks for whom advice or treatment was sought the same or next day following the onset of fever

Some programs may also measure whether care was sought from an approved source, such as a community health worker or health facility.

Data sources: DHS, MIS, MICS; other community surveys. See MERG 2013 document for detailed information on measuring this indicator, including the numerators and denominators.

Health Providers

IPTp and case management involves action on the part of both pregnant women and providers. Provider behaviors can be measured directly via health facility assessments (observations and interviews) and HMIS reports. Due to the lack of standard indicators for health facility assessments and HMIS, proxy indicators from household surveys are often used as well. These proxy indicators are included below.

Malaria in Pregnancy

Proportion of pregnant women at ANC who received IPTp according to national guidelines

Data sources: Health facility survey, ANC register review
If available, observational data provide a precise way to assess whether pregnant women received IPTp and counseling on malaria prevention in pregnancy. When observational data is unavailable, a proxy measure for IPTp uptake can be found in the MIS or DHS, which uses interviews with women who were pregnant in the past two years (not health providers).

The following indicator may be used as a proxy:

Proportion of women who received three or more doses of IPTp¹¹ during ANC visits during their last pregnancy

Data sources: DHS, MIS, MICS; other community surveys. See MERG 2013 document for detailed information on measuring this indicator, including the numerators and denominators.

Case Management

Provide malaria case management per national guidelines

Proportion of fever cases receiving a malaria diagnostic test (or proportion of malaria cases diagnostically confirmed)²

Proportion of tested cases treated/not treated according to test results (or proportion of confirmed positive cases receiving ACT)²

Data sources: Health facility survey, register review, HMIS
If available, observational data provide high precision for assessing whether children with fever were tested and whether confirmed malaria cases were treated with ACTs. When observational data is unavailable, the MIS or DHS can be used to measure proxy indicators. These sources use interviews with caregivers of children under 5 years of age (not health providers).

The following indicators may be used as proxies:

Proportion of children under five years old with fever in the last two weeks who had a finger or heel stick

Proportion receiving an ACT among children under five years old with fever in the last two weeks who received any antimalarial drugs

Data sources: DHS, MIS, MICS; other community surveys. See MERG 2013 document for detailed information on measuring this indicator, including the numerators and denominators.

Indoor Residual Spraying

No behavioral indicators are included for IRS, as IRS does not need to be measured during SBCC assessments. This is because IRS is increasingly outside the control of individuals and households and more in the hands of governments or donors, due to increasing costs of insecticide, and IRS activities are contingent upon the consent of community leaders. As such, no individual-level behavioral indicators are included here or in the DHS and MIS surveys. However, IRS is mentioned in the annex of survey questions, as it is still an important intervention. These questions may be of particular interest to those who wish to better understand the reasons of the small proportion of households who refuse IRS.

Measurement method

See Annex 3

Disaggregation

These indicators can be disaggregated by various characteristics to provide program implementers information about the populations’ practice of targeted behaviors. It may be useful to disaggregate the information by a number of categories, including age, sex, residence (rural/urban), malaria endemicity, profession, education levels, and wealth quintiles.

¹¹ As IPTp policies differ by country, this indicator may be modified to reflect the country context.

Data use and interpretation

Behavior change is a lengthy process and it may take several years of program implementation before actual changes occur. While responses can be triangulated against service statistics (for treatment seeking and IPTp) and observation (such as hanging of ITNs), beneficiary responses are subject to individual self-reporting. Responses may be influenced by response bias (when respondents are familiar with the behavior and respond in the “correct” way instead of responding according to their true actions).

These indicators are useful at two main stages of the program monitoring cycle: at the formative research stage and at the audience monitoring and evaluation stage. In the former, these indicators can highlight a priority area or problem behavior. Low rates show that the population is not engaging in adequate preventive and treatment measures. This finding is critical in designing an SBCC activity. At the latter stage, these indicators offer information on the effectiveness of SBCC campaigns and assess the extent to which behavior change has occurred.

Strengths

- The questions for the measurement of these indicators are versatile. They can be added to any large nationally representative surveys or smaller surveys that are representative of a subnational area, such as a region, district, or project area.

Limitations

Beneficiary behaviors

- ITNs
 - Some ITNs in the household can be too damaged to use, therefore providing an overestimate for the denominator.
 - ITN use may vary by season.
- Malaria in Pregnancy
 - Not all women may know they are pregnant. Others may not wish to report if they are pregnant, particularly if the survey visit took place during early pregnancy. For this reason, it is difficult to collect data on all pregnant women in the sample.
 - Women may not recall the name of the drug they took during pregnancy for prevention of malaria. At the time of publication, there were discussions that the MIS and DHS would be redesigned so that women would not be asked the name of the drug they took, and that the source of the dose would be removed.
- Care seeking
 - This indicator does not explain why advice or treatment was not sought for some children.
 - While seeking care within 24 to 48 hours is still important for preventing severe malaria, finding a consistent way to measure this has been challenging.

Provider behaviors

- Proxy indicators for IPTp and case management—These indicators do not collect data from the target audience (providers), but rather from women and caregivers who are the beneficiaries of provider behaviors. Health facility surveys are better way to measure provider behaviors.
- Proportion of children under five years old with fever in the last two weeks who had a finger or heel stick – A finger or heel stick may not have been used to diagnose malaria. For instance, it can be used to diagnose anemia or typhoid as

well. The respondent is not asked if the finger or heel stick was used to diagnose malaria because they may not know what disease was tested.

- Treatment according to test results —This is a measure of adherence to malaria test results. Reasons for non-adherence to negative test results, or over-prescription of ACTs, are not explored.
- Proportion receiving an ACT among children under five years old with fever in the last two weeks who received any antimalarial drugs—This indicator is limited to children who received antimalarials. There is no information on whether the child should have received the antimalarial according to recommendations. It simply measures whether the appropriate antimalarials, if any, were given.

Program Outputs

Process indicators reflect the steps necessary to successfully implement an activity. The reporting should specify the intervention's geographic coverage and information on the population targeted, including their age and sex, if appropriate.

14. Number of materials produced

Purpose

Malaria programs create messages and produce materials to promote social and behavioral change. The messages and materials produced are the first step toward influencing behavior change. This process indicator is meant to capture the creation of those messages and/or materials.

Definition

Each new SBCC activity, such as an advertisement, video, or educational book, counts as a “created” message. Materials or materials should demonstrate and provide information about malaria prevention and treatment strategies.

Numerator

Number of materials produced or messages created

Denominator

None

Measurement method

This indicator is measured through project records. Records should show how many materials were produced or how many messages. Verification against the budget for printing, for example, can also be useful.

Disaggregation

This indicator can be disaggregated by type of materials produced, such as posters, radio advertisements, or billboards; type of message created, such as malaria prevention or early treatment; or target audience.

Data use and interpretation

This indicator provides a measure of the outputs produced. The dissemination of the messages depends on the timing of production. Delayed production of messages and materials can have a great impact on the success of a SBCC activity.

Strengths

- This indicator is relatively easy to measure.
- This indicator can be checked against the budget in cases where materials are to be printed or developed digitally.

Limitations

- The indicator does not show whether the materials and messages were clear and of high quality, or whether they reached the target audiences.
- This indicator does not provide information on whether the materials and/or messages were produced on time.
- This indicator does not provide information on whether the messages or materials were disseminated.

15. Number of people reached**Purpose**

This indicator measures the volume of people who participate in program activities or use program services. The exact wording of the indicator will vary by type of program and the activities.

Staff can compile data on the number and characteristics of people who attend interpersonal communication activities. Getting an accurate count can be hard in large community gatherings, so staff should estimate the number of participants by visually breaking up the audience into separate sections (of about 25 to 35 people), count how many people are in that section, then multiply that by the number of “sections” that appear to be in the audience.

To estimate the reach of mass media programs, media monitoring agencies can use TV meters, media diaries from selected households, and panel surveys to estimate the number of people who listened to a broadcast.

In addition to the number and percent of people in the intended population served or reached by the program, managers should ascertain if the program reaches key sub-groups. For example, some SBCC activities will target health facility staff. Managers should ensure that the program is reaching the sub-groups of interest.

Definition

This indicator measures the number of people who have received program services, have participated in community mobilization activities, or who have been exposed to program mass media messages.

Numerator

Number of people served or exposed to the program

Denominator

None

Measurement method

This indicator is measured using program service statistics or comparable data indicating the number and characteristics of people

served by the program. Responses to survey questions on exposure to or participation in program activities can also be used. Managers should compile statistics separately for each major type of activity.

Disaggregation

Managers should subdivide this indicator by the total number exposed by the type of activity, such as a community activity, school-based program, or clinical services. Participants can also be classified by relevant characteristics such as: age, gender, marital status, race/ethnicity, socio-economic status, and residence.

Data use and interpretation

This indicator provides insight on whether SBCC activities are reaching a large number of people.

Strengths

- This indicator can be triangulated with indicator 1—proportion of people who recall hearing or seeing any malaria message within the last six months—and additional related indicators.

Limitations

- This indicator does not provide information about the effectiveness of each channel in changing behavior.
- It may be very difficult to obtain an accurate count of the number of attendees at large community mobilization gatherings, therefore, program records must rely on best estimates.
- Double counting is inevitable at well-attended events occurring in the same or even nearby communities.
- This indicator does not measure the engagement of the community members, if the target audience was reached, or how well the objectives of the meeting or event were achieved.
- Media monitoring agencies with the capacity to monitor ratings use sophisticated technology and high technical capacity. Because of this, these agencies may not be easily accessible or prohibitively expensive.

16. Number of SBCC activities carried out**Purpose**

This indicator measures the number of SBCC activities carried out. It provides information on whether activities are being carried out in accordance with work plans. This indicator also provides information on the frequency of the main types of SBCC activities, such as home visits, community demonstrations, and television or radio airings.

Definition

This indicator measures the number of activities carried out. SBCC activities could include home visits, community demonstrations, or television or radio broadcasts.

Numerator

Number of SBCC activities carried out
This indicator can be easily adapted to state the actual activities used. Potential adaptations include “Number of community dialogues” and “Number of times messages aired on radio or television in reference

period [such as three months].” Once program evaluators have information on the number of times a message has aired, they can triangulate this information with data from the radio and television stations on approximate geographical coverage of their broadcasts, and census data in order to calculate a rough estimate of how many people were reached by the broadcasts.

Denominator

None

Measurement method

This indicator can be measured through program records that note the number activities carried out. Managers may wish to also gather data on characteristics of audience—such as age, sex, and location—to provide more contextual information to this indicator.

Disaggregation

This indicator is to be disaggregated by the type of SBCC activity. The type of activity will depend on the program design, but may include home visits, information sessions, community demonstrations, and television or radio airings.

Data use and interpretation

This indicator provides a measure of the implementation of a SBCC activity, by indicating the frequency of various activities carried out. This indicator can be used to ensure that a SBCC activity is on track according to the activity work plans. If SBCC activities are not taking place according to plan, then the expected behavior change is unlikely to occur.

Strengths

- Measuring the number of SBCC activities carried out can provide an indication as to progress of the program.
- This indicator is to be disaggregated by SBCC activity, providing managers with detailed information about implementation activities.

Limitations

- While the indicator measures the number of activities carried out, it provides no information about the quality of activities.
- This indicator cannot provide information on whether the activities occurred on time.

17. Number of people trained in SBCC for malaria

Purpose

This indicator serves as a measure of SBCC training programs. Managers can use it to determine whether a program is meeting its training targets and/or for tracking progress from one year to the next. When aggregated, it also represents human resource potential of people who could help carry out malaria SBCC activities.

Definition

This output-level indicator measures the number of people who have completed a training course in malaria SBCC. An individual should only be counted after they have completed the training. Individuals that are mid-way through a training course should be counted in the next

reporting period. Individuals attending more than one peer-education training course during a reporting period should be counted only once.

Numerator

Number of people who have completed a training course in malaria SBCC

Denominator

None

Measurement method

Number of persons trained is based on the final list of participant names, for potential verification of attendance and training topic. The data sources for this indicator include training sign-in sheets, training reports, and program reports.

Disaggregation

Data can be disaggregated by age, gender, and urban/rural residence. If the SBCC is targeting and/or linking to inequity, classify trainees by areas served (poor/not poor) and disaggregate the data by area served.

Data use and interpretation

This indicator provides a measure of the available human resources trained in malaria SBCC. The number of people trained provides an indication of the capacity of the program to carry out the intended SBCC activities.

Limitations

- This indicator does not capture the number of participants who become actively involved in malaria SBCC. A further step would be to measure the percentage of people were trained in malaria SBCC and who are active during a reference period.
- This indicator does not provide information on knowledge gained or the quality of the training.

Part 3: Annexes

Annex 1: Theories of Communication and Behavior Change

The indicators in this guide are based on previous research and theories about the determinants of behavior change for malaria, family planning, HIV, and other health areas. Data shows that improving knowledge alone is not enough to increase the uptake of desired behaviors. Other factors, such as audience attitudes and characteristics of the desired behavior should also be considered.

The word “theory” is used differently in everyday speech and science. While the vernacular use of the word “theory” implies speculation, social science and scientific theories—like the ones discussed in this section—instead, refer to “an explanation of some aspect of the natural world that has been substantiated through repeated experiments.”¹² Theories help us map where the audience is in the process of behavior change and how they will get to the desired change. Theories provide insights into the decisions, motives, barriers, and facilitators associated with change.

In this section are six commonly used behavior change and communication theories. While the theories share some similar elements, each emphasizes slightly different constructs and processes. In this annex, we provide an overview of each theory and how their constructs are reflected in the indicator guide. This information was adapted from the Online Training Series on Evidence-Based Malaria Social & Behavior Change Communication¹³ and a series of research primers on SBCC¹⁴.

Extended Parallel Processing Model

Indicators 6 through 9 measure the constructs of perception of risk, self-efficacy, and response efficacy, which have been associated with preventive behaviors.¹⁵ These constructs are based on the Extended Parallel Processing Model (EPPM)—also known as the Risk Perception Attitude Framework.¹⁶ The EPPM describes how reason and emotion interact during individual decision-making.

The model has two components: **fear or threat** (emotion) and **efficacy** (reason). Fear has two parts, severity and susceptibility, and efficacy—or confidence in one’s ability to control or manage the threat or risk perceived—is composed of three parts: response efficacy, self-efficacy, and barriers.

Fear or Threat

- **Susceptibility** refers to the belief that the disease or threat can actually happen to them. Indicator 7, proportion of people who perceive they are at risk from malaria, measures susceptibility.
- **Severity** refers to how serious people believe the threat (malaria) to be. This is reflected in indicator 8, proportion of people who feel that consequences of malaria are serious.

Efficacy

- **Response efficacy** refers to a perception that a proposed action or solution will actually control the threat. In the case of malaria, a person’s belief that ITNs serve as good protection against malaria is an example of response efficacy. Indicator 9, proportion of people who believe that the recommended practice or product will reduce their risk, measures response efficacy.
- **Self-efficacy** is a measure of self-confidence that a person can perform an action to control the threat. Self-efficacy can refer to a person’s confidence in correctly and consistently using ITNs to prevent malaria. Indicator 10, proportion of people who are confident in their ability to perform a specific malaria-related behavior, measures self-efficacy.
- The last part of efficacy, barriers, refers to perceptions of factors that may hinder someone from practicing the behavior. Research has shown that individuals can have the knowledge, skills, positive beliefs, attitudes, and intentions toward a specific behavior, yet they still do not engage in the recommended behavior. A trigger to motivate action is needed.

Putting it all together

Evaluators can expect desirable behavioral responses when people have strong risk/threat perceptions coupled with strong beliefs of efficacy toward the recommended response (Figure 1, top left box). When people experience significant fear, but have little belief that they can take action or that their actions will be effective, they will be more likely to deny the importance of the issue, act defensively, or avoid it (top right box). If the threat is perceived not to be serious but there are easy and effective measures available, individuals may be slightly motivated to act (bottom left box). If the threat is not serious and there are no feasible or effective actions that individuals can take, they will likely do nothing about the issue.

For example, people may feel that ITN use is easy but feel little fear about the risk of malaria infection during the dry season (bottom left box). SBCC activities may be designed to increase the perception that community members remain susceptible to malaria during the dry season and that its consequences can still be severe (top left box). Using the indicators provided, evaluators can measure the extent to which these programs affected perceptions of risk and efficacy, and whether these constructs were determinants of year-round ITN use.

Figure 1. Extended Parallel Processing Model

¹² Ghose, Tia. “Just a Theory: 7 Misused Science Words,” *Scientific American*, April 2013. <https://www.scientificamerican.com/article/just-a-theory-7-misused-science-words/>

¹³ VectorWorks 2015.

¹⁴ Health Communication Capacity Collaborative 2014.

¹⁵ Boulay et al. 2014.

¹⁶ Rimal and Real 2008.

| | High Efficacy (Able to respond effectively) | Low Efficacy (Unable to respond effectively) |
|--|--|---|
| High Threat (Vulnerable to Serious Harm) | Highly motivated to take protective action | Denial, defensiveness, avoidance |
| Low Threat (Invulnerable, Trivial Threat) | Low motivation, may be some protective action | No Response |

EFFICACY DETERMINES REACTION

Social Learning Theory

Social Learning Theory, also known as Social Cognitive Theory, emphasizes the importance of modeling and self-efficacy. According to this theory, people learn by:

1. Observing what other people do
2. Observing what happens to those people as a result of their behavioral choices
3. Evaluating the relevance and importance of those consequences for their own life
4. Attempting to reproduce the action themselves

Self-efficacy is an important part of this theory. According to Bandura, “perceived self-efficacy affects every stage of personal change. It determines whether people even consider changing the behavior, whether they can enlist the motivation...and how well they have maintained the changes.”¹⁷ Role-modeling should thus be oriented to build people’s skills and their belief in being able to exercise those skills.

The first step, observing what other people do, is reflected in indicator 11, proportion of people who believe the majority of their friends and community members currently practice the behavior. Even if real behavior change has not yet occurred, SBCC can increase the public’s perception that change is occurring or has occurred, creating the necessary momentum and supportive environment for actual change. This indicator measures the ability of SBCC strategies to persuade the intended audience that their friends, family, and fellow community members are adopting the recommended behavior, and that adherence to that behavior is increasing, decreasing, or staying the same.

The second step, observing what happens to those people as a result of their behavioral choices, is the basis for indicators 7 and 8: proportion of people who feel that consequences of malaria are serious and proportion of people who believe that the recommended practice or product reduce their risk, respectively. Individuals gauge the impact these behaviors have had on others—whether they are rewarded or punished socially, materially, or physically—as they reflect on the relevance and importance of these consequences on their own lives (step 3). Indicator 6, the proportion of people who believe they are at risk of malaria, is an indication of step 3.

Indicator 9, proportion of people who are confident in their ability

to perform a specific malaria-related behavior, can be used to track changes in self-efficacy as a result of exposure to a campaign and how much self-efficacy has contributed to the desired behavior change.

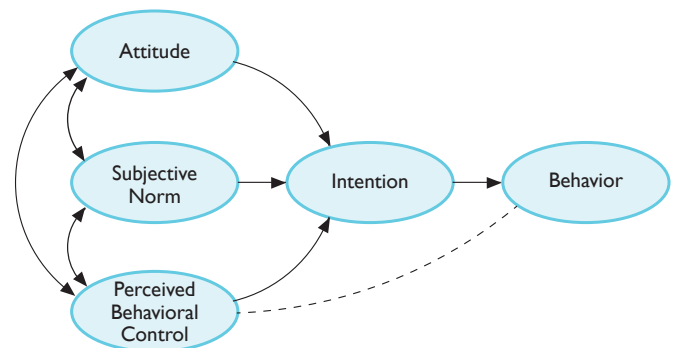
Putting it all together

Media campaigns based on the social learning theory use relatable figures—figures like the target audiences—to model the health issues and build life skills. This is most evident in long-running drama serials with family planning messages or a dramatic film addressing malaria in pregnancy. Social learning theory has also been used in individual or small group interventions where participants have the opportunity to observe their peers and support for practicing the behavior, such as condom use or partner communication, is provided.

Theory of Planned Behavior

According to the Theory of Planned Behavior, people base their intentions on three things: whether they think the behavior is bad or good, what they think they are expected to do, and the extent to which they can carry out the behavior. This section is drawn from an SBCC research primer on the Theory of Planned Behavior.¹⁸

Figure 2. Theory of Planned Behavior



- **Attitude**—Beliefs that the behavior is good or bad based on whether its outcomes are positive or negative. This construct is reflected in indicator 10, proportion of people with a favorable attitude toward the product, practice, or service, and indicator 8, proportion of people who believe that the recommended practice or product will reduce their risk.
- **Subjective norms**—Perceived social pressure and beliefs about what their peers expect them to do and whether they will be supported or ridiculed. This construct is reflected in indicator 11, proportion of people who believe the majority of their friends and community members currently practice the behavior.
- **Perceived behavioral control**—Beliefs about whether they have the necessary knowledge, tools, and ability to carry out the behaviors is reflected indicator 9, proportion of people who are confident in their ability to perform a specific malaria-related behavior.
- **Intention**—According to this theory, the stronger a person’s intention to practice a healthy behavior, the more likely that person will actually perform that behavior. **However**, it is important to remember that many outside factors and barriers can prevent an individual from performing a behavior, even when they have an intention to do so. Intention is strongest when attitudes, subjective norms, and perceived behavioral control favor the behavior.

¹⁷ Bryant and Zillman, 2008.

¹⁸ Health Communication Capacity Collaborative 2014.

Putting it all together

A campaign in Tanzania sought to increase perceptions that ITNs are the socially accepted approach for avoiding malaria, foster people's confidence in their ability to use ITNs every night, and improve the fatalistic attitude that malaria is an unavoidable and constant presence in people's lives.

The program's initial evaluation demonstrated that exposure to the activities improved the self-efficacy necessary to take action to prevent malaria. Nearly 77% of those exposed to the program put all their children under ITNs the previous night, as opposed to 34.6% of those unexposed to the program. Exposure to the campaign significantly increased the perception that ITNs are effective in stopping malaria and the belief that ITNs are useful and easy to use.

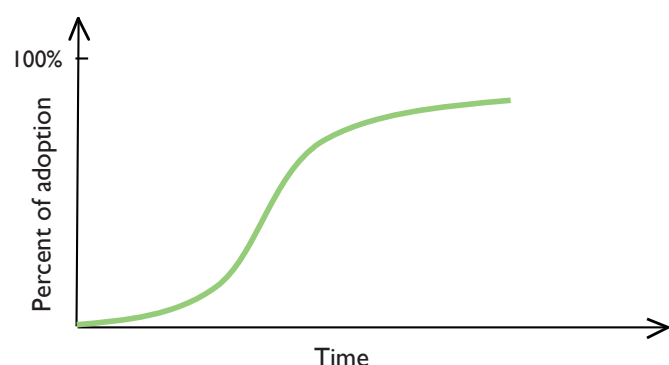
Social norms and the belief in one's ability to use ITNs effectively were also significantly associated with ITN ownership. Thus, those exposed to the campaign activities shifted their attitudes and were more likely to act on their intention to own and use an ITN.

Diffusion of Innovations

This theory describes several factors that influence how quickly an idea or behavior is adopted. The diffusion depends on characteristics of the innovation, communication channels, period of time, and the social system. This section has been adapted from an SBCC research primer on the Diffusion of Innovations Theory.¹⁹

Figure 3 represents the diffusion S-curve. It illustrates how people are initially slow to adopt new behaviors, but as the behavior becomes better known and accepted, more people quickly start to practice it. Eventually the behavior becomes commonplace with fewer new adopters.

Figure 3. Diffusion S-Curve



Some innovations, such as mobile phones, quickly become popular, while others require more explanation and practice before they are adopted. Effective communication can help an innovation become more popular, making the curve steeper. Similarly, the characteristics of an innovation or health behavior will influence how rapidly it can be adopted. Table 1 describes the main characteristics of an innovation as well as what they mean for program implementation. As people become more familiar with an innovation, they are more likely to adopt

it.

Table 1. Characteristics of Innovations and Related Communication Interventions

| Characteristic | Question | Explanation |
|----------------|----------------------|--|
| Complexity | How simple? | These questions can be answered in social advertising and in community/radio discussions |
| Compatibility | Does it work for me? | |
| Observability | Can I see it? | Even if a person has never seen something, hearing a friend or a community leader speak positively about it could encourage them to use it. |
| Trialability | Can I try it? | A person may never be able to try something, but seeing someone else go through the experience on TV or in a community drama could have a similar effect |

Putting it all together

Implementers can track the progress of their interventions by creating graphs like the S-curve as data on the program's reach are evaluated. Ideally, program implementers seek to make the graph narrower and taller—reaching more people, quickly. Diffusion of Innovations approaches work best when applied to issues that can be influenced by prominent members of society or spread through traditional methods of communication. Indicator 13, proportion of people who have encouraged friends or relatives to adopt the specific practice, can help identify opinion leaders who may have influenced the behavior of people with regard to malaria interventions.

The Health Belief Model

This model illustrates the importance of beliefs about the risks, benefits, barriers, and self-efficacy in behavior change. According to this model, if individuals regard themselves as susceptible to malaria; believe that malaria would have potentially serious consequences; believe that ITN use, IPTp, testing, and treatment would be beneficial in either reducing their susceptibility to malaria or alleviating its severity; and believe the benefits of the behavior outweigh the barriers, they are likely to act to reduce their risks. The model also argues that a cue to action is needed to trigger preventive action. The model differs from the others in that it does not explicitly state the role of emotion (like fear, as in EPPM).

Putting it all together

Descriptions of these constructs and their relationships to the indicators are described above. One example of a cue to action may be, "if your child has a fever, go to a health center immediately."

¹⁹ Health Communication Capacity Collaborative 2014.

Implementers using the Health Belief Model should assess the relationship between these constructs and the desired behavior as well as evaluate the role of recall of the specific cue to action given in the campaign.

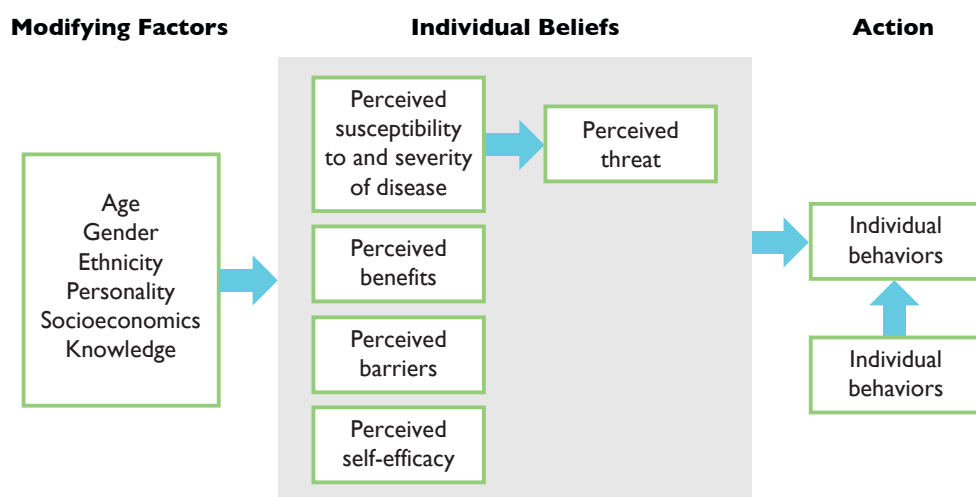
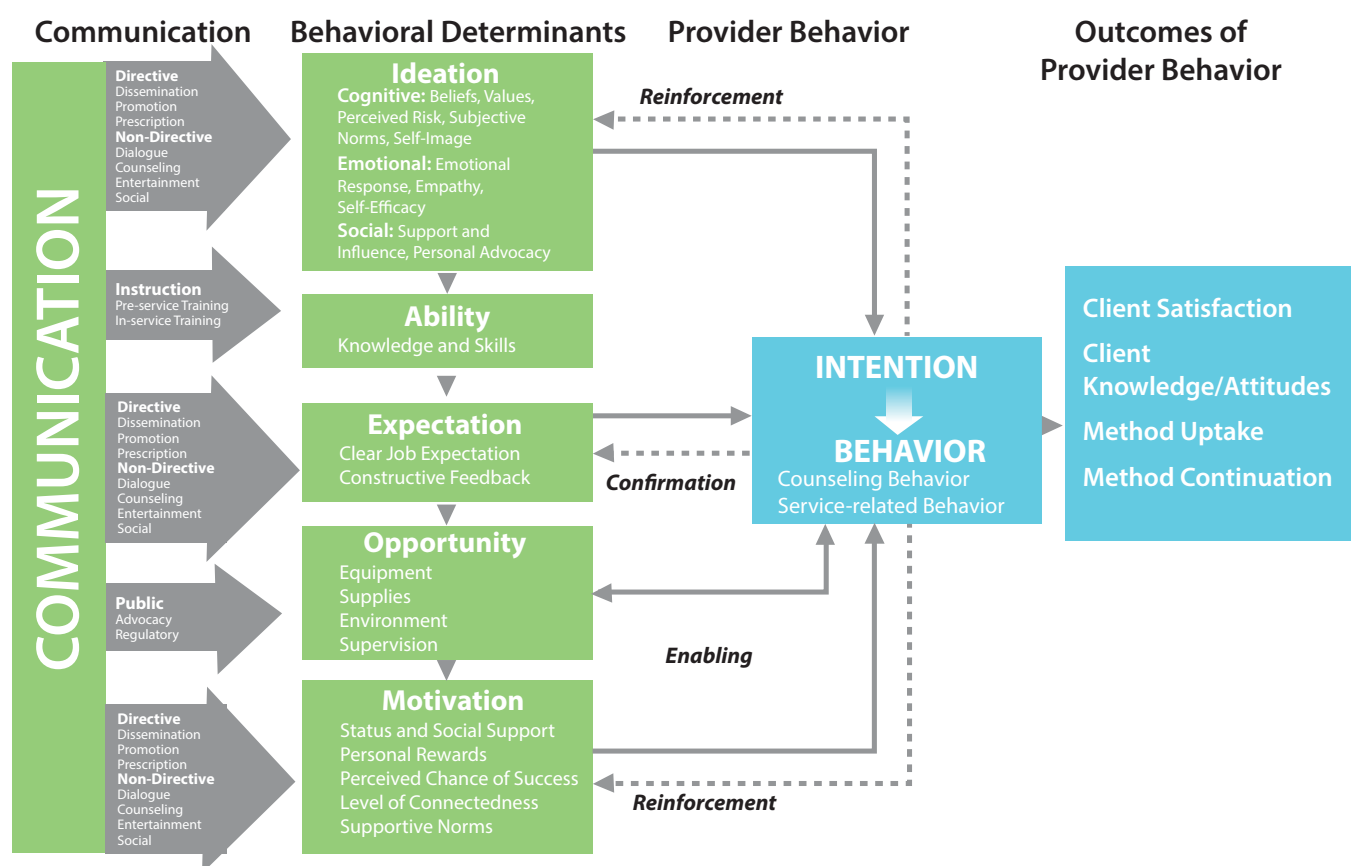
The Ideation Model

Ideation is a model for understanding how new ways of thinking, or behaviors, are diffused among individuals and groups through communication and social interaction. The model is crosscutting and incorporates many of the concepts found in the previously mentioned models. Ideation should be used when planners want to identify the psychological factors that predict behavior or try to causally attribute behavior change to SBCC activities. By creating a combined ideational index, researchers can show that individuals who have more ideational factors are more likely to adopt a given behavior. The likelihood of someone adopting and sustaining a new behavior is much higher when he or she:

- Has gained sufficient knowledge about it
- Has developed a positive attitude toward it
- Thinks others support and practice it
- Has talked to others about it
- Feels good about doing it
- It is also possible to identify which of these factors are the strongest predictors of behavior, providing guidance about what SBCC strategies should emphasize.

The model comprises three main categories of ideational factors: cognitive, emotional, and social. Cognitive factors address an individual's beliefs, values, and attitudes (such as risk perceptions), as well as how an individual perceives what others think should be done (subjective norms), what the individual thinks others are actually doing (social norms), and how the individual thinks about him/herself (self-image). Emotional factors include how an individual feels about the new behavior (positive or negative) as well as how confident a person feels that they can perform the behavior (self-efficacy). Social factors consist of interpersonal interactions (such as support or pressure from friends) that convince someone to behave in a certain way, as well as the effect on an individual's behavior from trying to persuade others to adopt the behavior as well (personal advocacy). Figure 5 suggests that communication can affect all of the ideational factors simultaneously.²⁰

²⁰ Health Communication Capacity Collaborative 2015.

Figure 4. The Health Belief Model²¹

Figure 5. The Ideation Model

²¹ Glanz et al. 2008.

Annex 2: Checklist for Reporting on Malaria SBCC Evaluations

The checklist asks writers to describe the SBCC intervention; to provide a rationale for the strategy, choice of SBCC outcomes, and methods of creating comparisons; and to discuss the effects, casual mechanism, and generalizability of the results. It aims to improve transparency, increase efficiency during the publication process, and identify which SBCC approaches work best in different contexts.

| | |
|---|---|
| ✓ | DOMAIN 1: INTERVENTION DESIGN How the intervention was designed and a description of the intervention |
| | 1. What behavioral problem was the BCC intervention intended to address? |
| | 2. What findings from formative research informed the intervention? |
| | 3. What theories were used to develop the intervention or analysis? * |
| | 4. Are target audiences described in a way that helps readers understand the behavioral context? |
| | 5. Are messages, materials and activities described in terms of the program theory and intended audience? (Nice-to-have: A link to materials, resources and research from the program) |
| | 6. Were messages and materials tested with target audiences prior to roll-out? How? ** |
| | 7. Was there a description of the duration, frequency and quantity of BCC activities? * What were the qualifications of those delivering the intervention? *Was there a monitoring mechanism to verify the reach or delivery of content? |
| | 8. How did exposure to the intervention vary? Was there substantial variation in the reach of media and community partners? * |
| | 9. If possible: Were the costs described? **Were any existing structures or resources leveraged by the intervention? |
| | DOMAIN 2: STUDY DESIGN Selection of outcomes and method of comparison |
| | 10. How were units assigned to a study groups? If units were not randomized, what measures were taken to minimize the risk of selection bias? * |
| | 11. If baseline information is available: Is there a comparison of baseline characteristics for sociodemographic characteristics and outcomes for each study group? What statistical methods were used to control for baseline differences? * |
| | 12. If there was a comparison group, is there a description of the group? What messages, materials and activities did this group receive? What efforts were made to prevent contamination? * |
| | 13. Did the authors use the recommended outcome indicators from the RBM malaria BCC indicators guide (exposure to the BCC intervention, changes in malaria behaviors, intermediate outcomes such as knowledge, norms, attitudes, risk and efficacy)? What were the effect sizes and confidence intervals? |
| | 14. Were the selected outcomes theoretically plausible given the intervention design? ** |
| | 15. How soon after the BCC intervention was the data collected? |
| | DOMAIN 3: DISCUSSION Interpretation of the results, factoring in strengths, limitations or weaknesses of the study |
| | 16. Are multiple criteria for causal attribution assessed? |
| | 17. Is there a discussion on the mechanism or causal pathway? * |
| | 18. To what extent are the findings consistent with previous research? |
| | 19. Were alternative explanations given? * This can include issues such as access, the presence of other programs in the intervention environment, psychosocial variables, or contextual events. |
| | 20. What factors facilitated or hindered the implementation of the intervention? * |
| | 21. Is there a discussion on the extent to which the results of the study can be generalized? * Was there a discussion on cost-effectiveness, scalability and/or sustainability? ** |
| | 22. What are the implications for future research, BCC campaigns and policy? |

* Adapted from TREND ** Adapted from commentaries on TREND

Annex 3: Survey Questions and Measurement Methods

Survey Design

Sample Size

For smaller surveys, implementers need to ensure an adequate sample size to provide enough power for disaggregated data analysis for specific target populations, such as pregnant women, if the sub-population is targeted. A large enough sample size is needed to draw meaningful interpretations from the data, and to that end, the incorporation of these questions into existing surveys should be discussed at the earliest stages of planning so that adequate resources are allocated to that activity.

Adapting/Tailoring Questions

Target audiences

In general, these indicators represent the measurement of individuals, not households. Even if questions are asked as part of the household questionnaire, the responses represent only the individual providing them—not any of the other household members. If the target audience is a sub-segment of the general population, such as pregnant women or children under five years of age, the survey questions must be asked of or about this specific sub-population, for example, “Did the child under five years of age sleep under an ITN last night?”

If the intended target group is health care providers, data will have to be collected via a health facility survey rather than a household survey. The questions in this annex have only been tested with households, and not with health providers. Additional information around the work environment and professional norms may be necessary to better understand provider motivations.

The data collection tools should be designed or modified to ensure that the correct skip patterns are in place so that people are not asked questions that do not apply to them.

“I” vs. “you”

Implementers should decide ahead of time, based on the context, whether the enumerators (data collection staff) use “I” or “you” when formulating the questions. The questionnaire should be adapted accordingly.

Local context

Data collection tools should be adapted generally for the country context. This includes the names of malaria and other drugs, health structures, and SBCC activities.

Social Desirability Bias

Social desirability bias can be a limitation to data collection if the respondents believe that enumerators wish to hear certain answers. In order to reduce or eliminate potential social desirability bias, the questionnaire could include some questions to assess social desirability. The Crowne and Marlow Social Desirability Scale²² or shorter versions of the scale, such as the one described by Reynolds,²³ are useful in assessing whether respondents are responding truthfully or are misrepresenting themselves in order to manage the enumerator’s perceptions of them.

The Social Desirability Scale can be adapted to specific country contexts. Data analysts can compare the Social Desirability Score and a key variable of interest, such as ITN use or correct health-seeking behavior. Analysts can then control for high social desirability in multivariate analyses.

Data Analysis, Use, and Interpretation

Creating control groups

Evaluations should categorize individuals as exposed to or unexposed to SBCC interventions. These groups should then be compared, controlling for potential confounding factors. Further details on analytical methods such as propensity score matching—to create statistically matched control groups—and mediation analysis, which allows researchers to test the extent to which specific changes in knowledge and attitudes can be mapped and linked to behavior change, can be found in the [Guide for Developing M&E Plans for Malaria BCC Activities](#).²⁴

Likert Scales

The Likert scale-type questions are typically scored such that “strongly disagree” is coded as -2 and “strongly agree” is coded as +2. Questions that require an inversion (INV) should be reverse-coded. In these instances, “strongly disagree” is coded as +2, “disagree” is coded as +1, “agree” is coded as -1, and “strongly agree” is coded as -2. Mean scores for each scale are then generated for each respondent.

²² Crowne 1960.

²³ Reynolds 1982.

²⁴ RBM 2014.

“Don’t know/Uncertain” is not offered as an option but if the respondent is conflicted about an answer, this option can be used. Enumerators should be trained, however, not to mention this as an option, and only select it if the respondent does not want to answer.

Data analysts can also report the percentage of people who agree with the statement by collapsing the categories “strongly agree” and “agree” into one measure.

Analysis of “Don’t Know” answers

The “don’t know” option is not presented to respondents—enumerators can use it in the rare event that a respondent cannot categorize their answer into one of the other categories. For the analysis, the “don’t know” can be recoded as missing when the questions are analyzed individually or coded as 0 (or the value in the middle of the range) when a score is being constructed so that the number of values remains the same. Alternatively, the “don’t know” answers can be dropped before constructing a score.

Interpretation

Data analysts should be sure that they are drawing valid conclusions from the data. Such conclusions depend on the sampling methodology and the analytical approach taken. Bias may play a role in the results obtained. Every effort should be taken to control for bias and confounding factors.

Triangulate Data Sources

As noted above, these indicators have to be interpreted taking into account other information. Standing alone, the indicators may not always be able to provide answers to the questions “why?” and “so what?” By triangulating the data from these indicators with other sources, researchers are able to provide context on matters, such as access to commodities and services or information about training of staff in health facilities. This information helps provide a comprehensive narrative and explanations for the results seen.

Disaggregation

The overall sample size will also affect the conclusions that can be drawn from data. If program managers disaggregate data by too many categories, the number of observations in each category may be too small and corresponding confidence intervals will be wide.

Presenting results

For questions that do not use a Likert Scale, data can be analyzed and presented in tables similar to those in the DHS or MIS reports. An example is provided in Table 1 below.

Alternatively, for each question in the data collection tool, a simple bar graph can depict the result for each question.

A third alternative is to conduct a full factor analysis and build the constructs for various concepts—such as self-efficacy or susceptibility—outlined in this document. See Annex 3 for details.

Table 1: Example of table for data analysis and presentation

| Proportion of people who recall hearing or seeing any malaria message within the last 6 months | | | | |
|--|-------------------------|--------|-------------------------|--------|
| Background characteristic | Women | | Men | |
| | Recall malaria messages | Number | Recall malaria messages | Number |
| Age | | | | |
| 15-24 | | | | |
| 15-19 | | | | |
| 20-24 | | | | |
| 25-29 | | | | |
| 30-39 | | | | |
| 40-49 | | | | |
| Residence | | | | |
| Urban | | | | |
| Rural | | | | |
| Malaria Endemicity | | | | |
| Highlands Endemic | | | | |
| Lake Epidemic | | | | |
| Semi-Arid Seasonal | | | | |
| District | | | | |
| A | | | | |
| B | | | | |
| C | | | | |
| Education | | | | |
| No education | | | | |
| Primary education | | | | |
| Primary complete | | | | |
| Secondary | | | | |
| More than secondary | | | | |
| Other relevant characteristics | | | | |

Recall

1. Proportion of people who recall hearing or seeing any malaria message within the last six months

- Additional indicator 1.1: Proportion of people who recall hearing or seeing specific malaria messages (reported by each specific message)
- Additional indicator 1.2: Proportion of people who recall hearing or seeing a message through communication channel “X”(reported by each specific communication channel)

The questions required for calculating these indicators have become a part of the standard household questionnaire module for the MIS. These data could also be collected in smaller subnational surveys, particularly in areas where SBCC activities were targeted.

The numerator is obtained by asking the respondent²⁵ if they had seen or heard any messages about malaria within the past six months. In cases where the survey is being conducted more than six months after the SBCC campaign, the time frame can be adjusted accordingly. Implementers must note, however, that an extended time frame between the SBCC campaign and the survey will likely introduce more recall bias into the measurement. In cases where the SBCC campaign has taken place within a time frame shorter than six months, the survey question can be altered accordingly.

The numerators for the additional indicators are obtained by asking follow-up questions to those respondents who replied in the affirmative that they had seen or heard a malaria message in the specified time period. The first follow-up question asks what specific messages the respondent had seen or heard and the second question asks where the message was seen or heard. To reduce or eliminate potential response bias, the survey enumerator should avoid asking: “Did you hear/see X message?” (Yes/No).

Alternatively, depending upon the content of the communication campaign, the survey can ask the respondent to complete a catch phrase or jingle associated with the campaign. This method works well for radio, television, or even community events. For more visual campaigns using billboards, posters, or other printed materials, the enumerator can ask respondents to identify a familiar logo or image associated with a campaign. The survey can include questions on as many specific messages as are applicable. Optimally, responses will be unprompted but the enumerator may ask a simple probe, “Is there anything else?”, to ensure the respondent has fully considered the question.

The denominator for all indicators is the total number of survey respondents. An alternative denominator for the additional indicators could be the “Number of respondents who recall hearing or seeing any malaria message,” if researchers want to know what message or channel resonated most with the target population that recalls hearing or seeing any message.

Additional questions can be included in the measurement tool to provide more details and contextual information, such as:

- Access to radio/television and frequency of use—Access to a radio and television are included in the MIS and DHS, but only the DHS Women’s Questionnaire includes questions about the frequency of radio and television use. Questions about mobile phone use and access should also be considered.
- Understanding of a specific message or jingle, such as if the message is about using ITNs, seeking prompt treatment for fever, or recognizing danger signs of malaria—this question should be asked in an open-ended, unprompted way.

The survey may also include a communication channel not used in SBCC activity to gauge the extent of social desirability bias inherent in the responses. Social desirability bias occurs when the respondent tries to give the socially correct answer or one s/he feels will please the interviewer, rather than a true response. This check is particularly useful in an environment with relatively few communication channels. Note: These questions are provided for reference only. As far as possible, the questions and the response options should be adapted to fit the country context with respect to recent or ongoing key messages and slogans.

²⁵ In this document, “respondents” refers to the people selected for participation in the survey. Respondents will be selected based on the survey sampling methodology and should be representative of the target population of the malaria program. “Target population” refers to the overall entities (individuals or social groups) for whom the intervention was intended, or the population of interest.

| Question No | Question | Responses | Code |
|-------------|---|---|------|
| 101 | In the past six months, have you seen or heard any messages about malaria? | YES | 1 |
| | | NO | 2 |
| 102 | Where did you hear or see the messages or information? Anywhere else? | GOVT CLINIC/HOSPITAL | 1 |
| | | COMMUNITY HEALTH WORKER | 2 |
| | | FRIENDS/FAMILY | 3 |
| | | WORKPLACE | 4 |
| | | DRAMA GROUPS | 5 |
| | | PEER EDUCATORS | 6 |
| | | POSTER/BILLBOARDS | 7 |
| | | TELEVISION | 8 |
| | | RADIO | 9 |
| | | NEWSPAPER | 10 |
| | | SCHOOL | 11 |
| | | OTHER (SPECIFY): | 88 |
| | | DON'T KNOW | 99 |
| 103 | What messages about malaria did you hear or see? Is there anything else? | MALARIA IS DANGEROUS | 1 |
| | | MALARIA CAN KILL | 2 |
| | | MOSQUITOES SPREAD MALARIA | 3 |
| | | SLEEPING UNDER AN ITN IS IMPORTANT | 4 |
| | | WHO SHOULD SLEEP UNDER AN ITN | 5 |
| | | SEEK TREATMENT FOR FEVER | 6 |
| | | SEEK TREATMENT FOR FEVER PROMPTLY (WITHIN 24 HOURS) | |
| | | IMPORTANCE OF HOUSE SPRAYING | 7 |
| | | NOT PLASTERING WALLS AFTER SPRAYING | 8 |
| | | ENVIRONMENTAL SANITATION ACTIVITIES | 9 |
| | | NOT ALL FEVERS ARE MALARIA | 10 |
| | | USE A TEST BEFORE TAKING MALARIA TREATMENT | 11 |
| | | GIVE MALARIA TREATMENT ONLY TO CONFIRMED CASES | 12 |
| | | BASED ON TEST RESULTS | |
| | | OTHER (SPECIFY): | 13 |
| | | DON'T KNOW | |
| | | | 88 |
| | | | 99 |
| 104 | Can you complete the following phrase: "Take cover under the ITN every..."? [Respondent reply: "...day every night"] | YES | 1 |
| | | NO | 2 |
| | | DON'T KNOW | 99 |
| 105 | Where did you hear or see this phrase? | RADIO | 1 |
| | | TELEVISION | 2 |
| | | POSTER | 3 |
| | | COMMUNITY EVENT | 4 |
| | | HEALTH PROVIDER | 5 |
| | | FRIEND/NEIGHBOR/FAMILY MEMBER | 6 |
| | | OTHER (SPECIFY): | 88 |
| | | DON'T KNOW | 99 |
| 106 | Do you recognize any of these logos/pictures? [Interviewer shows three images including the logo that has been used in the SBCC activity; the other two are made up] | YES | 1 |
| | | NO | 2 |
| 107 | Where did you hear or see this image? | RADIO | 1 |
| | | TELEVISION | 2 |
| | | POSTER | 3 |
| | | COMMUNITY EVENT | 4 |
| | | HEALTH PROVIDER | 5 |
| | | FRIEND/NEIGHBOR/FAMILY MEMBER | 6 |
| | | SCHOOL | 7 |
| | | OTHER (SPECIFY): | 88 |
| | | DON'T KNOW | 99 |

Knowledge

2. Proportion of people who name mosquitoes as the cause of malaria

- Additional indicator 2.1: Proportion of people who name only mosquitoes as the cause of malaria

3. Proportion of people who know the main symptom of malaria is fever

- Additional indicator 3.1: Proportion of respondents who know the danger signs and symptoms of severe malaria

4. Proportion of providers who know the only way to accurately diagnose malaria is with a malaria test (RDT or microscopy)

5. Proportion of people who know the treatment for malaria

6. Proportion of people who know preventive measures for malaria

- Additional Indicator 6.1: Proportion of people with misconceptions about effective malaria prevention practices
- Additional indicator 6.2: Proportion of people who are aware that IPTp is a way to protect a mother and her baby from malaria during pregnancy (sub-analysis of Indicator 5)
- Additional indicator 6.3: Proportion of providers who know the national guidelines for IPTp dosing (timing and frequency) (survey question not provided)

The numerator for these indicators is obtained by asking respondents a series of questions about the causes, signs/symptoms, treatment, and preventive measures for malaria.

For indicator 2, “cause of malaria,” the respondent is asked about the causes of malaria and the enumerator marks the responses mentioned. The options in the questionnaire must include mosquitoes or mosquito bites. Other options should be context-specific common misunderstandings about the cause of malaria. The respondent is counted in the numerator if they mention mosquitoes or mosquito bites as the cause of malaria. With regard to additional indicator 2.1, recent analysis has shown that in some areas, respondents who believe that only mosquitoes cause malaria may be more likely to sleep under ITNs. For additional indicator 2.1, respondents are counted in the numerator if they cite **only** mosquitoes as the cause of malaria—and do not cite any incorrect causes of malaria. Implementers can measure additional indicator 2.1 if it is deemed useful for the program.

| Question No | Question | Responses | Code |
|-------------|--|---------------------------|------|
| 201 | What do you think is the cause of malaria? | MOSQUITO BITES | 1 |
| | | EATING IMMATURE SUGARCANE | 2 |
| | Anything else? | EATING COLD FOOD | 3 |
| | | EATING OTHER DIRTY FOOD | 4 |
| | RECORD ALL MENTIONED | DRINKING DIRTY WATER | 5 |
| | | GETTING SOAKED WITH RAIN | 6 |
| | | COLD OR CHANGING WEATHER | 7 |
| | | WITCHCRAFT | 8 |
| | | OTHER (SPECIFY): | 88 |
| | | DON'T KNOW | 99 |

For indicator 3, “symptoms of malaria,” the respondent is asked to name the main signs or symptoms of malaria. Responses should be unprompted/spontaneous in order to minimize bias, but the interviewer should probe respondents to ensure they have the opportunity to provide multiple responses. A typical probe would be, “Is there anything else that is a sign of malaria?” To be counted in the numerator, the respondent must identify fever among their responses.

The numerator for additional indicator 3.1 would be obtained by asking the respondent to name danger signs for malaria. Respondents should only be counted if they are able to name at least one clinical feature based on the World Health Organization guidelines: impaired consciousness, prostration/extreme weakness, convulsions, respiratory distress, circulatory collapse/shock, acute kidney injury, clinical jaundice, and abnormal bleeding. Responses should be unprompted/spontaneous in order to minimize bias, but the interviewer should probe respondents to ensure they have the opportunity to provide multiple responses.

| Question No | Question | Responses | Code |
|-------------|---|-----------------------------|------|
| 301 | How do you know if you or someone in your household has malaria? | SYMPTOMS | 1 |
| | | HEALTH PROVIDER EXAMINATION | 2 |
| | | BLOOD TEST (RDT OR SLIDE) | 3 |
| | | OTHER | 88 |
| | RECORD ALL MENTIONED | DON'T KNOW | 99 |
| 302 | What signs or symptoms would lead you to think that a person has malaria? | FEVER | 1 |
| | | FEELING COLD | 2 |
| | | HEADACHE | 3 |
| | | NAUSEA AND VOMITING | 4 |
| | | DIARRHEA | 5 |
| | | DIZZINESS | 6 |
| | | LOSS OF APPETITE | 7 |
| | | BODY ACHE OR JOINT PAIN | 8 |
| | | PALE EYES | 9 |
| | | SALTY TASTING PALMS | 10 |
| | | FEELING WEAK | 11 |
| | | REFUSING TO EAT OR DRINK | 12 |
| | | OTHER (SPECIFY): | 88 |
| | | DON'T KNOW | 99 |
| 303 | What are the main danger signs of malaria? | SEIZURE / CONVULSIONS | 1 |
| | | FAINTING | 2 |
| | | ANY FEVER | 3 |
| | | HIGH FEVER | 4 |
| | | STIFF NECK | 5 |
| | | FEELING WEAK | 6 |
| | | NOT ACTIVE | 7 |
| | | CHILLS/SHIVERING | 8 |
| | | NOT ABLE TO EAT | 9 |
| | | VOMITING | 10 |
| | | CRYING ALL THE TIME | 11 |
| | | RESTLESS | 12 |
| | | DIARRHOEA | 13 |
| | | OTHER (SPECIFY): | 88 |
| | RECORD ALL MENTIONED | DON'T KNOW | 99 |

The numerator for indicator 4 would be the number of health providers who cite malaria tests (RDT and/or microscopy) as the only way to be certain that a child has malaria. The denominator would be all the health providers surveyed. The data source for would be a health facility survey. This indicator is similar to response efficacy in that it touches on the respondent's perceptions on the effectiveness of malaria tests. However, it does not test the strength of that belief, nor does it specifically examine providers' beliefs around the accuracy of microscopy and RDTs in field conditions. In applying the framework, researchers believe that a provider's diagnostic knowledge and belief in the effectiveness of malaria tests (response efficacy) both influence diagnosis and prescribing behavior.

| Question No | Question | Responses | Code |
|------------------|--|---|----------|
| 401 PROVIDERS | What makes you certain that a child has malaria? CHECK ALL RESPONSES MENTIONED. DO NOT PROMPT | MICROSCOPY OR RAPID DIAGNOSTIC TEST | 1 |
| | | FEVER & OTHER SIGNS & SYMPTOMS OF MALARIA | 2 |
| | | CLINICAL JUDGEMENT | |
| | | OTHER (SPECIFY): | 3 |
| | | DON'T KNOW | 88 99 |

For indicator 5, "treatment for malaria," the respondent is asked to name the most effective medication used to treat malaria. Responses should be unprompted/spontaneous to minimize bias. Only one response is required of the respondent. The respondent is counted in the numerator if they cite ACTs as the most effective treatment, but country-specific context should be applied to this measure. For example, a local name for ACT is an acceptable response. Countries in which a substantial proportion of infections are caused by *Plasmodium vivax* should consider chloroquine or ACTs acceptable.

| Question No | Question | Responses | Code |
|-------------|--|-------------------------------|------|
| 501 | What is the most effective medication used to treat malaria? | SP/FANSIDAR | 1 |
| | | CHLOROQUINE | 2 |
| | | QUININE | 3 |
| | | NEW MALARIA DRUG/ACT | 4 |
| | | ASPIRIN, PANADOL, PARACETOMOL | 5 |
| | RECORD ALL MENTIONED | OTHER (SPECIFY): | 88 |
| | | DON'T KNOW | 99 |

For indicator 6, “prevention of malaria,” the respondent is asked to name one or more preventive measures for malaria. The options in the questionnaire must include the relevant preventive measures implemented in the community; these may include using ITNs, taking preventive medication during pregnancy, taking seasonal prophylaxis, or having the house sprayed with insecticide. If any of these preventive measures are not implemented in the target community, such as seasonal prophylaxis, it should not be included as an option. Other options should include false preventive measures for malaria including cutting grass, keeping the house surroundings clean, and avoiding drinking dirty water.

The respondent is only counted in the numerator if they name at least one of the relevant preventive interventions and none of the incorrect behaviors.

Indicator 6.1 is the inverse of indicator 6. Respondents count in the numerator if they cite any of the incorrect behaviors.

For indicator 6.2, the numerator is the number of respondents who selected “take preventive medication” for question 601 and the denominator is the number of respondents in the sample.

| Question No | Question | Responses | Code |
|-------------|---|--|------|
| 601 | How can someone protect himself or herself against malaria? | SLEEP UNDER A MOSQUITO NET | 1 |
| | | SLEEP UNDER A INSECTICIDE-TREATED MOSQUITO NET | 2 |
| | Anything else? | USE MOSQUITO REPELLANT | 3 |
| | | AVOID MOSQUITO BITES | 4 |
| | RECORD ALL MENTIONED | TAKE PREVENTIVE MEDICATION DURING PREGNANCY | 5 |
| | | SPRAY HOUSE WITH INSECTICIDE | |
| | | USE MOSQUITO COILS | 6 |
| | | CUT THE GRASS AROUND THE HOUSE | 7 |
| | | FILL IN PUDDLES (STAGNANT WATER) | 8 |
| | | KEEP HOUSE SURROUNDINGS CLEAN | 9 |
| | | BURN LEAVES | 10 |
| | | DON'T DRINK DIRTY WATER | 11 |
| | | DON'T EAT BAD FOOD | 12 |
| | | PUT MOSQUITO SCREENS ON THE WINDOWS | 13 |
| | | DON'T GET SOAKED WITH RAIN | |
| | | OTHER (SPECIFY): | 14 |
| | | DON'T KNOW | 15 |
| | | | 88 |
| | | | 99 |

For indicator 6.3, “provider knowledge on the national guidelines,” the numerator is the number of providers who correctly answered questions 601, 602, and 603 and the denominator is the total number of providers. The data source would be a provider survey (such as those conducted during a health facility assessment).

| Question No | Question | Responses | Code |
|--------------|---|-------------------------|------|
| 601 PROVIDER | What is the name of the medicine that is given to pregnant women to keep them from getting malaria? | FANSIDAR | 1 |
| | | CHLOROQUINE | 2 |
| | | METAKELFIN | 3 |
| | MULTIPLE RESPONSES POSSIBLE. CIRCLE ALL RESPONSES. | MEFLOQUINE | 4 |
| | | ARTEMETHER/LUMEFANTRINE | 5 |
| | | QUININE | 6 |
| | PROBE ONCE: ANYTHING ELSE? | COARTEM | 7 |
| | | HERBAL REMEDIES | 8 |
| | | OTHER | 88 |
| | | DON'T KNOW | 99 |

| Question No | Question | Responses | Code |
|-----------------|--|--------------------------------------|------|
| 602 PROVIDER | When should a pregnant woman start to take medicine to keep from getting malaria? | AS SOON AS SHE KNOWS SHE IS PREGNANT | 1 |
| | | WHEN THE BABY FIRST MOVES | 2 |
| | | AT HER FIRST ANTENATAL CARE VISIT | 3 |
| | | START OF 4TH MONTH OR 2ND TRIMESTER | 4 |
| | | ANY TIME DURING PREGNANCY | 5 |
| | | OTHER (SPECIFY) | 88 |
| | | DON'T KNOW | 99 |
| 603 PROVIDER | How many doses of anti-malarial tablets should a pregnant woman take during a pregnancy to prevent her from getting malaria? | ONE | 1 |
| | | TWO | 2 |
| | | THREE | 3 |
| | | MORE THAN THREE | 4 |
| | | DON'T KNOW | 99 |

While no indicator is given for measuring caregiver knowledge about care-seeking guidelines, the following question may still be useful for programs:

| Question No | Question | Responses | Code |
|-------------|---|--------------------------------|------|
| | When should a mother bring a child to a health facility for fever? | SAME DAY | 1 |
| | | NEXT DAY | 2 |
| | | TWO DAYS AFTER FEVER | 3 |
| | Note: where applicable, "health facility" can be replaced with "health facility or community health worker" | THREE OR MORE DAYS AFTER FEVER | 4 |
| | Gender note: consider replacing "mother" with "parent" | OTHER | 88 |
| | | DON'T KNOW | 99 |

Identifying respondents by their role in the household—such as mother, father, mother-in-law/grandmother to the child, etc.—and categorizing results along these lines would be helpful for assessing the level of knowledge among caregivers and other audiences who influence care-seeking decisions.

Risk and Efficacy

7. Proportion of people who perceive they are at risk from malaria

8. Proportion of people who feel that consequences of malaria are serious

The following questions can be adapted or dropped if the intervention focuses on a different sub-population, such as pregnant women, or does not focus on a sub-population, as in the case of an intervention that is aimed at all household members.

To calculate the **susceptibility indicator**, indicator 7, a mean score for questions 701 to 706 is calculated for each individual. The Likert Scales are converted such that "strongly disagree" is coded as +2, "somewhat disagree" is coded as +1, "somewhat agree" is coded as -1 and "strongly agree" is -2. Responses to the inverse questions (marked as "INV") should be coded in reverse. "Don't know/uncertain" is not offered as an option, but if the respondent is conflicted about an answer, this option can be used. Enumerators should be trained, however, to encourage respondents to choose a response within one of the other categories. note that questions must be inverted.

Individuals with a negative mean score of less than zero are categorized as having "low perceived risk" and those with a positive mean score of greater than zero are categorized as having "high perceived risk." The total proportion of individuals that perceive they are at risk from malaria can then be easily obtained.

To calculate the **severity indicator** (indicator 8), a mean score for questions 801 to 806 is calculated for each individual (question 804 and 805 are inverted). Individuals with a positive mean score of greater than zero are categorized as having "high perceived severity" and those with a negative mean score of less than zero are categorized as having "low perceived severity." The total proportion of individuals that perceived malaria as serious can then be calculated.

| | | STRONGLY DISAGREE | SOMEWHAT DISAGREE | SOMEWHAT AGREE | STRONGLY AGREE | DON'T KNOW / UNCERTAIN |
|-----------------------|--|-------------------|-------------------|----------------|----------------|------------------------|
| SUSCEPTIBILITY | | | | | | |
| 701 (Inv) | During the rainy season, you worry almost every day that someone in your family will get malaria | 1 | 2 | 3 | 4 | 99 |
| 702 | People in this community only get malaria during rainy season | 1 | 2 | 3 | 4 | 99 |
| 703 | People only get malaria when there are lots of mosquitoes | 1 | 2 | 3 | 4 | 99 |
| 704 (Inv) | Nearly every year, someone in this community gets a serious case of malaria | 1 | 2 | 3 | 4 | 99 |
| 705 | You cannot remember the last time someone you know became sick with malaria | 1 | 2 | 3 | 4 | 99 |
| 706 (Inv) | When your child has a fever, you almost always worry that it might be malaria | 1 | 2 | 3 | 4 | 99 |
| SEVERITY | | | | | | |
| 801 | You don't worry about malaria because it can be easily treated | 1 | 2 | 3 | 4 | 99 |
| 802 | Your children are so healthy that they would be able to recover from a case of malaria | 1 | 2 | 3 | 4 | 99 |
| 803 | Only weak children can die from malaria | 1 | 2 | 3 | 4 | 99 |
| 804 Inv | You know people who have become dangerously sick with malaria | 1 | 2 | 3 | 4 | 99 |
| 805 (Inv) | Every case of malaria can potentially lead to death | 1 | 2 | 3 | 4 | 99 |
| 806 | When someone you know gets malaria, you usually expect them to completely recover in a few days | 1 | 2 | 3 | 4 | 99 |

9. Proportion of people who believe that the recommended practice or product will reduce their risk

To calculate the proportion of people who believe a recommended practice or product will reduce their risk of malaria (**response efficacy**), a mean score is calculated. For this indicator, the Likert Scales are converted such that “strongly disagree” is coded as -2 and “strongly agree” is coded as +2, and responses to the inverse questions (“INV”) are reverse-coded. “Don’t know/uncertain” is not offered as an option, but if the respondent is conflicted about an answer, this option can be used. Enumerators should be trained, however, to encourage respondents to choose a response within one of the other categories.

A mean score greater than zero for the IRS questions represents someone who perceives IRS to be protective against malaria. Similarly, a mean score of greater than zero for the ITN questions signifies that a respondent feels ITNs protect him/her from malaria, and a mean score greater than zero for the IPTp questions indicates a belief that preventive therapy during pregnancy is effective. A mean score greater than zero for the diagnosis questions indicates that the respondent believes in the efficacy of diagnostics. Lastly, a mean score greater than zero for the treatment questions represents someone who perceives ACTs or other relevant treatment as efficacious in treating malaria.

| | RESPONSE EFFICACY QUESTIONS | STRONGLY DISAGREE | SOMEWHAT DISAGREE | SOMEWHAT AGREE | STRONGLY AGREE | DON'T KNOW/ UNCERTAIN |
|--|---|-------------------|-------------------|----------------|----------------|-----------------------|
| INDOOR RESIDUAL SPRAYING (IRS) | | | | | | |
| 901 | I believe there are fewer mosquitoes around since our homes were sprayed with IRS | 1 | 2 | 3 | 4 | 99 |
| 902 (Inv) | The liquid used to spray the walls is often too diluted to kill many mosquitoes | 1 | 2 | 3 | 4 | 99 |
| 903 | People who live in houses that have been sprayed are less likely to get malaria | 1 | 2 | 3 | 4 | 99 |
| ITN USE | | | | | | |
| 904 (Inv) | My chances of getting malaria are the same whether or not I sleep under an ITN | 1 | 2 | 3 | 4 | 99 |
| 905 (Inv) | Many people who sleep under an ITN still get malaria | 1 | 2 | 3 | 4 | 99 |
| 906 | I believe my family gets sick less often since we began sleeping under ITNs | 1 | 2 | 3 | 4 | 99 |
| INTERMITTENT PREVENTION THERAPY IN PREGNANCY (IPTp) | | | | | | |
| 907 | The medicine given to pregnant women to prevent malaria works well to keep the mother healthy | 1 | 2 | 3 | 4 | 99 |
| 908 (Inv) | Pregnant women are still at risk for malaria even if they take the medicine that is meant to keep them from getting malaria | 1 | 2 | 3 | 4 | 99 |
| 909 | The medicine given to pregnant women to prevent malaria works well to keep her baby healthy when it is born | 1 | 2 | 3 | 4 | 99 |
| DIAGNOSIS | | | | | | |
| 910 (Inv) | The health care provider is better than the test at diagnosing malaria, so I rely on the provider to tell me whether the fever is caused by malaria | 1 | 2 | 3 | 4 | 99 |
| 911 (Inv) | Even if the malaria test is negative, I would still seek out malaria treatment from a health provider because I don't believe the result | 1 | 2 | 3 | 4 | 99 |
| 912 | The malaria tests are the only way to know if someone really has malaria or not. | 1 | 2 | 3 | 4 | 99 |
| TREATMENT | | | | | | |
| 913 | ACTs* work quickly to treat malaria | 1 | 2 | 3 | 4 | 99 |
| 914 | When the entire course of malaria medicine is taken, the disease will be fully cured | 1 | 2 | 3 | 4 | 99 |
| 915 (Inv) | All the malaria medicines work equally well at treating malaria | 1 | 2 | 3 | 4 | 99 |

* Adjust according to country context

10. Proportion of people who are confident in their ability to perform a specific malaria-related behavior

The Likert Scales are converted such that “definitely could” is coded as +2 and “definitely could not” is coded as -2. “Don’t know/uncertain” is not offered as an option but if the respondent is conflicted about an answer, this option can be used. Enumerators should be trained, however, to encourage respondents to choose a response within one of the other categories.

For the various components of the indicator as a whole, a mean score greater than zero represents high perceived self-efficacy while a mean score less than zero represents low perceived self-efficacy

I am going to ask you about a series of actions you could take, and I would like you to tell me how confident you are that you could actually do that action successfully. For each action, please tell me if you think you definitely could, probably could, probably could not or definitely could not do each action successfully. INTERVIEWER: DO NOT READ "DON'T KNOW" / "UNCERTAIN" RESPONSE AND ONLY USE IF RESPONDENT IS NOT ABLE TO PROVIDE ANOTHER ANSWER.

| | | DEFINITELY COULD NOT | PROBABLY COULD NOT | PROBABLY COULD | DEFINITELY COULD | DON'T KNOW/ UNCERTAIN |
|--------------------------------------|---|-------------------------|--------------------------|-------------------|---------------------|--------------------------|
| PROTECTION OF SELF AND FAMILY | | | | | | |
| 1001 | Easily protect yourself from getting malaria | 1 | 2 | 3 | 4 | 99 |
| 1002 | Easily protect your children from getting malaria | 1 | 2 | 3 | 4 | 99 |
| 1003 | Easily take care of family members if they contract malaria | 1 | 2 | 3 | 4 | 99 |
| ITN USE | | | | | | |
| 1004 | Obtain enough ITNs to cover all of the sleeping spaces in your household | 1 | 2 | 3 | 4 | 99 |
| 1005 | Sleep under an ITN for the entire night when there are lots of mosquitoes | 1 | 2 | 3 | 4 | 99 |
| 1006 | Sleep under an ITN for the entire night when there are few mosquitoes | 1 | 2 | 3 | 4 | 99 |
| SEEK DIAGNOSIS | | | | | | |
| 1007 | Know if a fever is a sign of malaria or something else | 1 | 2 | 3 | 4 | 99 |
| 1008 | Know if a child has a typical or serious case of malaria | 1 | 2 | 3 | 4 | 99 |
| 1009 | Know if you need to rush to the clinic or not when your child is sick | 1 | 2 | 3 | 4 | 99 |
| 1010 | Request a diagnostic test at the clinic when you think your child might have malaria | 1 | 2 | 3 | 4 | 99 |
| 1011 | Find money to take the child to the clinic when malaria is suspected | 1 | 2 | 3 | 4 | 99 |
| 1012 | Find someone you trust to tell you whether your child has malaria | 1 | 2 | 3 | 4 | 99 |
| SEEK TREATMENT | | | | | | |
| 1013 | Get the appropriate treatment for your child when s/he has malaria | 1 | 2 | 3 | 4 | 99 |
| 1014 | Make sure your child takes the full dose of medicine that s/he is prescribed | 1 | 2 | 3 | 4 | 99 |
| 1015 | Find resources to travel with your child to the clinic within 24 hours when he/she is very sick | 1 | 2 | 3 | 4 | 99 |
| SEEK PREVENTIVE THERAPY | | | | | | |
| 1016 | Go to ANC visit as soon as you think you might be pregnant | 1 | 2 | 3 | 4 | 99 |
| 1017 | Go to at least four* ANC appointments at the clinic | 1 | 2 | 3 | 4 | 99 |
| 1018 | Take the SP at each of your ANC visits | 1 | 2 | 3 | 4 | 99 |
| INDOOR RESIDUAL SPRAYING | | | | | | |
| 1019 | Move all your furniture out of your house to prepare the house for spraying | 1 | 2 | 3 | 4 | 99 |
| 1020 | Not replaster or repaint the walls after the spraying, for 6 months/one year** | 1 | 2 | 3 | 4 | 99 |
| 1021 | Continue to use your ITN after the house has been sprayed | 1 | 2 | 3 | 4 | 99 |

*depending on the national policy

** will depend on insecticide used

Attitudes

11. Proportion of people with a favorable attitude toward the product, practice or service

Enumerators measure attitude by asking respondents how strongly they agree or disagree with these statements, usually in terms of the four-point (Likert-type) scale.

The statements must all correspond to the same behavior, product, or issue. Respondents express their values in terms of the expected outcome of the behavior, expected benefit or harm, or positive and negative attributes of the behavior or product.

To calculate a respondent's attitude, a mean score for the questions in this section is calculated for that respondent. The Likert Scales are converted such as "strongly disagree" is coded as -2 and "strongly agree" is coded as +2. Inverted questions are reverse-coded. "Don't know/uncertain" is not offered as an option but if the respondent is conflicted about an answer, this option can be used. Enumerators should be trained, however, not to mention this as an option, and only select it if the respondent does not want to answer. Any answer of "don't know" is not included in the calculation of the mean.

A mean score less than zero would be categorized as having an unfavorable attitude to the product, practice, or service and having a mean score greater than zero would be categorized as having a favorable attitude toward the product, practice, or service.

| | | STRONGLY DISAGREE | SOMEWHAT DISAGREE | SOMEWHAT AGREE | STRONGLY AGREE | DON'T KNOW/ UNCERTAIN |
|---|--|----------------------|----------------------|-------------------|-------------------|--------------------------|
| INTERMITTENT PREVENTIVE THERAPY (IPTp) | | | | | | |
| 1101 | Once a woman thinks she may be pregnant, she should see a health provider as soon as possible | 1 | 2 | 3 | 4 | 98 |
| 1102 (Inv) | Pregnant women often feel sick when they take medicine on an empty stomach | 1 | 2 | 3 | 4 | 99 |
| 1103 (Inv) | Even if a woman thinks she may be pregnant, she should wait a few months to know for certain before she sees a health provider | 1 | 2 | 3 | 4 | 99 |
| 1104 | Health care providers will only give a pregnant woman medicine if they know for certain that it is not harmful to her or to her baby | 1 | 2 | 3 | 4 | 99 |
| 1105 (Inv) | A pregnant woman needs permission from her husband or other family to go to ANC | 1 | 2 | 3 | 4 | 99 |
| 1106 | A pregnant women must seek several doses of medicine (SP) to protect herself from malaria during pregnancy | 1 | 2 | 3 | 4 | 99 |
| 1107 (Inv) | A pregnant women is at no more risk of malaria than any other member of the community | 1 | 2 | 3 | 4 | 99 |
| ITNs | | | | | | |
| 1108 (Inv) | More expensive ITNs are more effective than less expensive or free ITNs | 1 | 2 | 3 | 4 | 99 |
| 1109 (Inv) | ITNs only prevent mosquito bites when used with certain types of beds | 1 | 2 | 3 | 4 | 99 |
| 1110 (Inv) | It only takes a few months for an ITN to get too many holes to stop mosquitoes | 1 | 2 | 3 | 4 | 99 |
| 1111 (Inv) | The insecticide on ITNs can be dangerous to people who sleep under them | 1 | 2 | 3 | 4 | 99 |
| 1112 (Inv) | It is difficult to sleep well under an ITN when the weather is warm | 1 | 2 | 3 | 4 | 99 |
| 1113 | Sleeping under an ITN is a good way to get privacy in a crowded house | 1 | 2 | 3 | 4 | 99 |
| 1114 (Inv) | You would not sleep under an ITN if you don't like its color | 1 | 2 | 3 | 4 | 99 |
| 1115 | It is easier to get a good night's sleep when you sleep under an ITN | 1 | 2 | 3 | 4 | 99 |
| 1116 | You mainly use an ITN to avoid malaria | 1 | 2 | 3 | 4 | 99 |

| | | STRONGLY DISAGREE | SOMEWHAT DISAGREE | SOMEWHAT AGREE | STRONGLY AGREE | DON'T KNOW/ UNCERTAIN |
|---------------------------------|--|----------------------|----------------------|-------------------|-------------------|--------------------------|
| 1117 (Inv) | You mainly use an ITN to avoid pests that can bite you while you sleep | 1 | 2 | 3 | 4 | 99 |
| 1118 | It is good that people use ITNs | 1 | 2 | 3 | 4 | 99 |
| 1119 | Pregnant women should sleep under an ITN every night | 1 | 2 | 3 | 4 | 99 |
| 1120 | Children under five years old should sleep under an ITN every night | 1 | 2 | 3 | 4 | 99 |
| 1121 (Inv) | It is only necessary to use an ITN during rainy seasons | 1 | 2 | 3 | 4 | 99 |
| 1122 (Inv) | To sleep under an ITN makes you feel like you are suffocating | 1 | 2 | 3 | 4 | 99 |
| DIAGNOSIS AND TREATMENT | | | | | | |
| 1123 | The health provider is always the best person to talk to when you think your child/someone in your family may have malaria | 1 | 2 | 3 | 4 | 99 |
| 1124 (Inv) | It is easy to tell whether a fever is malaria or not | 1 | 2 | 3 | 4 | 99 |
| 1125 | A person should only take malaria medicine if a health provider says that a fever really is malaria | 1 | 2 | 3 | 4 | 99 |
| 1126 (Inv) | Even if the test is negative, some parents still feel their child has malaria | 1 | 2 | 3 | 4 | 99 |
| 1127 (Inv) | You will go to a second health provider for malaria medicine if the first provider says that the fever is not due to malaria | 1 | 2 | 3 | 4 | 99 |
| 1128 (Inv) | People don't need to get a test to know if they have malaria | 1 | 2 | 3 | 4 | 99 |
| 1129 | The best place to seek malaria treatment/ACTs for children under five years of age is in a public health facility* | 1 | 2 | 3 | 4 | 99 |
| 1130 | The best place to seek treatment for a fever in children under five years of age is in a private clinic | 1 | 2 | 3 | 4 | 99 |
| 1131 | The best place to seek treatment for a fever in children under five years of age is in NGO or mission facility | 1 | 2 | 3 | 4 | 99 |
| 1132 (Inv) | When you get medicine to treat malaria, you save up some medicine for someone else in the family who might need it | 1 | 2 | 3 | 4 | 99 |
| 1133 | You trust that the medicines you receive will cure malaria | 1 | 2 | 3 | 4 | 99 |
| 1134 | To handle fever in children under five years of age, the health provider(s) are very knowledgeable | 1 | 2 | 3 | 4 | 99 |
| 1135 | You think modern medicine works better than traditional medicine | 1 | 2 | 3 | 4 | 99 |
| 1136 (Inv) | You are not very satisfied with the care you received at the place you sought treatment | 1 | 2 | 3 | 4 | 99 |
| INDOOR RESIDUAL SPRAYING | | | | | | |
| 1137 | It is not dangerous for someone to touch the walls a couple of hours after the walls have been sprayed | 1 | 2 | 3 | 4 | 99 |
| 1138 | Once a house's walls are sprayed, the odor from the spray can last many days. | 1 | 2 | 3 | 4 | 99 |
| 1139 | Most families have an easy time carrying their possessions outside so that the walls can be sprayed | 1 | 2 | 3 | 4 | 99 |
| 1140 (Inv) | Many people develop rashes on their skin after the walls inside their houses are sprayed | 1 | 2 | 3 | 4 | 99 |

| | | STRONGLY DISAGREE | SOMEWHAT DISAGREE | SOMEWHAT AGREE | STRONGLY AGREE | DON'T KNOW/ UNCERTAIN |
|---------------|--|-------------------|-------------------|----------------|----------------|-----------------------|
| 1141 (Inv) | The liquid used to spray the walls is often too diluted to kill many mosquitoes | 1 | 2 | 3 | 4 | 99 |
| 1142 (Inv) | Most families would be worried about leaving all of their possessions outside of their house while their walls are being sprayed | 1 | 2 | 3 | 4 | 99 |
| 1143 (Inv) | It can be embarrassing to leave all of your possessions outside of your house where other people in the community can look at them | 1 | 2 | 3 | 4 | 99 |
| 1144 | Spraying the inside walls of a house to kill mosquitoes does not cause any health problems for the people living in the house | 1 | 2 | 3 | 4 | 99 |
| 1145 | The government would not spray the inside walls of a house if it was not an effective way to prevent malaria | 1 | 2 | 3 | 4 | 99 |

* For contexts in which integrated community case management is being implemented, the following should also be included as an option: "The best place to seek treatment for a fever in children under five years of age is from a community health worker."

Norms

12. Proportion of people who believe the majority of their friends and community members currently practice the behavior

This indicator is calculated as the proportion of respondents who think that "at least half" or more (codes 1, 2, and 3) of their community practice the behavior in question. Codes 1, 2, and 3 are grouped into a single category ("at least half"). Codes 4 and 5 are grouped into another category ("less than half"). "Don't know/uncertain" is not offered as an option but if the respondent is conflicted about an answer, this option can be used. Enumerators should be trained, however, to encourage respondents to choose a response within one of the other categories.

| Question No | Question | Responses | Code |
|-------------|--|---|-----------------------------|
| 1201 | Generally, in how many households in your community do people sleep under an ITN | ALL HOUSEHOLDS MOST HOUSEHOLDS MORE THAN HALF FEWER THAN HALF HARDLY ANY HOUSEHOLDS DON'T KNOW | 1 2 3 4 5 99 |
| 1202 | Generally, how many women in your community receive at least 4 checkups* from a health provider when they are pregnant | ALL WOMEN MOST WOMEN MORE THAN HALF OF THE WOMEN FEWER THAN HALF OF THE WOMEN HARDLY ANY WOMEN DON'T KNOW | 1 2 3 4 5 99 |
| 1203 | Generally, how many children in your community visit a health provider on the same day that they develop a fever | ALL CHILDREN MOST CHILDREN MORE THAN HALF OF THE CHILDREN FEWER THAN HALF OF THE CHILDREN HARDLY ANY CHILDREN DON'T KNOW | 1 2 3 4 5 99 |

* Should be adapted based on country IPTp policy

Behaviors

13. Proportion of people who practice the recommended behavior

Detailed information and survey questions on measuring most of the behavioral indicators, including the numerators and denominators, is available from the MERG's [Household Survey Indicators for Malaria Control](#).²⁶

- Proportion of population that slept under an ITN the previous night
- (Additional indicator 13.1) Use-to-access ratio: the numerator is the “proportion of population that slept under an ITN the previous night.” The denominator is the “proportion of the population with access to an ITN within their household.”
- Proportion of women who received three or more doses of IPTp²⁷ during ANC visits during their last pregnancy
- Proportion of children under five years old with fever in the last two weeks for whom advice or treatment was sought the same or next day following the onset of fever
- Proportion of children under five years old with fever in the last two weeks who had a finger or heel stick
- Proportion receiving an ACT among children under five years old with fever in the last two weeks who received any antimalarial drugs

Some questions from the MIS, DHS, and other KAP surveys are provided below for reference. Questions that are not in the current DHS or MIS surveys, but may be considered for KAPs or other community surveys, are starred. When countries adapt survey tools, the questions should, as far as possible, reflect national recommendations and key messages.

The ideal behavioral outcome indicators for case management and IPTp have both a beneficiary and provider component. For case management, the beneficiary must seek care for fever and the provider must adhere to national guidelines for testing and treatment at the point of care. For IPTp, pregnant women must attend ANC early and throughout their pregnancy and the ANC provider must provide IPTp as indicated by national guidelines. A few additional indicators measure health provider behavior more directly, but the definitions have not yet been standardized:

- Proportion of pregnant women at ANC that received IPTp according to national guidelines
- Proportion of fever cases receiving a malaria diagnostic test, or the proportion of malaria cases diagnostically confirmed
- Proportion of tested cases treated/not treated according to test results, or proportion of confirmed positive cases receiving ACT

Measuring these practices can be complex. There are currently no standard methods, and there is significant variation in data sources, such as HMIS and health facility surveys, and indicator definitions across countries. For the moment, we suggest that programs/evaluators use proxy indicators based on standardized and validated household survey measures—DHS, MIS, MICS, other community surveys—defined above. Lastly, for the indicator, “Proportion of pregnant women who attended at least one, two, or three ANC visits according to national guidelines,” information on the calculation of this indicator is available from the [Guide to DHS Statistics](#).²⁸

| Question No | Question | Responses | Code |
|----------------|---|--|--------------|
| ITN use | | | |
| 1301 | Ask the respondent to show you all the nets in the household ¹ | FOR EACH NET: OBSERVED NOT OBSERVED | 1 2 |
| | For the following questions—answer for each net | | |
| 1302 | How many months ago did your household get the mosquito net? | FOR EACH NET _ _ MONTHS _ _ YEARS NOT SURE | 1 2 99 |
| 1303 | Observe or ask the brand/type of mosquito net. | FOR EACH NET LONG-LASTING INSECTICIDE TREATED NET | |
| | If brand is unknown and you cannot observe the net, show pictures of typical net types/brands to respondent | - BRAND A | 1 |
| | | - BRAND B | 2 |
| | | - OTHER/DON'T KNOW BRAND | 3 |
| | | (For the options above, skip to question 606) | |
| | | OTHER BRAND DON'T KNOW BRAND | 4 5 |

²⁶ [MERG 2013](#)

²⁷ The RBM 2013 guidance is based on the latest WHO guidance on IPTp. As IPTp policies differ by country, this indicator may be modified to reflect the country context.

²⁸ MEASURE DHS, 2006

| Question No | Question | Responses | Code |
|--|---|--|---|
| 1304 | Did anyone sleep under this mosquito net last night? | YES NO NOT SURE | 1 2 99 |
| 1305 | Who slept under this mosquito net last night? RECORD THE PERSON'S NAME AND NUMBER FROM THE HOUSEHOLD SCHEDULE. | NAME LINE NUMBER | |
| 1306 | For those children who did not sleep under the mosquito net last night, what were the reasons for not sleeping under the mosquito net? | TOO HOT TOO COLD CHILD CRIES CHILD AFRAID NOT ENOUGH ITNs NET NOT HUNG UP USED BY ADULTS NET NOT USED WHEN TRAVELLING NET NOT IN GOOD CONDITION NET BAD FOR CHILDREN'S HEALTH NET HAS TOO MANY HOLES OTHER (SPECIFY): | 1 2 3 4 5 6 7 8 9 10 11 88 |
| 1307* | For those adults who did not sleep under the mosquito net last night, what were the reasons for not sleeping under the mosquito net? | TOO HOT TOO COLD NET NOT HUNG UP NET NOT USED WHEN TRAVELLING NET NOT IN GOOD CONDITION NET HAS TOO MANY HOLES OTHER (SPECIFY): | 1 2 3 4 5 6 88 |
| Indoor Residual Spraying | | | |
| 1308* | At any time in the past 12 months, has anyone come into your dwelling to spray the interior walls against mosquitoes? ² | YES NO DON'T KNOW | 1 2 99 |
| Pregnancy and Intermittent Preventive Therapy | | | |
| 1309 | When you were pregnant with (NAME), did you see anyone for antenatal care for this pregnancy? | YES NO | 1 2 |
| 1310 | How many times did you receive antenatal care during this pregnancy? | NUMBER OF TIMES DON'T KNOW | 99 |
| 1311 | During this pregnancy, did you take SP/Fansidar in order to prevent you from getting malaria? | YES NO DON'T KNOW | 1 2 99 |
| 1312 | How many times did you take (SP/Fansidar) during this pregnancy? | TIMES __ __ | |
| 1313 | Did you get the SP/Fansidar during any antenatal care visit, during another visit to a health facility or from another source? IF MORE THAN ONE SOURCE, RECORD THE HIGHEST SOURCE ON THE LIST. | ANTENATAL VISIT ANOTHER FACILITY VISIT OTHER SOURCE | 1 2 3 |
| Fever in Children | | | |
| 1314 | Has (NAME) been ill with a fever at any time in the last two weeks? | YES NO DON'T KNOW | 1 2 99 |
| 1315 | Did you seek advice or treatment for the illness from any source? | YES NO | 1 2 |

| Question No | Question | Responses | Code |
|-------------|---|--|------|
| 1316 | Where did you seek advice or treatment | PUBLIC SECTOR | |
| | Anywhere else? | GOVT HOSPITAL | 1 |
| | | GOVT HEALTH CENTER | 2 |
| | | GOVT HEALTH POST | 3 |
| | PROBE TO IDENTIFY EACH TYPE OF SOURCE | MOBILE CLINIC | 4 |
| | | FIELDWORKER | 5 |
| | IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE | OTHER PUBLIC SECTOR (SPECIFY): | 6 |
| | | PRIVATE MEDICAL CENTER | |
| | | PVT HOSPITAL/CLINIC | 7 |
| | | PHARMACY | 8 |
| | | PVT DOCTOR | 9 |
| | | MOBILE CLINIC | 10 |
| | | FIELDWORKER | 11 |
| | | OTHER PVT MEDICAL (SPECIFY): | 12 |
| | | OTHER SOURCE | |
| | | SHOP | 13 |
| | | TRADITIONAL PRACTITIONER | 14 |
| | | MARKET | 15 |
| | | OTHER (SPECIFY): | 88 |
| 1317* | Was microscopy available in the place you sought advice or treatment? | FOR EACH PLACE WHERE THE RESPONDENT SOUGHT ADVICE OR TREATMENT | |
| | | YES | 1 |
| | | NO | 2 |
| 1318* | Were RDTs available in the place you sought advice or treatment? | FOR EACH PLACE WHERE THE RESPONDENT SOUGHT ADVICE OR TREATMENT | |
| | | YES | 1 |
| | | NO | 2 |
| 1319 | How many days after the fever began did you first seek treatment for (NAME)? | DON'T KNOW | 99 |
| | | SAME DAY | 1 |
| | | NEXT DAY | 2 |
| 1320* | If didn't get tested: Why did you not get testing for (NAME)? | TWO DAYS AFTER FEVER | 3 |
| | | THREE OR MORE DAYS AFTER FEVER | 4 |
| | | DON'T KNOW | 99 |
| 1321* | In your household, who usually makes decisions to purchase medicine when your child has malaria—you, your spouse, you and your spouse, or someone else? | HEALTH CENTRE TOO FAR | 1 |
| | | DO NOT TRUST THE MALARIA TEST | 2 |
| | | NO MALARIA TESTS AT THE HEALTH CENTRE | 3 |
| | | DO NOT LIKE THE HEALTH CENTRE STAFF | 4 |
| | | NO MONEY FOR TEST | 5 |
| | | TEST NOT OFFERED BY THE PROVIDER | 6 |
| | | DIDN'T HAVE TIME TO GET WAIT TO GET TESTED | 7 |
| | | OTHER (SPECIFY): | 88 |
| | | DON'T KNOW | 99 |
| | | RESPONDENT | 1 |
| 1321* | | SPOUSE | 2 |
| | | JOINT DECISION | 3 |
| | | SOMEONE ELSE (SPECIFY) | 88 |
| | | DON'T KNOW | 99 |
| | | | |

Notes: The household net roster can be used to collect data for indicators measuring the use of ITNs. The household roster is applicable for all household members, pregnant women, and children under five years of age.

Presence of an ITN is typically verified at time of interview.

Annex 4: Case Studies for Choosing and Adapting Indicators and Questions

Case Study 1: Selecting Indicators Based on the Program's Stage

Behavioral problem: An analysis of recent DHS data in country X found that ITN use among those with access to a net is the lowest in the country, particularly in one province.

Formative research stage: The team conducted a situation analysis, triangulating DHS survey, focus group, and KAP survey data. Team members used all of the indicators in this guide, including, but not limited to the use-to-access ratio; attitudes toward nets, particularly on the benefits and disadvantages of using a net; perceived susceptibility; social norms; and self-efficacy to use a net throughout the year. Focus group discussions held in the province revealed that people did not place much importance on the use of nets, particularly in the dry season. They believed that since mosquitoes were not plentiful, malaria was not a problem. Many people did not believe their neighbors used ITNs consistently.

A KAP survey confirmed that people felt that malaria is not a threat in the dry season, when there are few mosquitoes, and that people believe that neighbors did not use ITNs consistently. Furthermore, bed nets were viewed as causing discomfort during the night.

Strategy design stage: During the design stage, the team identified **specific** objectives for their campaign and developed a **matching** M&E plan.

| SBCC Strategy | M&E Plan Indicators |
|---|----------------------------|
| Behavioral objective: Increase the use of available nets from 60% to 75% during the two years remaining on the project | Use-to-access ratio |
| Communication objective: Increase perceived risk of malaria , all year round, including in dry season | Perceived susceptibility |

Output monitoring: Due to a slow project start-up, the team decided to ramp up community dramas to meet targets for the number of dramas. Activity reports focused on the following indicators:

- Number of SBCC activities (dramas) carried out
- Number of people reached

Audience monitoring: The program asked a market research agency to add a few questions to their quarterly omnibus. They added two indicators:

- Proportion of people who recall hearing or seeing any malaria messages within the last six months
- Proportion of people who perceive they are at risk from malaria

Over the next six months, the proportion of people who recalled a net use message increased from 55% to 82%. Rates of perceived susceptibility also rose from 64% to 78%. Encouraged by this, the donor extended the funding for the campaign for one more year.

Evaluation: An evaluation—provincially representative cross-sectional KAP survey—collected data two years after the start of the campaign. The use-to-access ratio rose to 0.75, and net use was associated with exposure to the campaign. Similarly, people exposed to the campaign were more likely to feel susceptible to malaria and, thus, more likely to use a net. Other indicators measured at endline included:

- Proportion of people who recall hearing or seeing any malaria messages within the last six months
- Proportion of people who recall the campaign slogan
- Proportion of people who perceive they are at risk from malaria
- Proportion of the population using nets, among those people who have access to one within their household

The success of the campaign was attributed to several factors:

- The team kept an open mind and examined results from a broad number of potential motivating factors/indicators before choosing to change one major determinant.
- The focus of the campaign on one factor—perceive susceptibility—kept the message clear, consistent, and memorable.
- Using activity reports and paying for just two questions in the omnibus allowed the campaign to monitor how well they were reaching the audience.
- Their use of omnibus results to demonstrate changes in perceived susceptibility made the case for extending the campaign by another 12 months, further cementing the campaign's chances of fulfilling its objective.

Case Study 2: Adapting Indicators and Questions to Seasonal Malaria Chemoprevention

Seasonal malaria chemoprevention is the administration of up to four monthly doses of SP and amodiaquine to children aged three to 39 months during the high malaria transmission season. The World Health Organization has endorsed SMC since 2012. SMC can prevent up to 75% of uncomplicated and severe malaria cases. It is effective in areas where the malaria season is four months long or less or where the SP resistance is low, such as the Sahel.

Speak Up Africa (SUA) is an international NGO with headquarters in Dakar, Senegal, and New York, USA. SUA's SBCC activities sought to: a) sensitize households about visits from community health volunteers, who administer the first dose; b) remind caregivers to administer the second, third, and fourth doses at home; and c) advise caregivers on what to do in case of side effects.

In 2015, after one year of implementation, SUA aimed to measure the levels of malaria knowledge, attitudes, and practices of the target population to inform future programs. Researchers adapted several indicators and questions from the **RBM SBCC Indicator Reference Guide** to inform qualitative and quantitative data collection. The study collected data on the indicators highlighted below. The same data collection tools were used in The Gambia, Guinea, Niger, and Mali.

| Category | Indicators Used in Data Collection Tools (SMC-specific indicators are in bold) |
|-------------------|--|
| Recall | 1. Proportion of people who recall messages about SMC |
| Knowledge | 2. Proportion of people who name mosquitoes as the cause of malaria |
| | 3. Proportion of people who know the main symptom of malaria is fever |
| | 4. Proportion of people who know the treatment for malaria |
| | 5. Proportion of people who know preventive measures for malaria |
| | 6. Proportion of people who know about SMC (questions asked about its objective, target population, and treatment duration) |
| Risk and efficacy | 7. Proportion of people who perceive they are at risk from malaria |
| | 8. Proportion of people who feel that consequences of malaria are serious |
| | 9. Proportion of people who believe that the recommended practice or product will reduce their risk (SMC , ITNs, IPTp) |
| Norms | 10. Proportion of people who believe the majority of their friends and community members currently practice SMC |
| Attitudes | 11. Proportion of people with a favorable attitude toward the product, practice or service (SMC , ITNs, IPTp) |
| Behavior | 10. Proportion of people who practice the recommended behavior: |
| | • Proportion of population that slept under an ITN last night |
| | • Proportion of children under five years old with fever in the last two weeks for whom advice or treatment was sought |
| | • Proportion of people who completed SMC treatment |

The study found a good level of knowledge regarding malaria and good practices, such as use of bed nets. Furthermore, knowledge about SMC was solid, as was acceptance of SMC interventions and coverage of SMC. For more information, contact Fara Ndiaye at fara.ndiaye@speakupafrika.org.

Annex 5: References

This document draws from a variety of surveys implemented in different countries by different partners. Documents consulted include:

Survey Questionnaires

Standard population-based surveys

1. MEASURE Evaluation. Demographic and Health Surveys. (www.dhsprogram.com)
2. Rutstein SO, Rojas G. Guide to DHS Statistics. Calverton, MD: ORC Macro, 2003; MEASURE DHSb, 2003. (http://dhsprogram.com/pubs/pdf/DHSG1/Guide_to_DHS_Statistics_29Oct2012_DHSG1.pdf)
3. Roll Back Malaria Partnership. Malaria Indicator Survey. (www.malariasurveys.org)
4. United National Children's Fund. Multiple Indicator Cluster Survey. (mics.unicef.org)

Program-specific surveys

1. Liberian Red Cross. Community Based Health/Disaster Management Program Malaria Prevention Baseline Survey Questionnaire.
5. PSI Madagascar. Madagascar Questionnaire: Post-Campaign Evaluation of Phase I and II of the Universal Coverage Free Mass LLIN Distribution Campaign.
6. MENTOR Initiative. Net retention, utilization, condition, preference and IEC survey questionnaire.
7. Population Services International. TRaC Survey.
8. Johns Hopkins Center for Communication Programs and Malaria Consortium. Senegal post campaign evaluation 2009-2010.
9. Sierra Leone National Malaria Control Programme, & Canadian Red Cross. Nine Month Evaluation of the Measles-Malaria Integrated Campaign in Sierra Leone.
10. United Nations High Commissioner for Refugees. Net Coverage and Durability Survey.
11. Johns Hopkins Center for Communication Programs. Malaria SBCC Surveys in Nigeria, Mali, Madagascar, and Liberia.

Resource Documents

1. Roll Back Malaria Partnership (RBM). 2013. Household Survey Indicators for Malaria Control. Geneva: RBM. <http://www.malariasurveys.org/documents/Household%20Survey%20Indicators%20for%20Malaria%20Control.pdf>
12. MEASURE Evaluation. Family Planning and Reproductive Health Online Indicators Database. https://www.measureevaluation.org/prh/rh_indicators
13. Analyzing Likert Scale/Type Data

- a. St. Andrews University. Analyzing Likert Scale/htm l?id+5667c06264e9b23c618b457c&asset-Key+AS %3A304636539139074%401449640034699
- b. Sullivan, G. M., and Artino Jr, A. R. 2013. Analyzing and interpreting data from Likert-type scales. *Journal OF Graduate Medical Education*, 5: 541-542.
14. Crowne and Marlow Social Desirability Scale
 - a. Full versions: Crowne D.P., and D. Marlowe. 1960. A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology* 24(4): 349.
 - b. Short versions: Reynolds W.M. 1982. Development of reliable and valid short forms of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology* 38(1): 119-125.
15. Family Health International (FHI). 2004. **Module 6: Monitoring and Evaluating Behavior Change Communication Programs. Monitoring HIV/AIDS Programs: A Facilitator's Training Guide.** Arlington, VA: FHI 360. [https://www.fhi360.org/sites/default/files/media/documents/Monitoring%20HIV-AIDS%20Programs%20\(Facilitator\)%20-%20Module%206.pdf](https://www.fhi360.org/sites/default/files/media/documents/Monitoring%20HIV-AIDS%20Programs%20(Facilitator)%20-%20Module%206.pdf)
16. Figueroa M.E., D.L. Kincaid, M. Rani, and G. Lewis. 2002. **Communication for Social Change: An Integrated Model for Measuring the Process and Its Outcomes.** Baltimore: Johns Hopkins Center for Communication Programs. www.communicationforsocialchange.org/pdf/socialchange.pdf
17. Martin K. 2014. HC3 Research Primers Aid in SBCC Program Design. Baltimore: Johns Hopkins Center for Communication Programs. <https://healthcommcapacity.org/hc3-research-primers-aid-in-sbcc-program-design/>
18. Roll Back Malaria Partnership (RBM). 2015. **Checklist for Reporting on Malaria Communications Evaluations.** Geneva: RBM. <http://www.thehealthcompass.org/sbcc-tools/checklist-reporting-malaria-communication-evaluations>
19. Koenker H., and A. Kilian. 2014. Recalculating the net use gap: a multi-country comparison of ITN use versus ITN access. *PLoS ONE* 9(5): e97496.
20. Koenker H., and E. Ricotta. 2016. **Insecticide-Treated Nets (ITN) Access and Use Report.** Baltimore: Johns Hopkins Center for Communication Programs, VectorWorks. www.vector-works.org/resources/itn-access-and-use/
21. VectorWorks, NetWorks. 2015. **Online Training Series on Evidence-Based Malaria Social & Behavior Change Communication (SBCC).** Baltimore: Johns Hopkins Center for Communication Programs. Retrieved from: <http://www.vector-works.org/resources/online-training-on-evidence-based-malaria-social-and-behavior-change-communication-sbcc/>
22. Roll Back Malaria Partnership (RBM). 2014. **Guide to Developing M&E Plans for Malaria BCC Activities.** Geneva: RBM. Retrieved from: <https://www.k4health.org/toolkits/networks-country-resources/guide-developing-me-plans-malaria-bcc-activities>

Resources Specific to Behavioral Theories

The prologue of this manual provides an overview of several health communication theories:

- de Fossard E. 1996. **How to Write a Radio Serial Drama for Social Development: A Script Writer's Manual**. Baltimore: Johns Hopkins Center for Communication Programs. <http://www.thehealthcompass.org/sbcc-tools/how-write-radio-serial-drama-social-development-script-writers-manual>

These toolkits contains several readings on health communication theory:

- Knowledge for Health. Toolkits: Communication Theory Readings. **Tanzania ACE Mentoring Programme**. Baltimore: Johns Hopkins Center for Communication Programs. Retrieved from: <https://www.k4health.org/toolkits/tanzania-ace/communication-theory-readings>
- Knowledge for Health. Toolkits: Communication theories and models. **Uganda Family Planning Communication Toolkit**. Baltimore: Johns Hopkins Center for Communication Programs. Retrieved from: <http://www.k4health.org/toolkits/uganda-fpcommunication/communication-theories-and-models-0>
- VectorWorks, NetWorks. 2015. **Online Training Series on Evidence-Based Malaria Social & Behavior Change Communication (SBCC)**. Baltimore: Johns Hopkins Center for Communication Programs. Retrieved from: <http://www.vector-works.org/resources/online-training-on-evidence-based-malaria-social-and-behavior-change-communication-sbcc/>

Extended Parallel Processing:

- Cho H., and K. Witte. 2005. Managing fear in public health campaigns: a theory-based formative evaluation process. **Health Promotion Practice** 6: 482-490.
- Douglas M. 1986. **Risk Acceptability According to the Social Sciences**. New York: Russell Sage Foundation.
- Rimal R.N., and K. Real. 2003. Perceived risk and efficacy beliefs as motivators of change. **Human Communication Research** 29: 370-399.
- Witte K. 1992. Putting the fear back into fear appeals: the extended parallel process model. **Communication Monographs** 59(4): 329-349.

Social Learning Theory:

- Bandura A. 2004. Health promotion by social cognitive means. **Health Education Behavior** 31(2): 143-164.

Theory of Planned Behavior:

- Ajzen I. Theory of planned behavior. Retrieved from: <http://people.umass.edu/ajzen/tpb.html>
- Health Communication Capacity Collaborative (HC3). 2014. **Theory of Planned Behavior: An HC3 Research Primer**. Baltimore: Johns Hopkins Center for Communication Programs. Retrieved from: <https://healthcommcapacity.org/hc3resources/theory-of-planned-behavior-an-hc3-research-primer/>
- Fishbein M., and I. Ajzen. 1975. **Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research**. Reading, MA: Addison-Wesley.

Diffusion of Innovations Theory:

- Knowledge for Health. Toolkits: Reading 6A: Chapter 1, "The miracle of Oryu Li" & Chapter 2, "The convergence model of communication and network analysis" from Communication Networks: Toward a New Paradigm for Research. **Tanzania ACE Mentoring Programme**. Baltimore: Johns Hopkins

Center for Communication Programs. Retrieved from: <https://www.k4health.org/toolkits/tanzania-ace/reading-6a-chapter-1-%E2%80%9Cmiracle-oryu-li%E2%80%9D-chapter-2-%E2%80%9Cconvergence-model>

- Health Communication Capacity Collaborative (HC3). 2014. **Diffusion of Innovations: An HC3 Research Primer**. Baltimore: Johns Hopkins Center for Communication Programs. Retrieved from: <https://healthcommcapacity.org/hc3resources/diffusion-of-innovations-an-hc3-research-primer/>

Health Belief Model

- Janz N., and M. Becker. 1984. The Health Belief Model: A Decade Later. **Health Behavior and Education**, 1, 1-47. Retrieved from: <http://heb.sagepub.com/content/11/1/1.short>
- Glanz K., B. Rimer, and K. Viswanath. 2008. **Health Behavior and Health Education**. San Francisco, CA: Jossey-Bass.
- Ideation Model
- Health Communication Capacity Collaborative (HC3). 2015. **Ideation: An HC3 Research Primer**. Baltimore: Johns Hopkins Center for Communication Programs. Retrieved from: <http://www.healthcommcapacity.org/wp-content/uploads/2015/02/Ideation.pdf>
- Krenn S., L. Cobb, S. Babalola, M. Odeku, and B. Kusemiju. 2014. Using behavior change communication to lead a comprehensive family planning program: the Nigerian Urban Reproductive Health Initiative. **Global Health: Science and Practice** 2(4): 427-443.

Papers Cited

- Alaii J.A., W.A. Hawley, M.S. Kolczak, F.O. ter Kuile, J.E. Gimnig, J.M. Vulule, A. Odhacha, A.J. Oloo, B.L. Nahlen, and P.A. Phillips-Howard. 2003. Factors affecting use of permethrin-treated bed nets during a randomized controlled trial in western Kenya. **American Journal of Tropical Medicine and Hygiene** 68(suppl 4): 137-141.
- Atkinson J., A. Bobogare, L. Fitzgerald, L. Boaz, B. Appleyard, H. Toaliu, and A. Valley. 2009. A qualitative study on the acceptability and preference of three types of long-lasting insecticide-treated bed nets in Solomon Islands: implications for malaria elimination. **Malaria Journal** 8: 119.
- Bauch J.A., J.J. Gu, M. Msellem, A. Mårtensson, A.S. Ali, R. Gosling, and K.A. Baltzell. 2013. Perception of malaria risk in a setting of reduced malaria transmission: a qualitative study in Zanzibar. **Malaria Journal** 12: 75.
- Baume C.A., R. Reithinger, and S. Woldehanna. 2009. Factors associated with use and non-use of mosquito nets owned in Oromia and Amhara regional states, Ethiopia. **Malaria Journal** 8: 264.
- Beer N., A.S. Ali, H. Eskilsson, A. Jansson, F.M. Abdul-Kadir, G. Rotllant-Estelrich, A.K. Abass, F. Wabwire-Mangen, A. Björkman, and K. Källander. 2012. A qualitative study on caretakers' perceived need of bed-nets after reduced malaria transmission in Zanzibar, Tanzania. **BMC Public Health** 12: 606.
- Boulay M., M. Lynch, and H. Koenker. 2014. Comparing two approaches for estimating the causal effect of behaviour-change communication messages promoting insecticide-treated bed nets: an analysis of the 2010 Zambia malaria indicator survey. **Malaria Journal** 13: 342.
- Bowen H.L. 2013. Impact of a mass media campaign on bed net use in Cameroon. **Malaria Journal** 12: 36.
- Cundill B., H. Mbakilwa, C.I.R. Chandler, G. Mtove, F. Mtei, A. Willetts, E. Foster, F. Muro, R. Mwinishehe, R. Mandike, R. Olomi, C.J.M. Whitty, and H. Reyburn. 2015. Prescriber and patient-oriented behavioural interventions to improve use of malaria rapid diagnostic tests in Tanzania: facility-based cluster randomised trial. **BMC Medicine** 13(1): 118.

- Gies S., S.O. Coulibaly, C. Ky, F.T. Ouattara, B.J. Brabin, and U. D'Alessandro. 2009. Community-based promotional campaign to improve uptake of intermittent preventive antimalarial treatment in pregnancy in Burkina Faso. *American Journal of Tropical Medicine and Hygiene* 80(3): 460-469.
- Hill J., J. Hoyt, A.M. van Eijk, L. D'Mello-Guyett, F.O. Ter Kuile, R. Steketee, H. Smith, and J. Webster. 2013. Factors affecting the delivery, access, and use of interventions to prevent malaria in pregnancy in sub-Saharan Africa: a systematic review and meta-analysis. *PLoS Medicine* 10(7): e1001488.
- Kaufman M.R., D. Rweyemamu, H. Koenker, and J. Macha. 2012. "My children and I will no longer suffer from malaria": a qualitative study of the acceptance and rejection of indoor residual spraying to prevent malaria in Tanzania. *Malaria Journal* 11: 220.
- Keating J., P. Hutchinson, J.M. Miller, A. Bennett, D.A. Larsen, B. Hamainza, C. Changufu, N. Shiliya, and T.P. Eisele. 2012. A quasi-experimental evaluation of an interpersonal communication intervention to increase insecticide-treated net use among children in Zambia. *Malaria Journal* 11: 313.
- Kilian A., H. Lawford, C.N. Ujuju, T.A. Abeku, E. Nwokolo, F. Okoh, and E. Baba. 2016. The impact of behaviour change communication on the use of insecticide treated nets: a secondary analysis of ten post-campaign surveys from Nigeria. *Malaria Journal* 15: 422.
- Koenker H., A. Kilian, G. Hunter, A. Acosta, L. Scandurra, B. Fagbemi, E.O. Onyefunaofoa, M. Fotheringham, and M. Lynch. 2015. Impact of a behaviour change intervention on long-lasting insecticidal net care and repair behaviour and net condition in Nasarawa State, Nigeria. *Malaria Journal* 14: 18.
- Lover A.A., B.A. Sutton, A.J. Asy, and A. Wilder-Smith. 2011. An exploratory study of treated-bed nets in Timor-Leste: patterns of intended and alternative usage. *Malaria Journal* 10: 199.
- Panter-Brick C., S.E. Clarke, H. Lomas, M. Pinder, and S.W. Lindsay. 2006. Culturally compelling strategies for behaviour change: a social ecology model and case study in malaria prevention. *Social Science & Medicine* 62(11): 2810-2825.
- Pulford J., I. Mueller, P.M. Siba, and M.W. Hetzel. 2012. Malaria case management in Papua New Guinea prior to the introduction of a revised treatment protocol. *Malaria Journal* 11: 157.
- Russell C.L., A. Sallau, E. Emukah, P.M. Graves, G.S. Noland, J.M. Ngondi, M. Ozaki, L. Nwankwo, E. Miri, D.A. McFarland, F.O. Richards, and A.E. Patterson. 2015. Determinants of bed net use in Southeast Nigeria following mass distribution of LLINs: implications for social behavior change interventions. *PLoS ONE* 10(10): e0139447.
- Scandurra L., A. Acosta, H. Koenker, D.M. Kibuuka, and S. Harvey. 2014. "It is about how the net looks": a qualitative study of perceptions and practices related to mosquito net care and repair in two districts in eastern Uganda. *Malaria Journal* 13: 504.
- Strachan C.E., A. Nuwa, D. Muhangi, A.P. Okui, M.E. Helinski, and J.K. Tibenderana. 2016. What drives the consistent use of long-lasting insecticidal nets over time? A multi-method qualitative study in mid-western Uganda. *Malaria Journal* 15: 44.
- Wijesinghe R.S., J.M. Atkinson, A. Bobogare, L. Wini, and M. Whittaker. 2011. Exploring provider and community responses to the new malaria diagnostic and treatment regime in Solomon Islands. *Malaria Journal* 10: 3.

