

Roll Back Malaria
Communication Community of Practice
Working Paper

Checklist for reporting on malaria communication evaluations

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Abstract

Well-designed and well-executed evaluations provide the most reliable evidence for policy-making. Behaviour change communication (BCC) programs, which promote individual behaviour change, social norms and supportive environments, are a key component of many malaria programs. However, there are few published articles about their effectiveness and many are incompletely or inconsistently described in evaluation reports and papers. Further, neither existing nor planned reporting guidelines specifically address all the relevant criteria for reporting on BCC interventions.

In this document, we present suggestions for reporting on evaluations of BCC programs. It is intended to be a companion tool to the Malaria BCC Indicator Reference Guide. This list was developed through a process that included BCC program implementers, researchers, journals, and donors. The checklist emphasizes description of the BCC intervention and rationale for the BCC strategy, choice of BCC outcomes, methods of creating comparisons, and a discussion about the effects, casual mechanism, and future implications and generalizability of the results. We hope these suggestions improve the transparency of reporting, increase the efficiency of the writing and review process, and ultimately, facilitate synthesis of which BCC approaches work in different contexts.

Introduction

Well-designed and properly executed program evaluations provide the most reliable evidence for policy-making[1]. Their results can affect all levels of malaria programs, from health delivery practice to national and global policy. Behaviour change communication (BCC) activities, which encompass a vast range of approaches used for promoting individual behaviour change, social norms and supportive environments, are key components of many malaria programs, but they are often incompletely or inconsistently described in evaluation reports and papers [2]. This limits decision-makers' ability to distinguish between good quality, strategic behaviour change campaigns and public relations efforts. It also reduces the efficiency of efforts to synthesize the effectiveness of different messages and approaches and their reproducibility. Good-quality reporting is all the more crucial as malaria control efforts seek to keep up with shifts in epidemiology and communication technologies. Well-written reports can lead to a better understanding of "what works" in different contexts and are crucial to maximizing investments in research.

Formal reporting guidelines have been developed for randomized control trials (Consolidated Standards of Reporting Trials (CONSORT)), non-randomized evaluations of behavioural programs (Transparent Reporting of Evaluations with Non-Randomized Designs (TREND)), and general behaviour change evaluations (Workgroup for Intervention Development and Evaluation Research (WIDER)) [1, 3, 4]. These guidelines have been widely used by hundreds of leading journals and have been associated with improved reporting [5]. An extension of CONSORT for randomized control trials of social and psychological trials is also being developed [6].

Neither existing nor planned reporting guidelines specifically address all the relevant recommendations for reporting on any BCC interventions. The extensions to the CONSORT statement for pragmatic trials and non-pharmacologic interventions include some criteria relevant to reporting on complex interventions, while TREND and WIDER include a call for more detail about behavioural interventions. [7-10] In this document, we provide a one-stop resource to make these recommendations as accessible as possible to malaria BCC practitioners and evaluators.

Development of the checklist

From 2012 to 2014, communication and research experts from a range of non-profit organizations as well as the Centers for Disease Control (CDC) and the United States Agency for International Development (USAID) met to discuss opportunities and gaps in the monitoring and evaluation of malaria BCC programs. Among the gaps noted was a dearth of published evaluations of malaria BCC, the importance of building capacity in best practices for evaluating BCC and a lack of essential details about interventions in the literature.

These meetings coincided with the launch of the Roll Back Malaria document, "The Strategic Framework for Malaria Communication at the Country Level 2012-2017." One of the goals of this framework was to lay out a set of best practices to ensure that communication efforts are effectively planned, implemented and evaluated [2]. At the same time the "Malaria Behavior Change Communication Indicators Reference Guide" was being developed. [11] These indicators are intended to help Ministries of Health, donor agencies and implementing partners evaluate the effectiveness of malaria BCC interventions. These indicators range from measures of knowledge and awareness, risk and self-efficacy, norms and attitudes to target behaviours. The guide includes detailed indicator reference sheets and sample survey questions.

The group suggested adapting the TREND statement and the Strategic Framework into a companion tool for the "Malaria Behavior Change Communication Indicators Reference Guide." The group hoped to increase publications of malaria BCC evaluations and facilitate the transparency and completeness of these reports. The checklist was drafted and reviewed by the group as well as members of the RBM Communication Community of Practice M&E Task Force.

The checklist emphasizes description of the BCC intervention and rationale for the BCC strategy, choice of BCC outcomes, methods of creating comparisons, and a discussion about the effects, causal attribution, and future implications and generalizability of the results. Checklist items were grouped into three domains: BCC intervention, study design, and discussion.

Content and Rationale

v	<p>DOMAIN 1: INTERVENTION DESIGN How the intervention was designed and a description of the intervention</p>
	1. What behavioural 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?
	<p>DOMAIN 2: STUDY DESIGN Selection of outcomes and method of comparison</p>
	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 socio-demographic 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 behaviours, 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?
	<p>DOMAIN 3: DISCUSSION Interpretation of the results, factoring in strengths, limitations or weaknesses of the study</p>
	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

Domain 1: BCC intervention

(2) Formative research – In one district, the majority of women may be not aware of the importance of malaria prevention in pregnancy. In another district, most women may feel that taking a medicine on an empty stomach is more dangerous than malaria during pregnancy. Formative research methods such as focus groups, key informant interviews, surveys and observations can be used to understand the beliefs, preferences, constraints, motivations, current behaviours, and communication channels accessed by target audiences. This information, along with behavioural theories and materials testing, provide the basis for strategically selecting messages and approaches with the best chances of producing measurable change [2].

(3) Theories – Behavioural and social theories lend insight on why and how the communication activities may succeed. Theory helps BCC managers identify where the audience is in the process of behaviour change and how they will get to the desired change. Using theory to guide to design the intervention may lead to stronger effects and theory-based evaluations make these studies more likely to contribute to the science of behaviour. [12-14] Five commonly-used behaviour change theories include Reasoned Action/Planned Behaviour, Social Learning, Diffusion of Innovations, Health Belief Model and Extended Parallel Processing or Fear Management. [11] In some instances, external evaluators are asked to evaluate BCC programs or analyse datasets (such as Demographic Health Surveys or Malaria Indicator Surveys) where it is not clear if behavioural theories were used. In these instances, evaluators can select associations with plausible theoretical bases and, in their write-up, discuss the role of unmeasured and possibly relevant theoretical factors.

(4) Target audiences - Communication activities and desired outcomes vary depending on the communication needs of different segments of the population. Communication efforts do not necessarily target the general population or even the groups that are at highest risk epidemiologically. Communication strategies identify the primary target audiences (those who will perform the key health practices) and secondary audiences (those who influence the primary audiences). Secondary audiences may be targeted because they are decision makers. Tertiary audiences (community groups, local leaders, those in other sectors) are also addressed if their support is critical [2].

(5) Messages and materials – BCC campaigns range in focus. Some have a narrow focus, such as LLIN use, which is commonly seen during net distribution campaigns, while integrated campaigns address LLIN use among other health issues such as prompt fever diagnosis and treatment, zinc and ORS uptake for diarrhoea, and family planning. BCC campaigns often include interpersonal communication components, such as those between a community health worker and her client as well as mass media activities like radio, TV, and SMS messaging. Different channels have different strengths, challenges, and costs. [15] Detailed descriptions of the channels selected and message focus will help readers understand the relevance of the measured outcomes and replicate the intervention. For interpersonal or community activities, it is also useful to know how participants were grouped [10].

(6) Materials testing – Intervention elements should be developed and tested on a small scale with the target audience prior to roll-out. Concepts, messages, radio scripts, and prototypes of print materials can be pretested via standard research methods. Results from the pre-tests are used to make adjustments. Pretesting helps confirm whether storylines, messages, and materials are understood, acceptable and have the desired effect with the intended audience [2]. Pretesting increases the likelihood that participant responsiveness is achieved [16].

(7) Duration and intensity, qualifications of providers, and monitoring – Changes in behaviours may take months or years, depending on where the audience is in the process of change, the messages and approaches used by the campaign, how long the campaign ran, and the volume of communication activities during that period. Quality of messaging may also differ by provider training; it is often assumed, for example that health providers are skilled at interpersonal communication and many studies have found that this is often not the case. Similarly media houses may vary in geographic reach and listenership. Establishing a monitoring mechanism through supervision reports, media monitoring reports and activity logs helps quantify and verify the delivery of content, the intensity of activities, and if they are having the intended effect on the population [14].

Domain 2: Study design

(13) Assignment method – Evaluators of BCC programs generally agree that there is no one perfect design for evaluating BCC programs. However, it is acknowledged that although randomization of individuals, facilities or communities to control or intervention groups provides compelling evidence of effectiveness, it is not practical for programs that include mass media or those intended to reach the entire population. Many campaigns are designed for maximum reach and it is often difficult to prevent contamination in control areas [17, 18].

Post-campaign cross-sectional surveys and longitudinal surveys have been used to see if there are differences in the outcome between those exposed and unexposed. Though vulnerable to threats such as self-selection and confounding, and though direct causality cannot be determined using these designs, they have been shown to provide useful information on campaign effectiveness [19]. Threats to validity can be reduced by controlling for participant characteristics with multivariate statistical techniques or using a panel design to where respondents function as their own controls.

One powerful and advanced approach, multivariate causal attribution, combines theory-based structural equation modelling, propensity score matching analysis, and sensitivity analysis to create an evaluation approach that is both theory and method-driven. The structural equation modelling allows researchers to test causal pathways; propensity score matching creates statistically matched control groups; and sensitivity analysis tests the effect of unmeasured confounders. Altogether, multivariate causal attribution makes it possible to draw a valid causal inference regarding how much behaviour change can be attributed to the communication campaign [20, 21].

(16) Choice of outcome measures – The indicators in the BCC malaria indicators reference guide have been recommended based on findings from existing literature and behaviour change theories. Core measures include percent of participants who practice the desired behaviours, percent of participants exposed to the BCC intervention, and evidence of change in intermediate outcomes such as knowledge, norms, attitudes, risk and self-efficacy. Occasionally, health outcomes such as malaria prevalence can be reported along with these outcomes. Evaluators should measure a range of proximal and distal outcomes, as described by the program theory, to help assess what parts of the process of change the BCC intervention affected.

Many, but not all, of the outcomes that BCC interventions seek to address are based on subjective outcome measures. Many of these outcomes can be assessed in multiple ways. When possible, descriptions of the validity, reliability, and psychometric properties of the measures used are particularly useful for assessing the quality of the outcome measures, especially when they are not widely available or discussed in the literature. As a body of evidence accumulates about the measures used in evaluating BCC, the field will be able to develop standard scales or questions to allow for comparisons across populations and interventions.

Domain 3: Discussion

(20) Causal attribution – Determining causality is a central question in evaluation. Since 1965, scientists have been using Bradford Hill's list of conditions to consider before inferring causation. These include:

- a) Strength – a large effect is more likely to be causal than a modest effect; however correlation does not imply causation.
- b) Consistency – the effect has been observed repeatedly in different studies
- c) Specificity – there are no alternative explanations for the effect
- d) Theoretical coherence – the association is consistent with what we know about the issue; whether the intermediate and distal outcomes matched expert (theory) predictions
- e) Plausibility – the effect make intuitive or theoretical sense
- f) Dose-response – larger doses produce larger effects
- g) Temporality – the cause precedes the effect
- h) Responsiveness to experiment - whether variations and replications were associated with varied or similar results.

As Bradford Hill notes, each criterion is necessary but not sufficient to ascertain causation. Evaluators should present an assessment of multiple criteria in order to establish the best case for causality [22].

Discussion

Although donors and governments have invested millions of dollars in malaria BCC, much remains unknown about when, where and how it can be effectively used. There is a need for researchers to publish their work and to present it in ways that help us understand (a) the outcomes on which communications programs have the greatest effect, (b) the magnitude of these effects, (c) the elements of a communication program and the context in which it operates that contributes to its effectiveness, and (d) the cost-effectiveness of communication in malaria control [23]. Investments in research will reach maximum utility if evaluation reports and published papers contain detailed descriptions of the campaign's approaches and content, including channel mix, messages, duration, reach and frequency; as well as how these interventions were developed: the theoretical principles in which they were based, the formative research that informed their design, and whether materials were tested with the target audience.

We have proposed a list of items to be included in evaluation reports and manuscripts for BCC interventions. These recommendations are not meant to be prescriptive nor are we advocating for the exclusion of reports that do not discuss all these items. It is likely that authors will report on some items and not on others. Word limits may restrict some writers' ability to report on all the recommended items. There are several ways to address this. Authors can provide as much description as possible within the limits and then provide a link to the intervention's details online; this can take the form of a toolkit of communication materials, program and formative research reports as well as the full evaluation reports or supplemental analysis. Similarly, authors can create elegant and concise ways of presenting the additional data, such as flowcharts to map the link between exposure, intermediate outcomes, and behaviors, or provide a table or textbox with the intervention details [16].

The items in the checklist should be based on evidence whenever possible. There is a need to examine whether reports containing the recommended information provide more biased results compared with those that do not [24].

Reporting guidelines can help ensure that investments in research are used efficiently. Donors, BCC practitioners and the public have a right to expect that research results are reported in ways that can help us understand "what works, for whom, why, when and at what cost" [16]. These suggestions are a first step toward ensuring that research reports contain sufficient information for documenting lessons learned from BCC programs, synthesizing the evidence base for communication for malaria, improving accountability and transparency and for drawing attention to the potential rigor of well-designed and implemented BCC studies and programs [25]. These recommendations are a work in progress and adjustments may be necessary. We invite writers, reviewers, journal editors, and donors to join us in using and testing these reporting guidelines. We welcome comments, suggestions and feedback.

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