Malaria Social and Behavior Change Evidence Discussion Series I:

Assessing the impact of malaria social and behavior change communication in an artemisinin resistance setting

Wednesday, August 22, 9–10 a.m. EDT

Moderators: Maxine Whittaker, Dean of the College of Public Health, Medical, and Veterinary Sciences, James Cook University
Jessica Butts, Malaria Branch of the Centers for Disease Control and Prevention, U.S. President's Malaria Initiative

Presenter: Muhammad Shafique, Regional Social and Behavior Change Communication Consultant

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Breakthrough ACTION FOR SOCIAL & BEHAVIOR CHANGE

Discussion tips and reminders

- This discussion will be recorded.
- We will share audio and presentation slides after the discussion.
- Everyone is on mute during the introduction and presentation.
- During the presentations, submit questions by typing in the chat box in the lower right corner of your screen.
- During the discussion near the end, click the raised hand icon to speak.

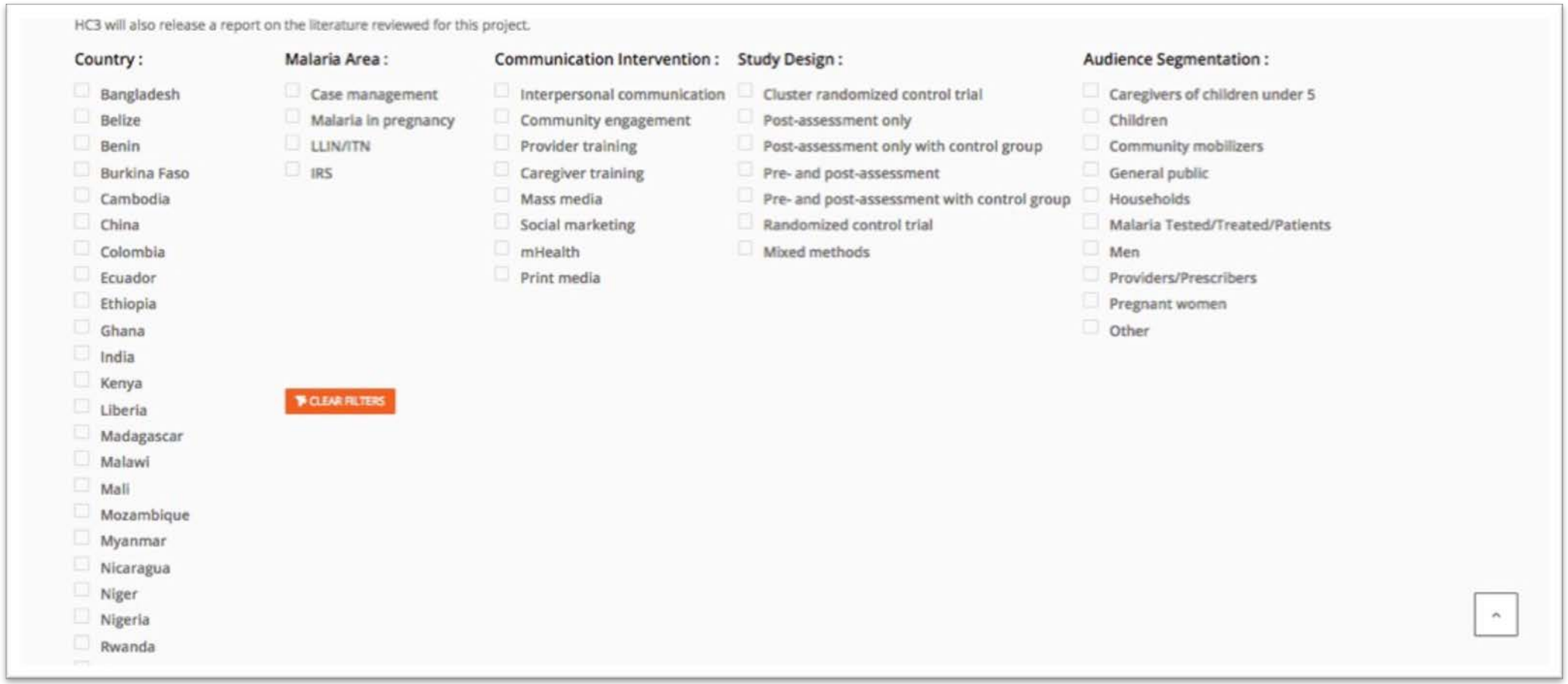
Welcome

- Introduction to the Malaria Social and Behavior Change Evidence Discussion Series
  - Moderator and presenter introductions
  - Malaria evidence social and behavior change communication (SBCC) database
  - Socio-ecological model lens

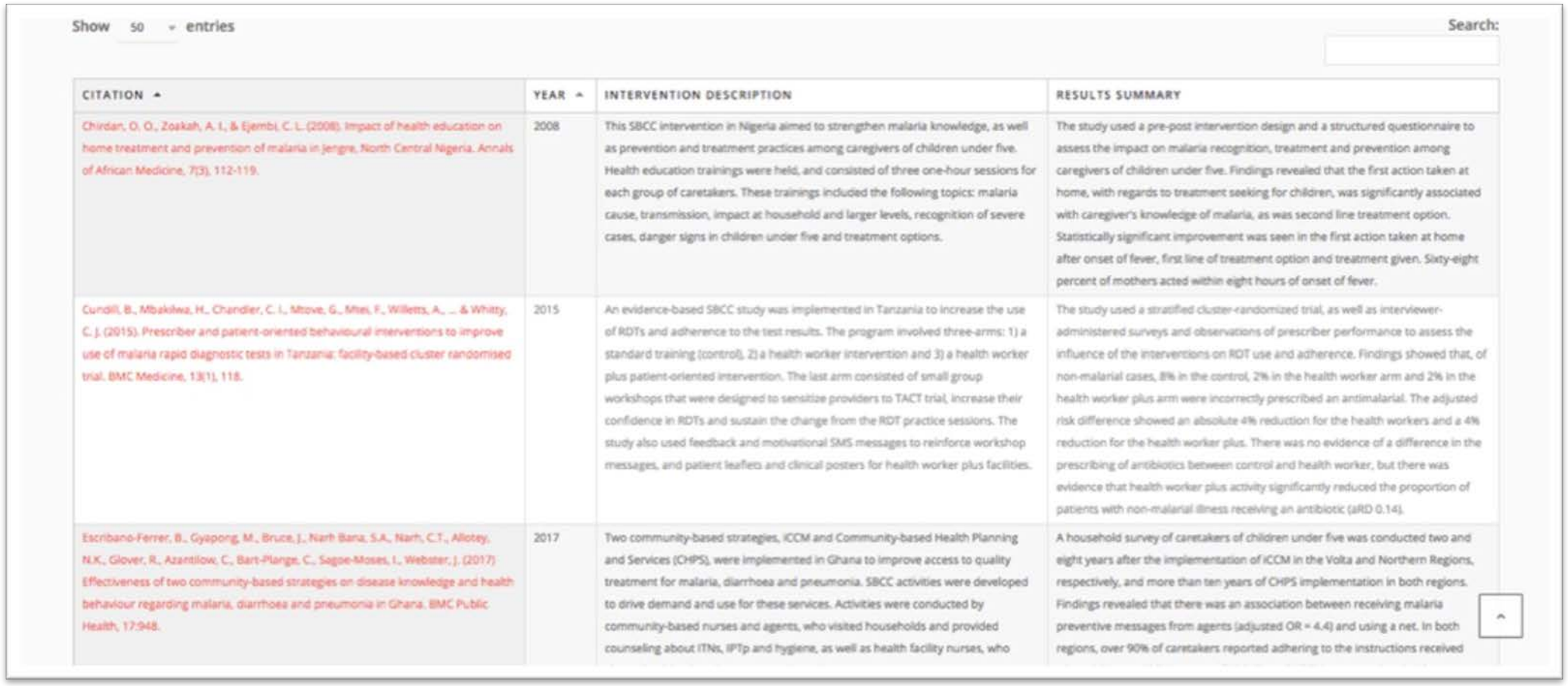
Discussion overview

- Study overview
- Methods
- Results
- Programmatic implications
- Discussion

Malaria SBCC Evidence Database



Malaria SBCC Evidence Database



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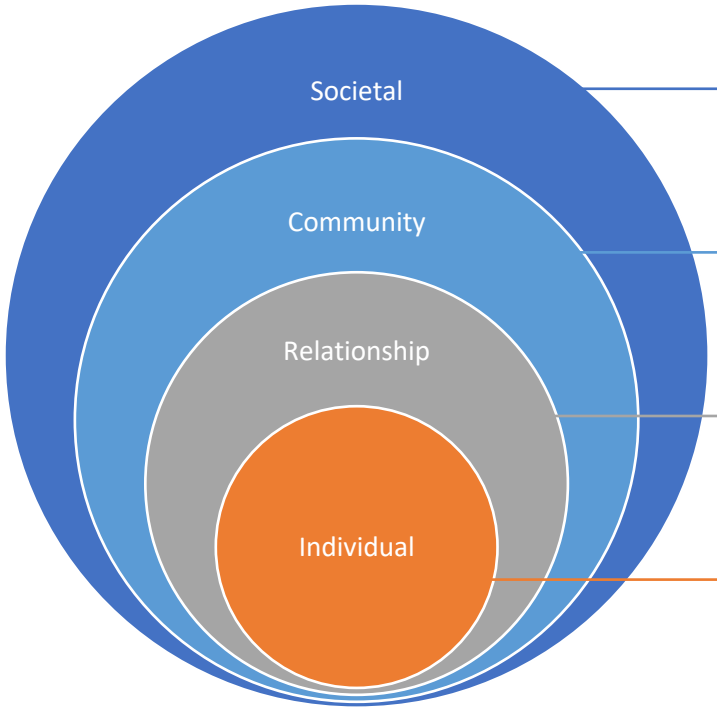
Search:

CITATION	YEAR	INTERVENTION DESCRIPTION	RESULTS SUMMARY
Chirdan, O. O., Zoakah, A. I., & Ejembi, C. L. (2008). Impact of health education on home treatment and prevention of malaria in Jengre, North Central Nigeria. Annals of African Medicine, 7(3), 112-119.	2008	This SBCC intervention in Nigeria aimed to strengthen malaria knowledge, as well as prevention and treatment practices among caregivers of children under five. Health education trainings were held, and consisted of three one-hour sessions for each group of caretakers. These trainings included the following topics: malaria cause, transmission, impact at household and larger levels, recognition of severe cases, danger signs in children under five and treatment options.	The study used a pre-post intervention design and a structured questionnaire to assess the impact on malaria recognition, treatment and prevention among caregivers of children under five. Findings revealed that the first action taken at home, with regards to treatment seeking for children, was significantly associated with caregiver's knowledge of malaria, as was second line treatment option. Statistically significant improvement was seen in the first action taken at home after onset of fever, first line of treatment option and treatment given. Sixty-eight percent of mothers acted within eight hours of onset of fever.
Cundill, B., Mbakilwa, H., Chandler, C. I., Mtove, G., Mtei, F., Willetts, A., ... & Whitty, C. J. (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.	2015	An evidence-based SBCC study was implemented in Tanzania to increase the use of RDTs and adherence to the test results. The program involved three-arms: 1) a standard training (control), 2) a health worker intervention and 3) a health worker plus patient-oriented intervention. The last arm consisted of small group workshops that were designed to sensitize providers to TACT trial, increase their confidence in RDTs and sustain the change from the RDT practice sessions. The study also used feedback and motivational SMS messages to reinforce workshop messages, and patient leaflets and clinical posters for health worker plus facilities.	The study used a stratified cluster-randomized trial, as well as interviewer-administered surveys and observations of prescriber performance to assess the influence of the interventions on RDT use and adherence. Findings showed that, of non-malarial cases, 8% in the control, 2% in the health worker arm and 2% in the health worker plus arm were incorrectly prescribed an antimalarial. The adjusted risk difference showed an absolute 4% reduction for the health workers and a 4% reduction for the health worker plus. There was no evidence of a difference in the prescribing of antibiotics between control and health worker, but there was evidence that health worker plus activity significantly reduced the proportion of patients with non-malarial illness receiving an antibiotic (aRD 0.14).
Escribano-Ferrer, B., Gyapong, M., Bruce, J., Narh Bana, S.A., Narh, C.T., Allotey, N.K., Glover, R., Azantilow, C., Bart-Plange, C., Sagoe-Moses, I., Webster, J. (2017) Effectiveness of two community-based strategies on disease knowledge and health behaviour regarding malaria, diarrhoea and pneumonia in Ghana. BMC Public Health, 17:948.	2017	Two community-based strategies, iCCM and Community-based Health Planning and Services (CHPS), were implemented in Ghana to improve access to quality treatment for malaria, diarrhoea and pneumonia. SBCC activities were developed to drive demand and use for these services. Activities were conducted by community-based nurses and agents, who visited households and provided counseling about ITNs, IPTp and hygiene, as well as health facility nurses, who	A household survey of caretakers of children under five was conducted two and eight years after the implementation of iCCM in the Volta and Northern Regions, respectively, and more than ten years of CHPS implementation in both regions. Findings revealed that there was an association between receiving malaria preventive messages from agents (adjusted OR = 4.4) and using a net. In both regions, over 90% of caretakers reported adhering to the instructions received

healthcommcapacity.org/malaria-evidence-database/

Socio-ecological model lens



Societal:
Social and cultural norms, health, economic, educational, and social policies

Community:
Schools, workplaces, and neighborhoods

Relationship:
Social circles, peers, partners, and family members

Individual:
Biological and personal history, age, education, income, attitudes, beliefs, and behaviors

Presenter

Muhammad Shafique

Regional Social and Behavior Change Communication Consultant

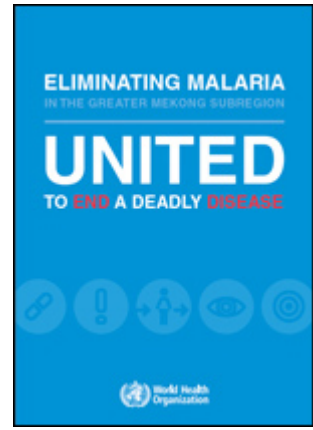
Discussion moderator

Maxine Whittaker

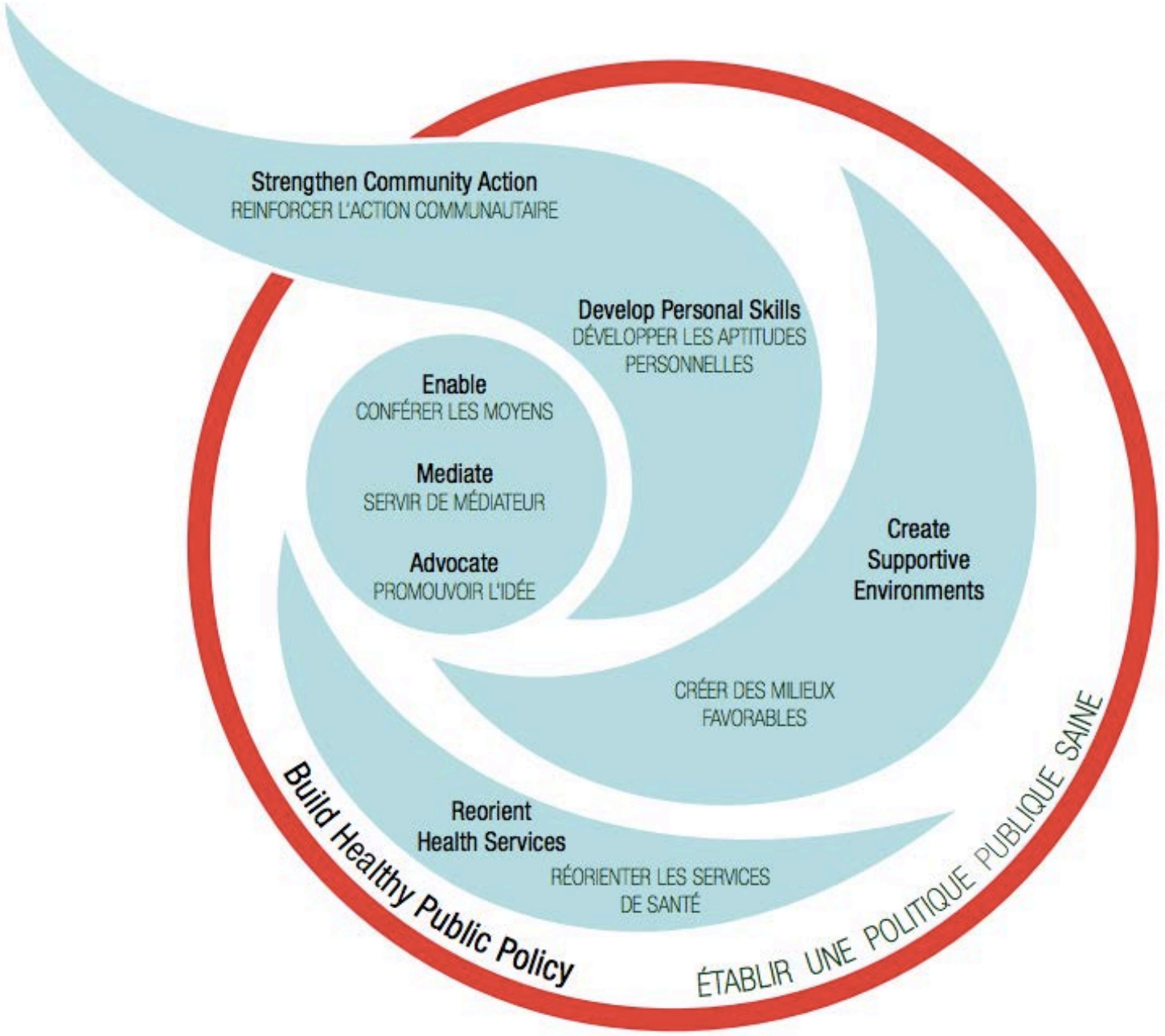
Dean, College of Public Health, Medical, and Veterinary Sciences, James Cook University

Background: curbing resistance

- What makes malaria in GMS prioritized? Unique?
  - Antimalarial resistance
  - Borders and Mobility
  - Diversity – people and vectors
- People who are in situations that make them more vulnerable or susceptible?
  - Poor
  - Rural; remote; borders; mobile
  - Indigenous
  - Gendered?
- Healthy behavior – Ottawa Charter
  - http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index4.html
- Shared vision
  - National
  - Regional
  - Global
  - Within communities?



See http://aplma.org/apmen/apmen/Resources/Country%20Briefings/Cambodia2016_FINAL.pdf

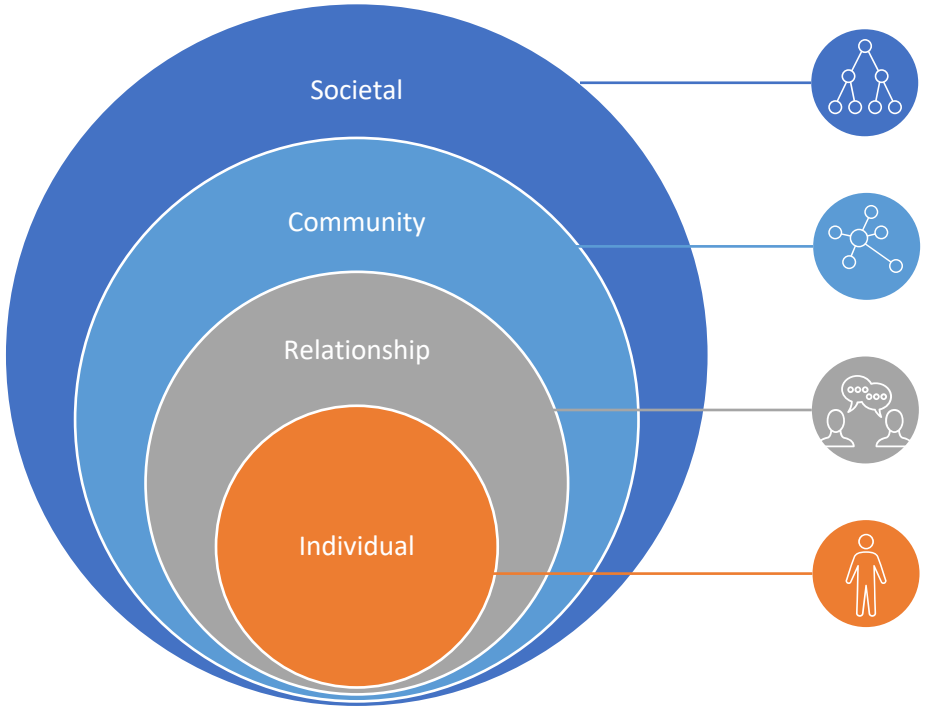


Five action areas for health promotion

1. Building healthy public **policy**.
2. Creating supportive **environments**.
3. Strengthening **community action**.
4. Developing **personal skills.**
5. Re-orienting **health care services** toward prevention of illness and promotion of health.

http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index4.html

Socio-ecological model lens: SBC to curb artemisinin resistance in Cambodia

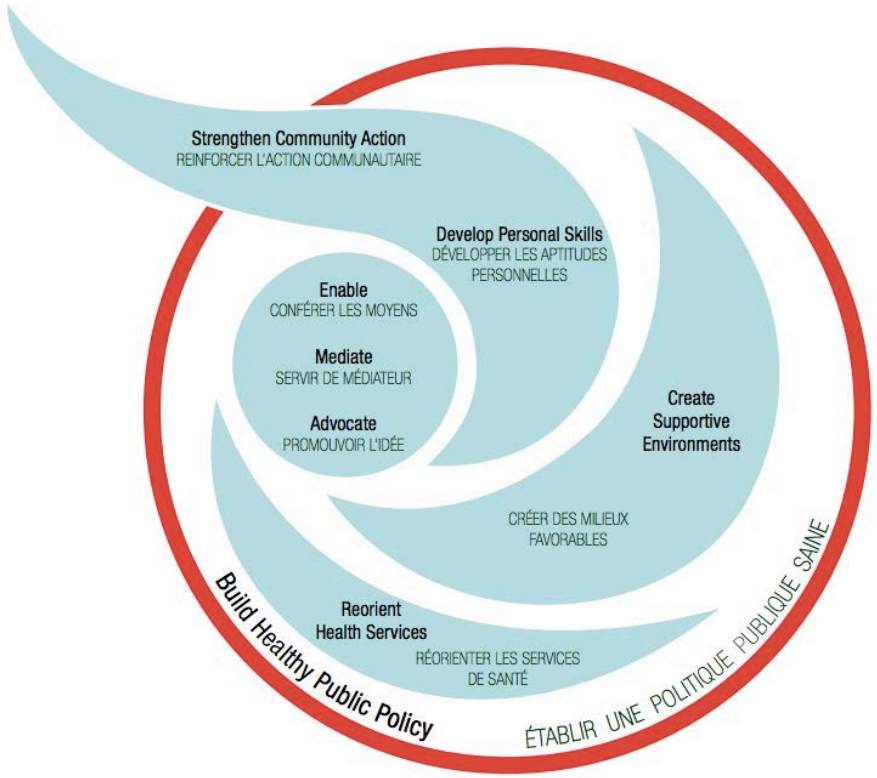


Societal:
Policy makers

Community:
Village chiefs, religious leaders (monks), village volunteers

Relationship:
Family, friends, and peers of those below

Individual:
Farmers, plantation workers, seasonal workers



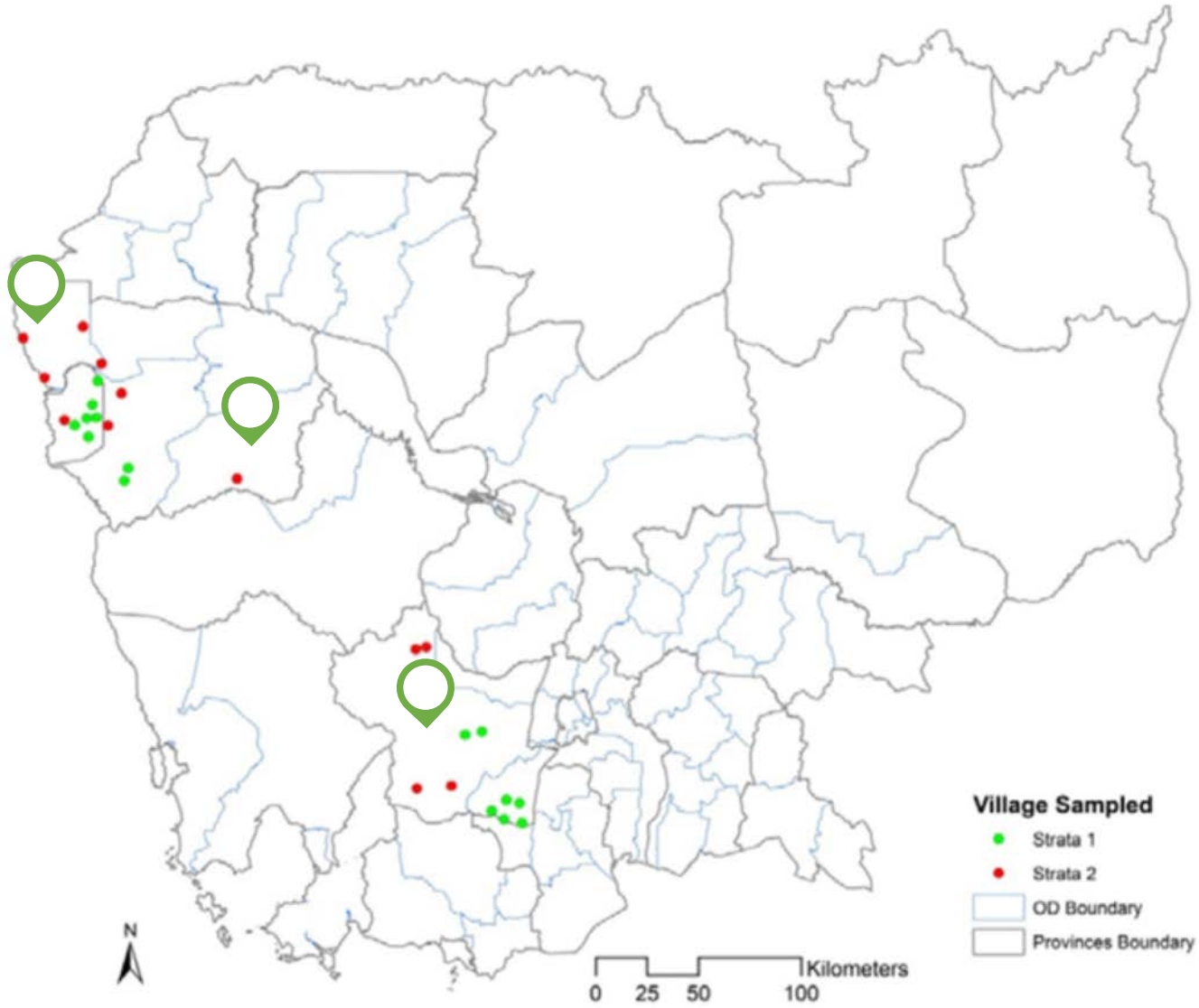
Study overview

Objectives

- Our goal was to evaluate the following outcomes: knowledge, attitudes, and practices associated with malaria prevention and control.
- To do this, we compared villages that received multi-channel behavior change communication with villages that received only mass media.
- This evaluation took place after two years of implementation.

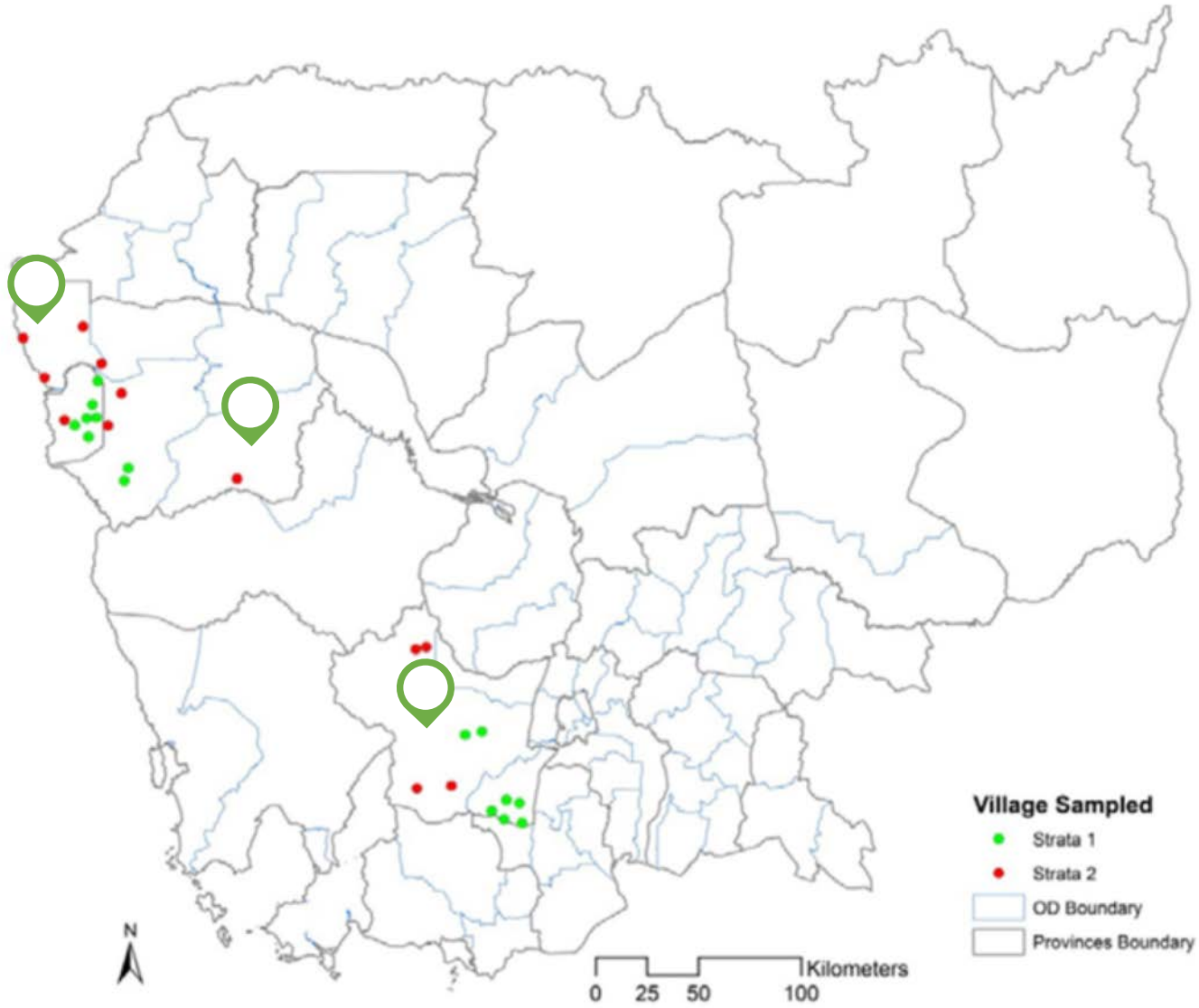
Comparison

- The study was conducted in three provinces in Cambodia: Battambang, Kampong Speu, and Pailin



Study overview

- Two approaches compared:



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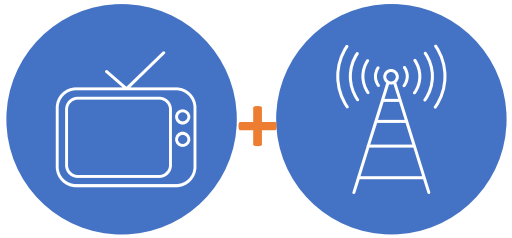
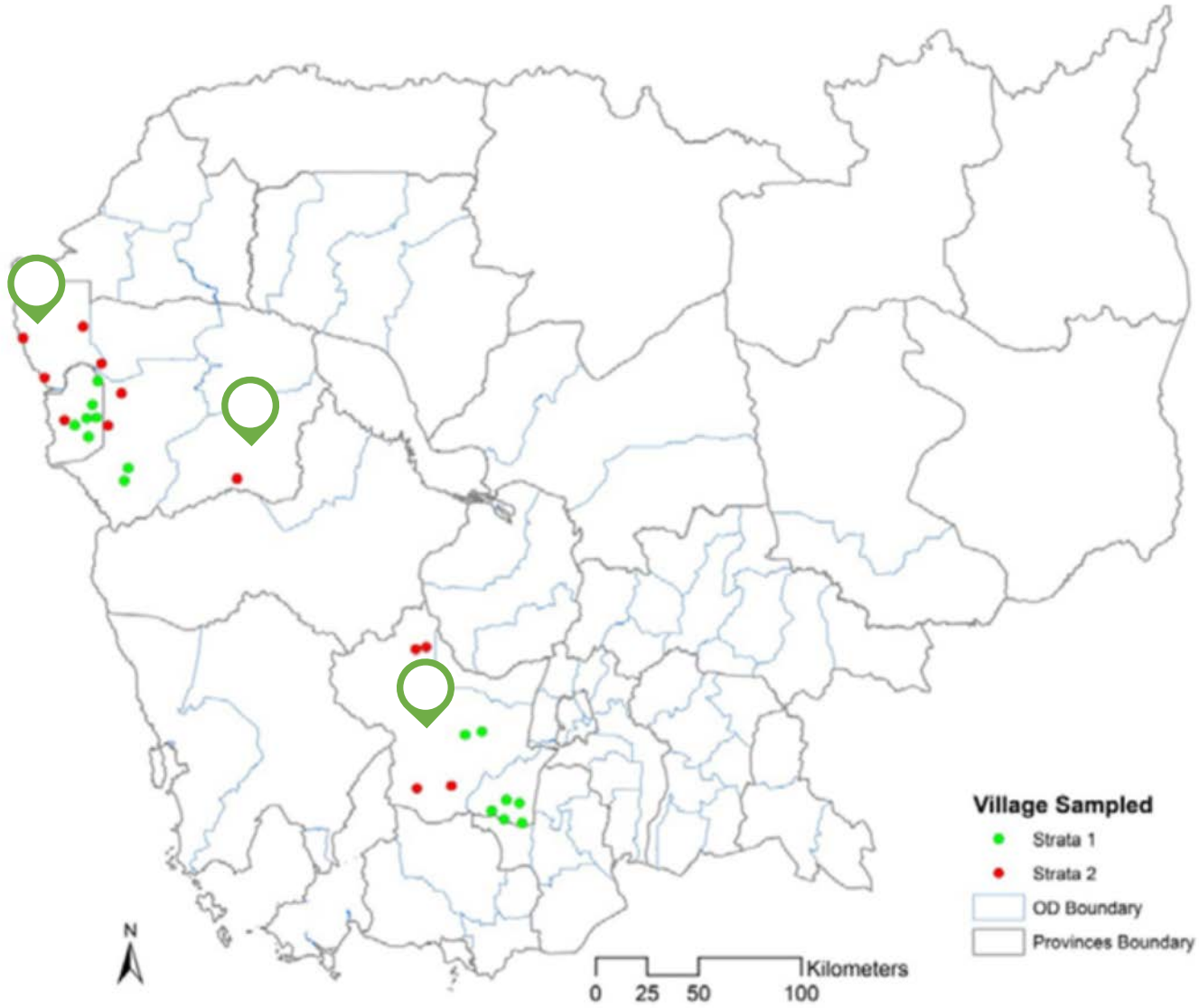


non-intense SBCC



Study overview

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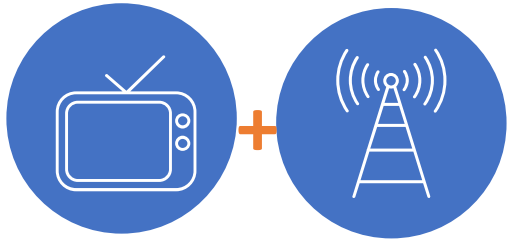
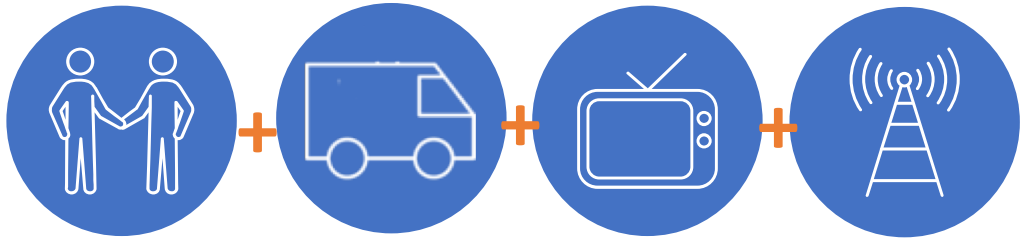
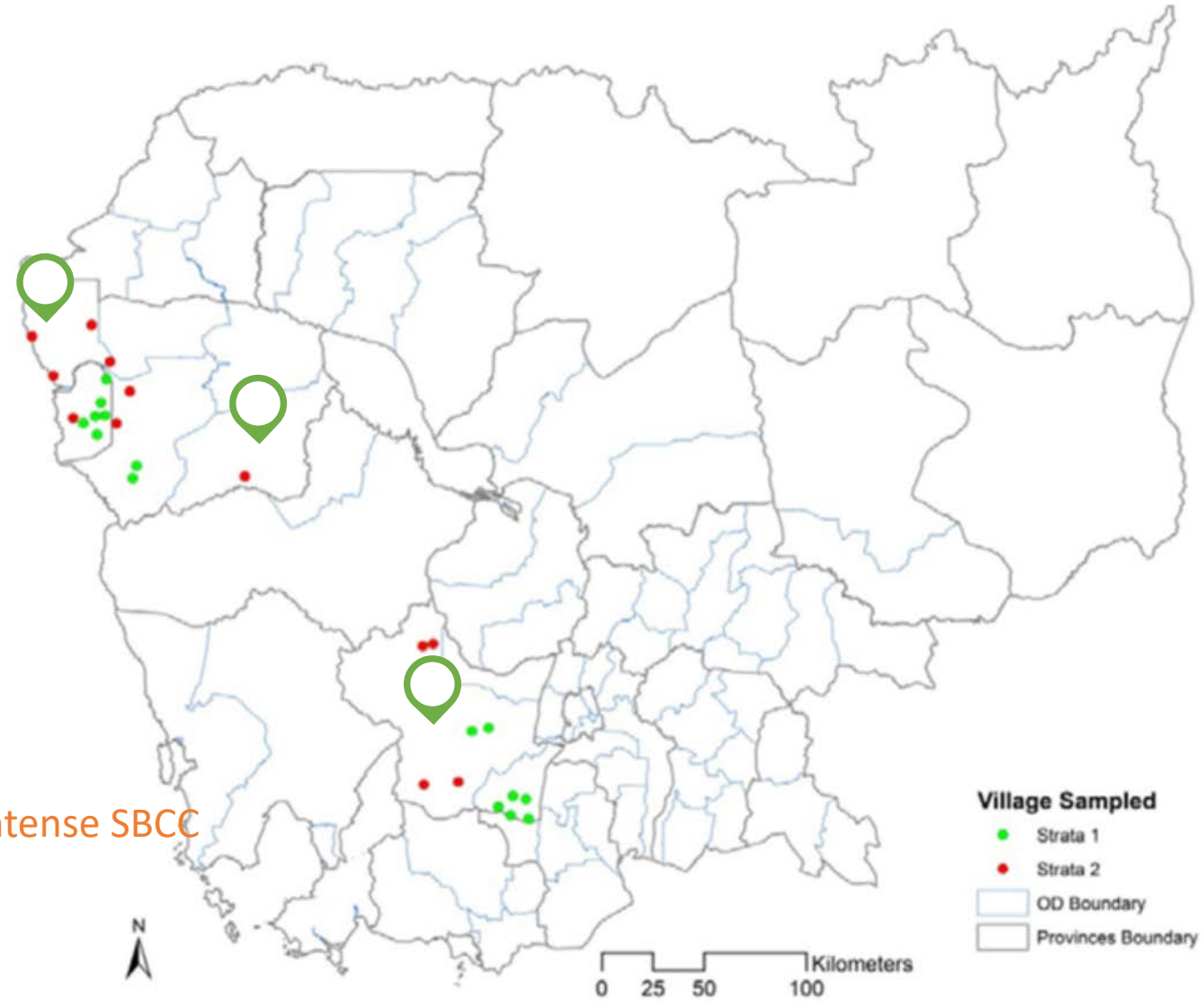


non-intense SBCC



intense SBCC



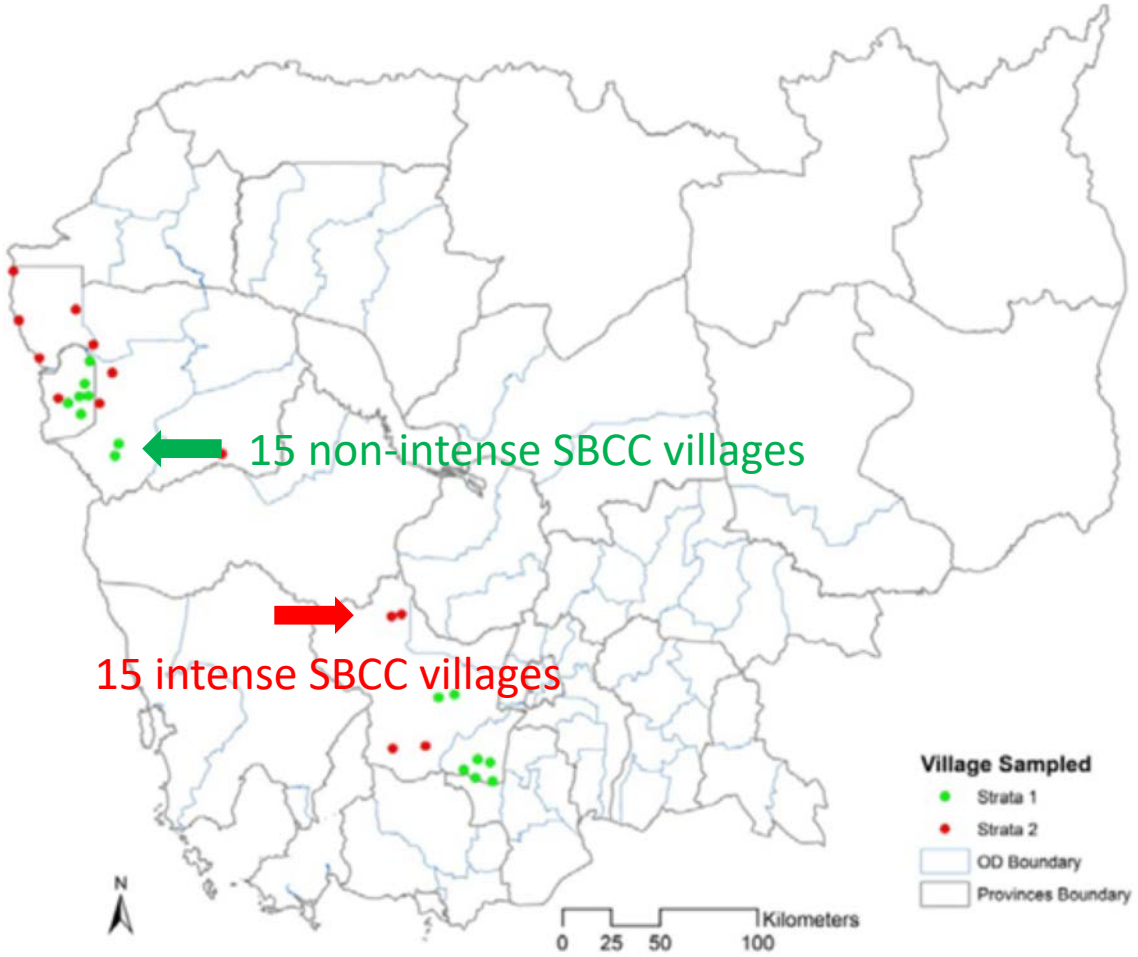
Methods

Study design, intervention, data collection, analysis

Type questions in the chat box and we will discuss them at the end of this section

Methods

- Cross-sectional household survey using a stratified multi-stage cluster sampling approach was conducted two years after implementation
- 30 villages selected (15 in each group), 774 households interviewed in total



Methods

- **Intense intervention** villages received direct community-based communication through village health volunteers, mobile broadcasting units, and listener clubs. **Non-intense intervention** villages included villages exposed to only radio and/or television
- Female heads of household were the study's primary respondents. If no female was available after three attempts, an adult male respondent was interviewed
- Demographic information was collected, as well as levels of malaria knowledge and behavior

Results

Changes in short and long term outcomes

Type questions in the chat box and we will discuss them at the end of this section

Key results

- **Behaviors** differed between study arms. More (31% vs. 26%, p=.34) of those exposed to more intense SBCC reported having promptly sought advice or treatment for fever than those only exposed to only mass media. "Intense SBCC" village survey respondents were also more likely (52%, p=.02) to have discussed malaria within the family than non-intense SBCC village respondents (36%), and reported prompt access to treatment in case of fever more often (77% vs. 60%, p=<.01).
- Levels of **knowledge** about fever as a symptom (92% vs. 94%, p=.38), and malaria transmission (97% vs. 97%, p=.83) were high in both arms. Most respondents in both groups knew using an insecticide-treated net (ITN) can prevent malaria (80% vs. 85%, p=.23)

Key results

- Knowledge of local risk factors, (like staying in the forest or at the farm and drug resistance) was low (40% vs. 31%, p=.40). Few respondents knew they should get tested for suspected malaria (3% vs. 1%, p=.69).
- Villages exposed to intense SBCC were more likely than those only exposed to mass media to answer that avoiding mosquitoes and staying out of the forest are effective prevention methods (70% vs. 58%, p=.08).
- Ownership (and, therefore, access) of ITNs was lower in the area that received intense SBCC, making it impossible to definitively determine intervention effects on use.

Programmatic implications

Strengths, weakness, validity, methodological challenges

Type questions in the chat box and we will discuss them at the end of this section

Methodological challenges

- The high risk group (i.e., men who work in the farm or forest) were the key target of SBCC interventions; however, interviews were conducted with the women based on their availability, which might have resulted in some bias. Future evaluations should carefully sample respondents from within the target population.
- The areas we are comparing are close, so confounding effects cannot be ruled out.

Strengths

- Strong coordination with key implementing non-governmental organization partners on developing SBCC materials helped developed synchronized information, education, and communication materials, media messages, and television/radio skits, which gave a sense of “one-project.”
- The community-based and mass media interventions were harmonized to ensure the reinforcing effects. For example, the community based interventions were started first to disseminate messages at community level through interpersonal communication (IPC); then, the local media mobile units started 3 months after the IPC to reinforce messages. Mass media started after 4–5 months of the community-based interventions to authenticate messages being given by volunteers at the community level.

Lessons learned

- Importance of formative research
- Synchronization of the messages and materials among various organization reinforce messages and expedite behavior changes
- Community engagement is important especially in the elimination phase where people don’t see many malaria cases
- As malaria elimination needs to focus on hard to reach mobile and migrants, IPC could be the most effective method to reach out to them
- Health promotion activities should be supported by the programmatic activities (demand-supply balance) so that people could have access to the tools to follow those behaviors (e.g., bed nets)

Discussion

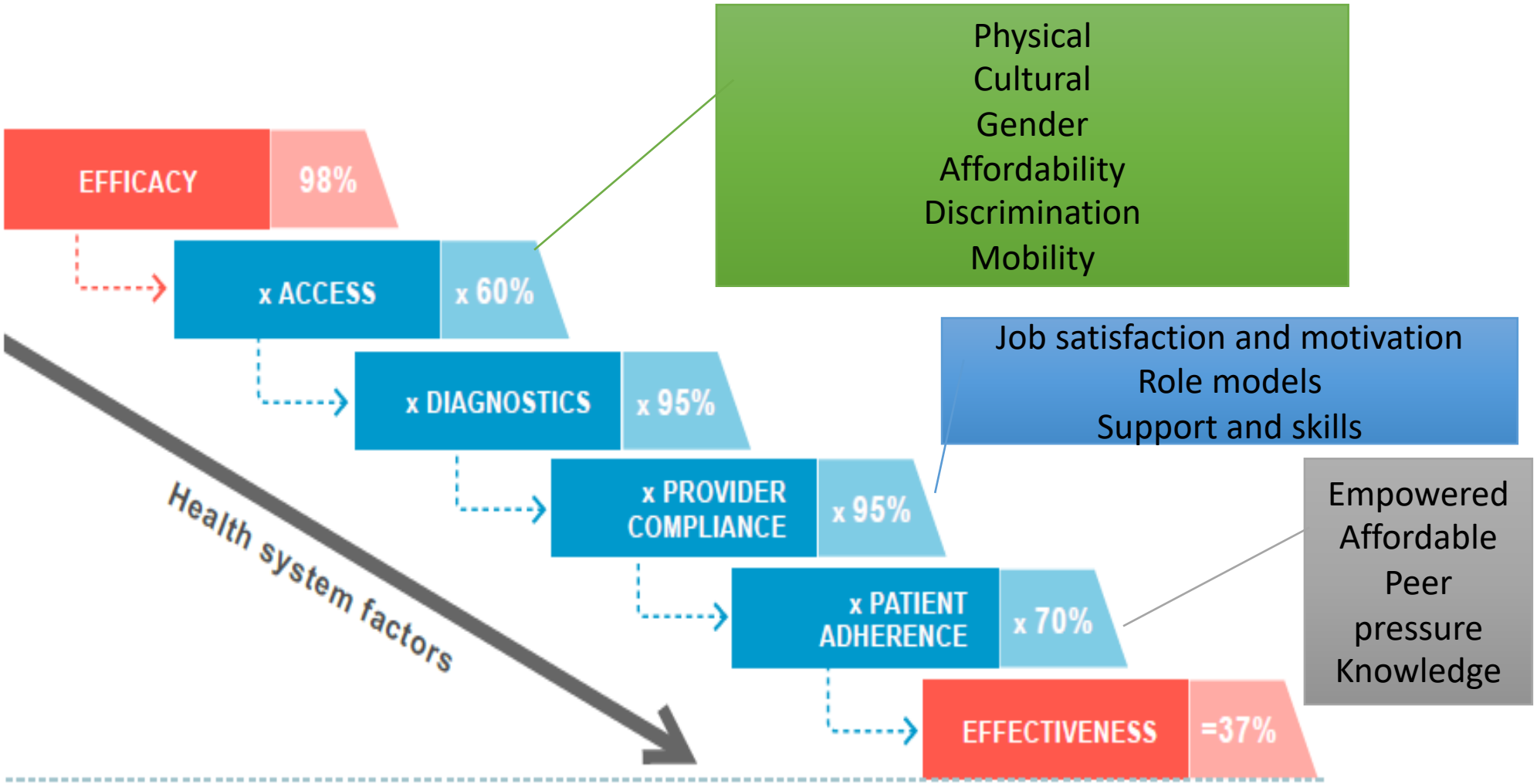
Type questions in the chat box and we will discuss them at the end of this section

For consideration

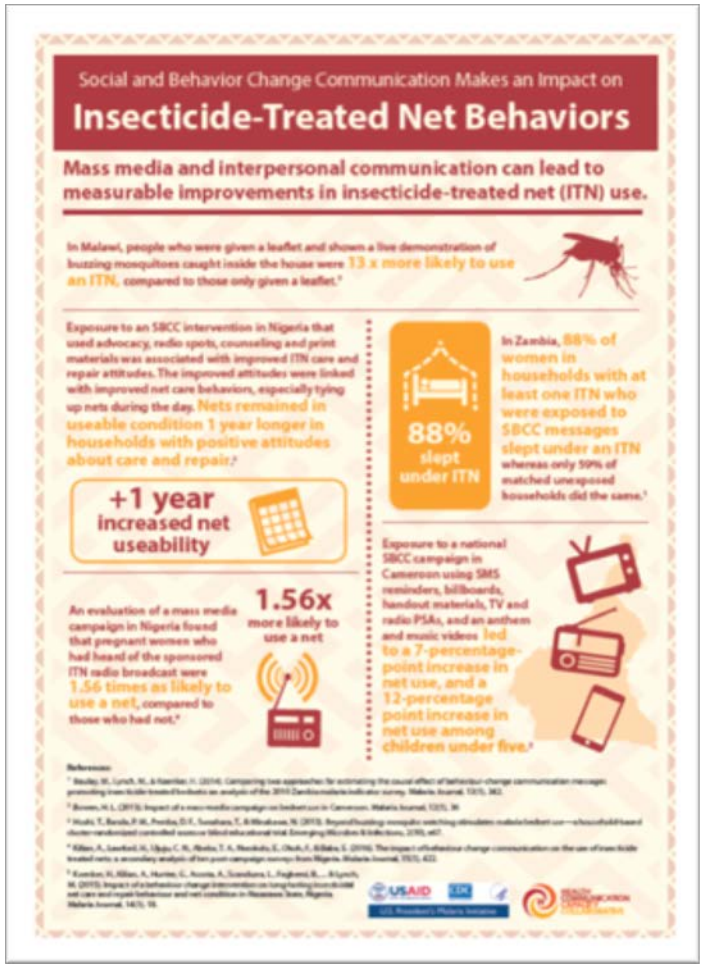
1. Lessons from this study that can be applied in the GMS, and/or globally
2. How social and behavior change programming is applying lessons learned
3. Relative to the importance placed on procuring commodities, quality services, and surveillance systems, the role of SBCC in malaria programs
4. Scientific rigor and effectiveness donors are demanding demonstrated in this work
5. Implications of this work for the future in GMS and beyond

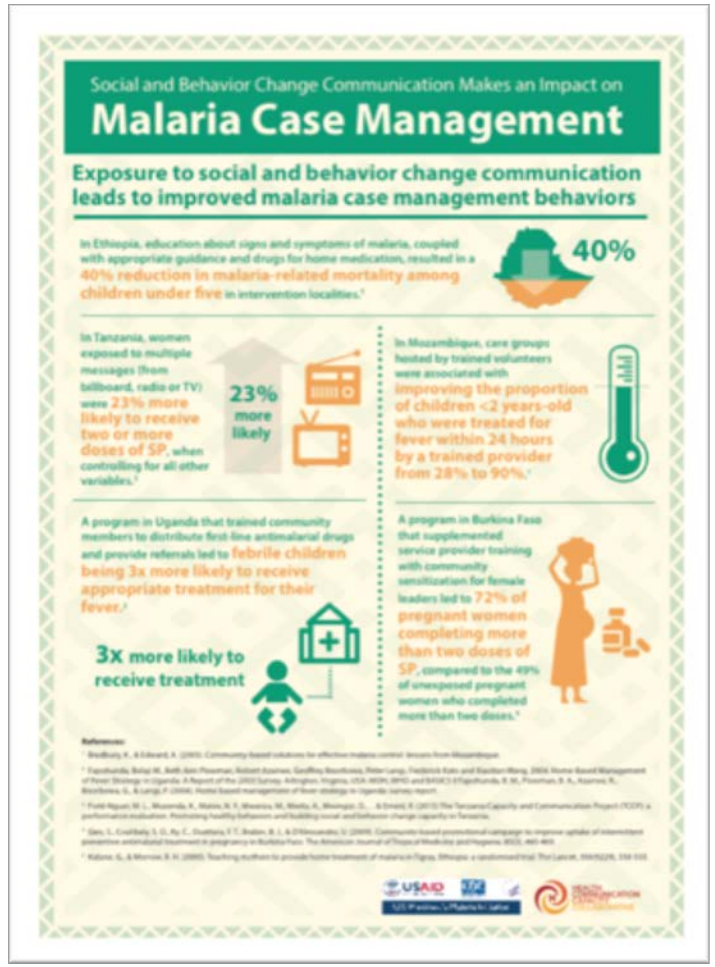
See also: malERA: An updated research agenda for health systems and policy research in malaria elimination and eradication
http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002454

Health system and SBCC/CP

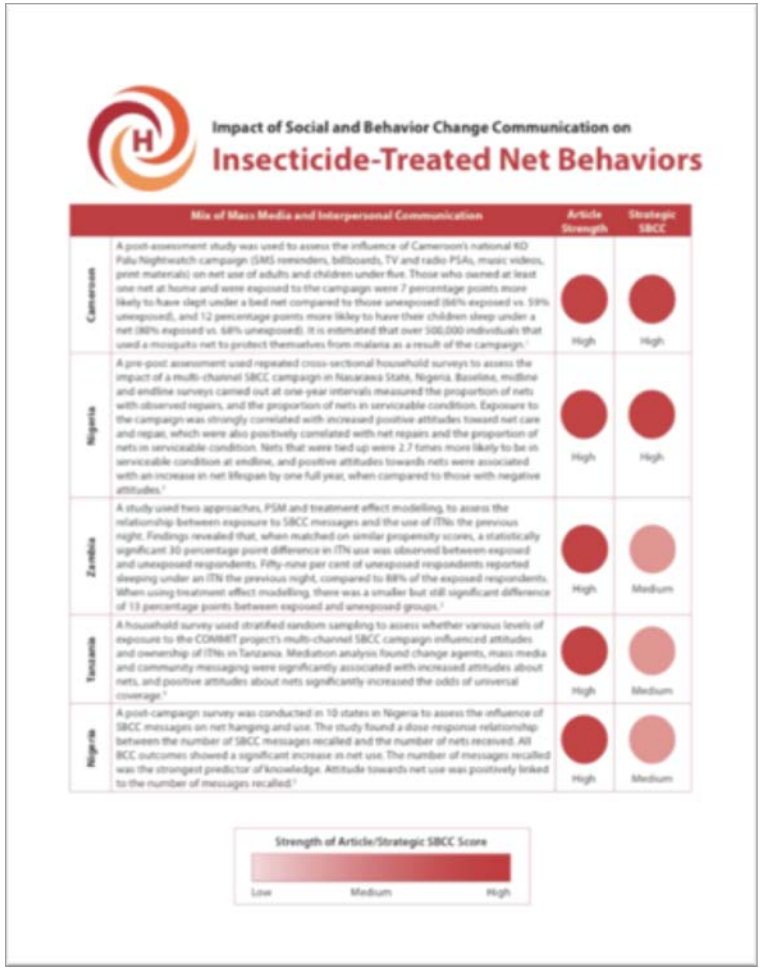


Malaria SBCC Evidence Database: infographics





Malaria SBCC Evidence Database: fact sheets



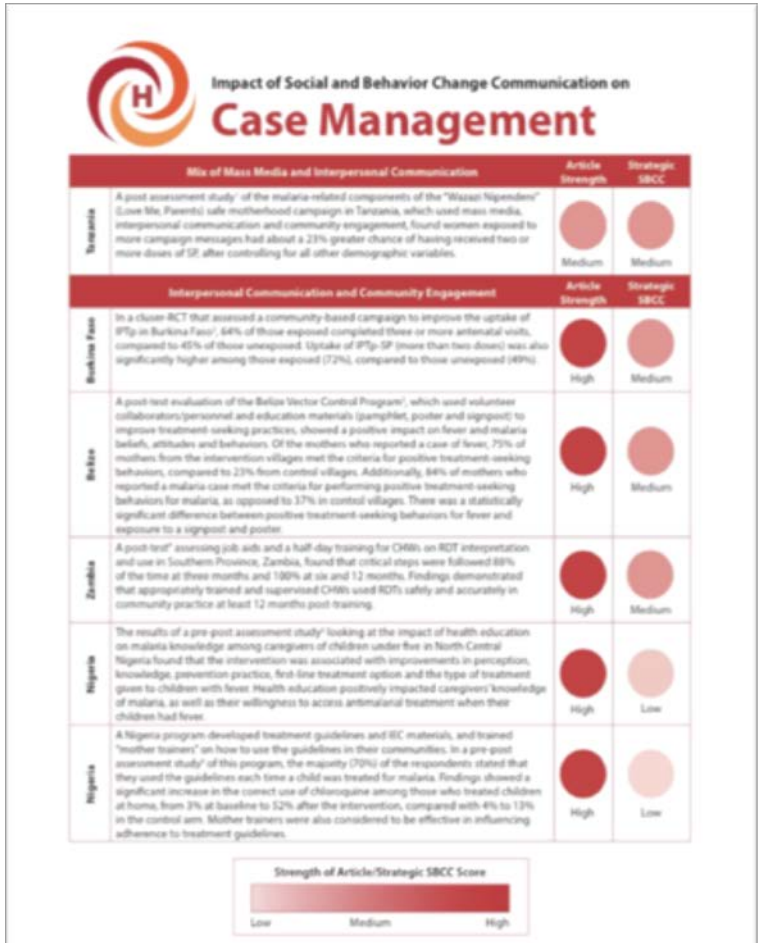
Impact of Social and Behavior Change Communication on

Insecticide-Treated Net Behaviors

Mix of Mass Media and Interpersonal Communication		Article Strength	Strategic SBCC
Cameroon	A post-assessment study was used to assess the influence of Cameroon's national KO Palu Nightwatch campaign (SMS reminders, billboards, TV and radio PSAs, music videos, print materials) on net use of adults and children under five. Those who owned at least one net at home and were exposed to the campaign were 7 percentage points more likely to have slept under a bed net compared to those unexposed (66% exposed vs. 59% unexposed), and 12 percentage points more likely to have their children sleep under a net (80% exposed vs. 68% unexposed). It is estimated that over 500,000 individuals that used a mosquito net to protect themselves from malaria as a result of the campaign.[1]	High	High
Nigeria	A pre-post assessment used repeated cross-sectional household surveys to assess the impact of a multi-channel SBCC campaign in Nasarawa State, Nigeria. Baseline, midline and endline surveys carried out at one-year intervals measured the proportion of nets with observed repairs, and the proportion of nets in serviceable condition. Exposure to the campaign was strongly correlated with increased positive attitudes toward net care and repair, which were also positively correlated with net repairs and the proportion of nets in serviceable condition. Nets that were tied up were 2.7 times more likely to be in serviceable condition at endline, and positive attitudes towards nets were associated with an increase in net lifespan by one full year, when compared to those with negative attitudes.[1]	High	High
Zambia	A study used two approaches, PSM and treatment effect modelling, to assess the relationship between exposure to SBCC messages and the use of ITNs the previous night. Findings revealed that, when matched on similar propensity scores, a statistically significant 30 percentage point difference in ITN use was observed between exposed and unexposed respondents. Fifty-nine per cent of unexposed respondents reported sleeping under an ITN the previous night, compared to 88% of the exposed respondents. When using treatment effect modelling, there was a smaller but still significant difference of 13 percentage points between exposed and unexposed groups.[1]	High	Medium
Tanzania	A household survey used stratified random sampling to assess whether various levels of exposure to the COMMIT project's multi-channel SBCC campaign influenced attitudes and ownership of ITNs in Tanzania. Mediation analysis found change agents, mass media and community messaging were significantly associated with increased attitudes about nets, and positive attitudes about nets significantly increased the odds of universal coverage.[1]	High	Medium
Nigeria	A post-campaign survey was conducted in 10 states in Nigeria to assess the influence of SBCC messages on net hanging and use. The study found a dose-response relationship between the number of SBCC messages recalled and the number of nets received. All BCC outcomes showed a significant increase in net use. The number of messages recalled was the strongest predictor of knowledge. Attitude towards net use was positively linked to the number of messages recalled.[1]	High	Medium

Strength of Article/Strategic SBCC Score

Low Medium High



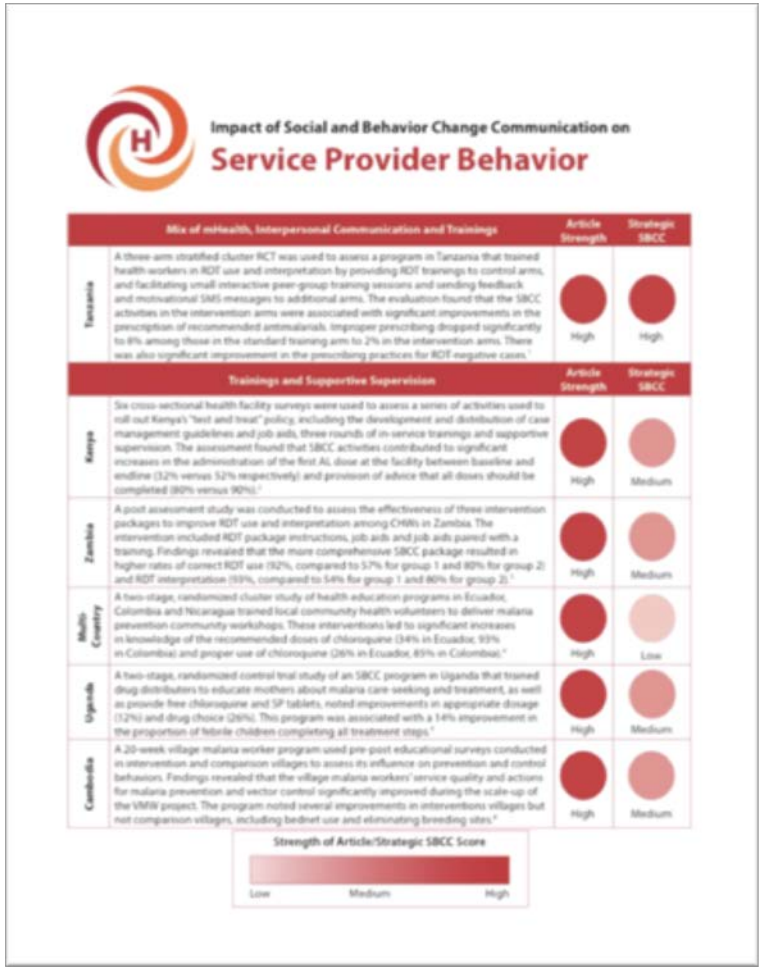
Impact of Social and Behavior Change Communication on

Case Management

Mix of Mass Media and Interpersonal Communication		Article Strength	Strategic SBCC
Tanzania	A post assessment study[1] of the malaria-related components of the "Wazazi Nipendeni" (Love Me, Parents) safe motherhood campaign in Tanzania, which used mass media, interpersonal communication and community engagement, found women exposed to more campaign messages had about a 23% greater chance of having received two or more doses of SP, after controlling for all other demographic variables.	Medium	Medium
Interpersonal Communication and Community Engagement		**Article Strength**	**Strategic SBCC**
Burkina Faso	In a cluster-RCT that assessed a community-based campaign to improve the uptake of IPTp in Burkina Faso[1], 64% of those exposed completed three or more antenatal visits, compared to 45% of those unexposed. Uptake of IPTp-SP (more than two doses) was also significantly higher among those exposed (72%), compared to those unexposed (49%).	High	Medium
Belize	A post-test evaluation of the Belize Vector Control Program[1], which used volunteer collaborators/personnel and education materials (pamphlet, poster and signpost) to improve treatment-seeking practices, showed a positive impact on fever and malaria beliefs, attitudes and behaviors. Of the mothers who reported a case of fever, 75% of mothers from the intervention villages met the criteria for positive treatment-seeking behaviors, compared to 23% from control villages. Additionally, 84% of mothers who reported a malaria case met the criteria for performing positive treatment-seeking behaviors for malaria, as opposed to 37% in control villages. There was a statistically significant difference between positive treatment-seeking behaviors for fever and exposure to a signpost and poster.	High	Medium
Zambia	A post-test[1] assessing job aids and a half-day training for CHWs on RDT interpretation and use in Southern Province, Zambia, found that critical steps were followed 88% of the time at three months and 100% at six and 12 months. Findings demonstrated that appropriately trained and supervised CHWs used RDTs safely and accurately in community practice at least 12 months post-training.	High	Medium
Nigeria	The results of a pre-post assessment study[1] looking at the impact of health education on malaria knowledge among caregivers of children under five in North Central Nigeria found that the intervention was associated with improvements in perception, knowledge, prevention practice, first-line treatment option and the type of treatment given to children with fever. Health education positively impacted caregivers' knowledge of malaria, as well as their willingness to access antimalarial treatment when their children had fever.	High	Low
Nigeria	A Nigeria program developed treatment guidelines and IEC materials, and trained "mother trainers" on how to use the guidelines in their communities. In a pre-post assessment study[2] of this program, the majority (70%) of the respondents stated that they used the guidelines each time a child was treated for malaria. Findings showed a significant increase in the correct use of chloroquine among those who treated children at home, from 3% at baseline to 52% after the intervention, compared with 4% to 13% in the control arm. Mother trainers were also considered to be effective in influencing adherence to treatment guidelines.	High	Low

Strength of Article/Strategic SBCC Score

Low Medium High



Impact of Social and Behavior Change Communication on

Service Provider Behavior

Mix of mHealth, Interpersonal Communication and Trainings		Article Strength	Strategic SBCC
Tanzania	A three-arm stratified cluster RCT was used to assess a program in Tanzania that trained health workers in RDT use and interpretation by providing RDT trainings to control arms, and facilitating small interactive peer-group training sessions and sending feedback and motivational SMS messages to additional arms. The evaluation found that the SBCC activities in the intervention arms were associated with significant improvements in the prescription of recommended antimalarials. Improper prescribing dropped significantly to 8% among those in the standard training arm to 2% in the intervention arms. There was also significant improvement in the prescribing practices for RDT-negative cases.[1]	High	High
Trainings and Supportive Supervision		**Article Strength**	**Strategic SBCC**
Kenya	Six cross-sectional health facility surveys were used to assess a series of activities used to roll out Kenya's "test and treat" policy, including the development and distribution of case management guidelines and job aids, three rounds of in-service trainings and supportive supervision. The assessment found that SBCC activities contributed to significant increases in the administration of the first AL dose at the facility between baseline and endline (32% versus 52% respectively) and provision of advice that all doses should be completed (80% versus 90%).[1]	High	Medium
Zambia	A post assessment study was conducted to assess the effectiveness of three intervention packages to improve RDT use and interpretation among CHWs in Zambia. The intervention included RDT package instructions, job aids and job aids paired with a training. Findings revealed that the more comprehensive SBCC package resulted in higher rates of correct RDT use (92%, compared to 57% for group 1 and 80% for group 2) and RDT interpretation (93%, compared to 54% for group 1 and 80% for group 2).[1]	High	Medium
Multi-Country	A two-stage, randomized cluster study of health education programs in Ecuador, Colombia and Nicaragua trained local community health volunteers to deliver malaria prevention community workshops. These interventions led to significant increases in knowledge of the recommended doses of chloroquine (34% in Ecuador, 93% in Colombia) and proper use of chloroquine (26% in Ecuador, 85% in Colombia).[1]	High	Low
Uganda	A two-stage, randomized control trial study of an SBCC program in Uganda that trained drug-distributers to educate mothers about malaria care-seeking and treatment, as well as provide free chloroquine and SP tablets, noted improvements in appropriate dosage (12%) and drug choice (26%). This program was associated with a 14% improvement in the proportion of febrile children completing all treatment steps.[1]	High	Medium
Cambodia	A 20-week village malaria worker program used pre-post educational surveys conducted in intervention and comparison villages to assess its influence on prevention and control behaviors. Findings revealed that the village malaria workers' service quality and actions for malaria prevention and vector control significantly improved during the scale-up of the VMW project. The program noted several improvements in interventions villages but not comparison villages, including bednet use and eliminating breeding sites.[2]	High	Medium

Strength of Article/Strategic SBCC Score

Low Medium High

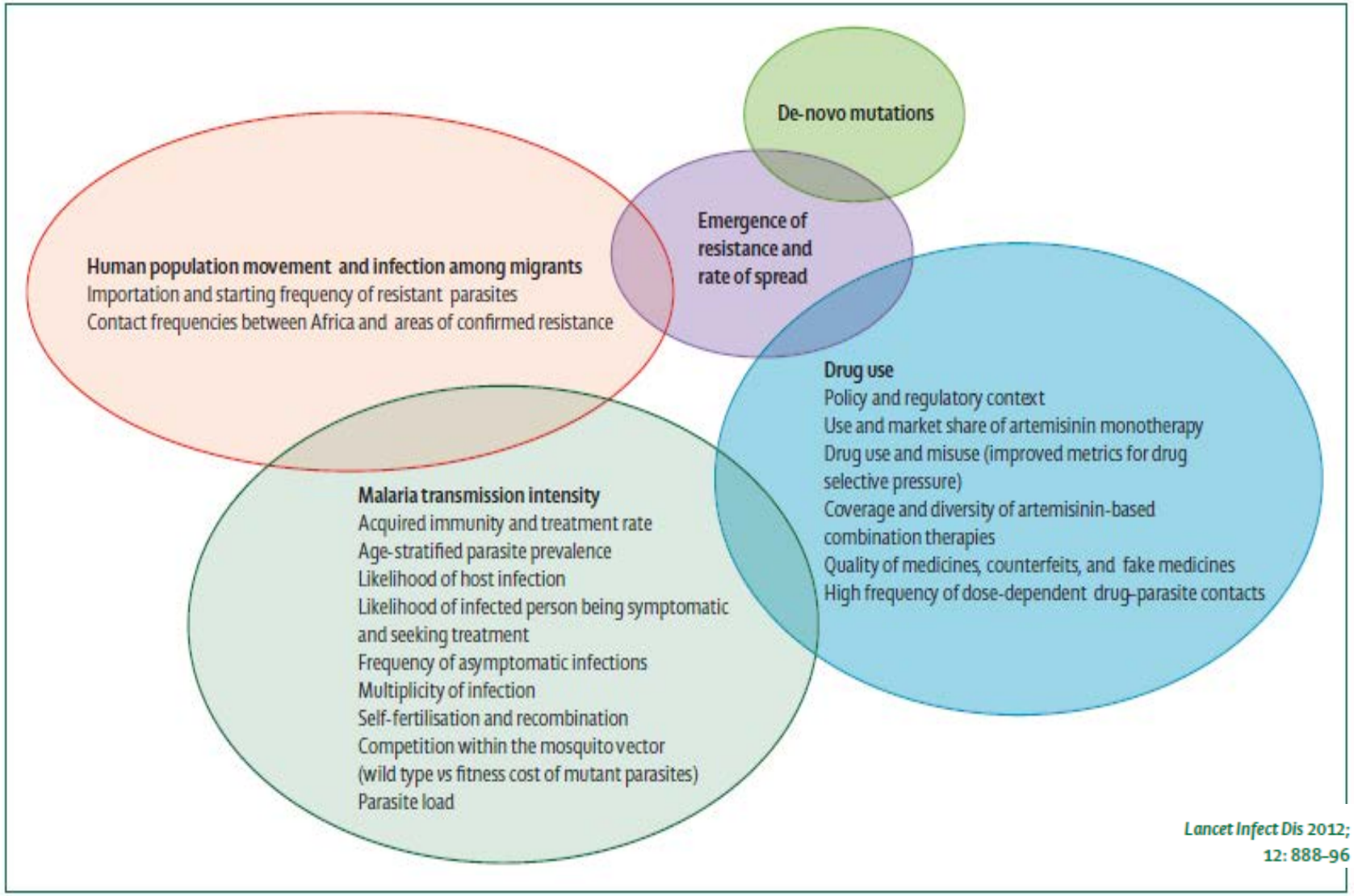


Figure 2: **Risk-factor analysis for emergence of drug-resistant malaria**

On the basis of the framework shown in this figure and our proposition that artemisinin resistance fits the definition of a public health emergency of international concern (in accordance with the revised international health regulations),[24] clear policies for travellers from areas of confirmed artemisinin resistance (tier 1 areas as defined by the WHO global plan for artemisinin resistance containment)[25] are urgently needed. Such policies could include the screening and treatment of all travellers from tier 1 areas to malaria-endemic regions of Africa with a highly effective gametocytocidal drug (such as primaquine) and revision of guidelines for prophylaxis.

Panel 1: Factors contributing to the production and trade of poor-quality antimalarial drugs

- Widespread self-prescription
- Testing for their quality is difficult
- Trade occurs in free-trade zones or free ports with minimum regulation
- National and global drug legislation is poor or absent, with lax implementation and quality control and few legal penalties
- Scarcity of political will and cooperation from stakeholders
- Proliferation of small pharmaceutical companies without adequate quality assurance
- Expensive drugs with large profit margins
- Poor consumer and health-care worker knowledge about product authenticity
- Stockouts, thefts, and the erratic supply of antimalarial drugs

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Thank you!

- Questions, comments, follow-up:
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- Please answer a few poll questions on the final screen
- We will send an email with today's slides and the discussion recording shortly


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