Malaria Social and Behavior Change Evidence Discussion Series V:

Impact of a behaviour change intervention on long-lasting insecticidal net care and repair behaviour and net condition in Nasarawa State

Wednesday, August 26, 9:00–10:00 a.m. EDT

Moderators: Shelby Cash, U.S. President's Malaria Initiative
Michael Toso, Johns Hopkins Center for Communication Programs
Presenter: Dr. Hannah Koenker, Technical Director of Tropical Health LLP

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Breakthrough ACTION FOR SOCIAL & BEHAVIOR CHANGE

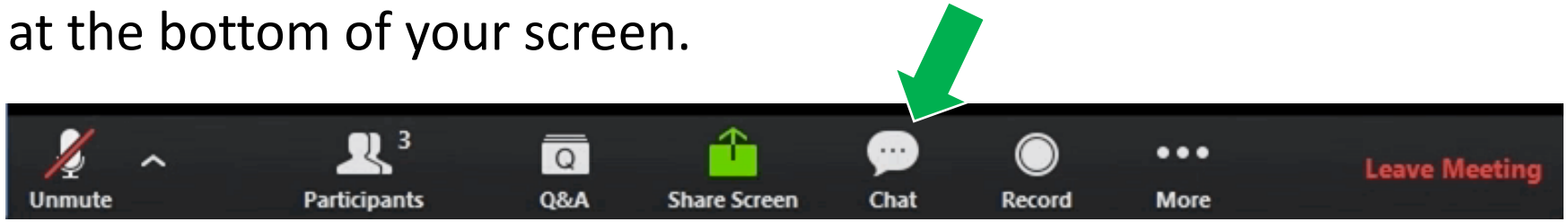
Today’s moderator

Shelby Cash

U.S. President’s Malaria Initiative

Discussion tips and reminders

- This discussion will be recorded.
- We will share the slides and webinar recording after the discussion.
- Everyone is on mute during the introduction and presentation.
- During the presentations, please submit questions by typing in the chat box at the bottom of your screen.



- There will be a post-webinar survey; please stay online to complete it before signing out.

Discussion overview

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

Malaria Social and Behavior Change Evidence Database

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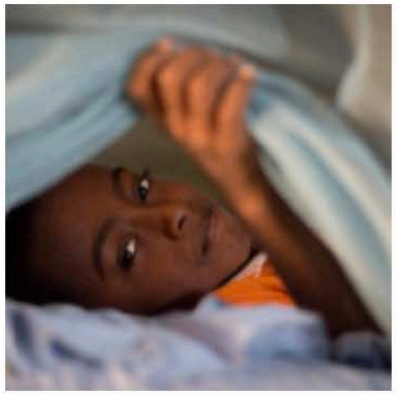


For decades, SBC has been used in malaria programs to positively influence behaviors around case management, malaria in pregnancy, insecticide-treated nets and indoor residual spraying. However, the evidence base for the impact of SBC on malaria-related behavioral outcomes is still growing, especially as malaria interventions and commodities scale-up.

The SBC for Malaria Evidence Database documents the evidence to date. The initial set of articles included were selected as a result of a critical review of the literature using a multiphase search and review

FEATURED ARTICLES

- Rassi et al. (2018). Improving health worker performance through text messaging: A mixed-methods evaluation of a pilot intervention designed to increase coverage of intermittent preventive treatment of malaria in pregnancy in West Nile, Uganda. *PLoS One*, 13 (9).
- Kilian et al. (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(1):422.
- Canavati et al (2016). Evaluation of intensified behaviour change communication strategies in an artemisinin resistance setting. *Malaria Journal*, 15:249

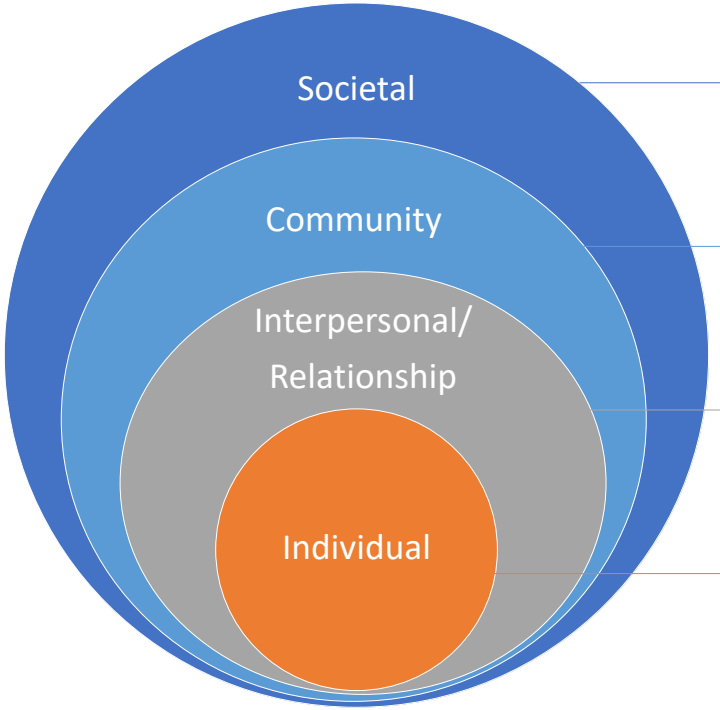
www.BehaviorChangeImpact.org

Today’s featured presenter

Hannah Koenker

Tropical Health LLP

Socio-ecological model lens



Societal
Advocacy with chiefs from each community, faith leaders

Community
Radio spots, radio magazine shows (Nasarawa Broadcasting Service), community dialogues, street theater, community outreach at weekly markets, road shows, song contests

Interpersonal/Relationship
Interpersonal communication (house visits) from health workers

Individual
Posters

Study overview

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Discussion Questions

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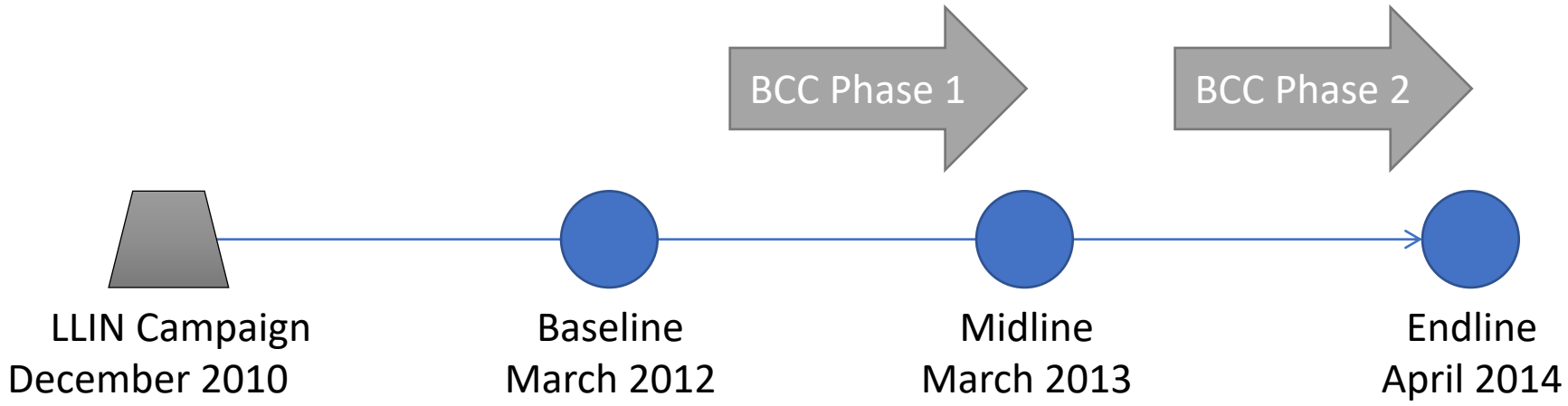
For more articles showing the positive impact social and behavior change communication has had on malaria outcomes, as well as infographics and fact sheets, visit the malaria social and behavior change communication evidence database

Study objectives

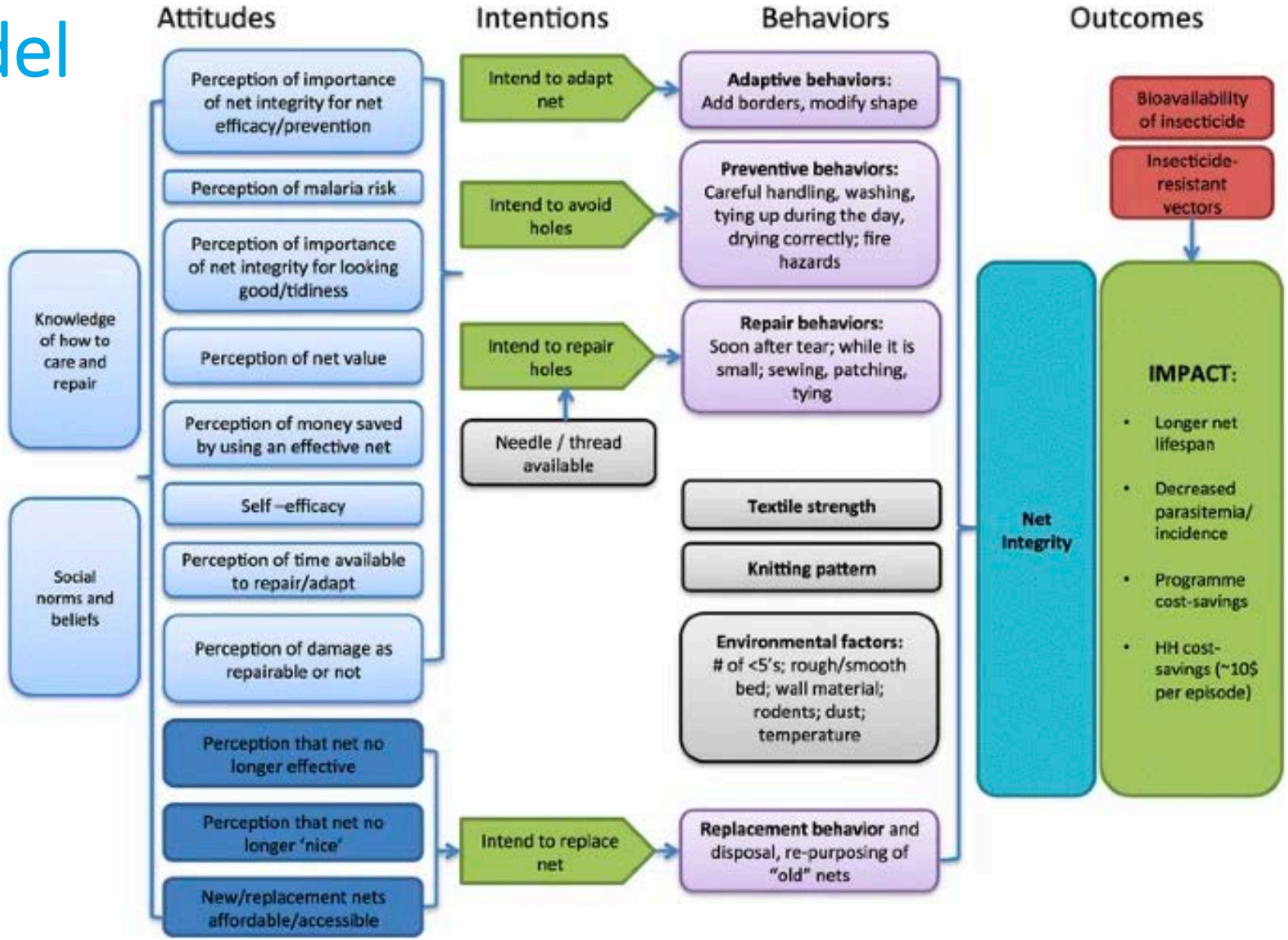
- The goal of this study was to measure the impact of an SBC intervention on insecticide-treated net (ITN) care and repair.
- Outcome measures were
  - The proportion of confirmed campaign ITNs with observed repairs
  - The proportion in serviceable condition (measured with proportionate hole index (pHI) and according to World Health Organization (WHO) guidelines)

Survey overview

- ITN care and repair SBC performed in two intervention phases following 2010 mass campaign in Nasarawa State
- Multi-channel ITN care SBC campaign in intervention zone
- Baseline 1.5 years after distribution: endline 3.3 years after distribution

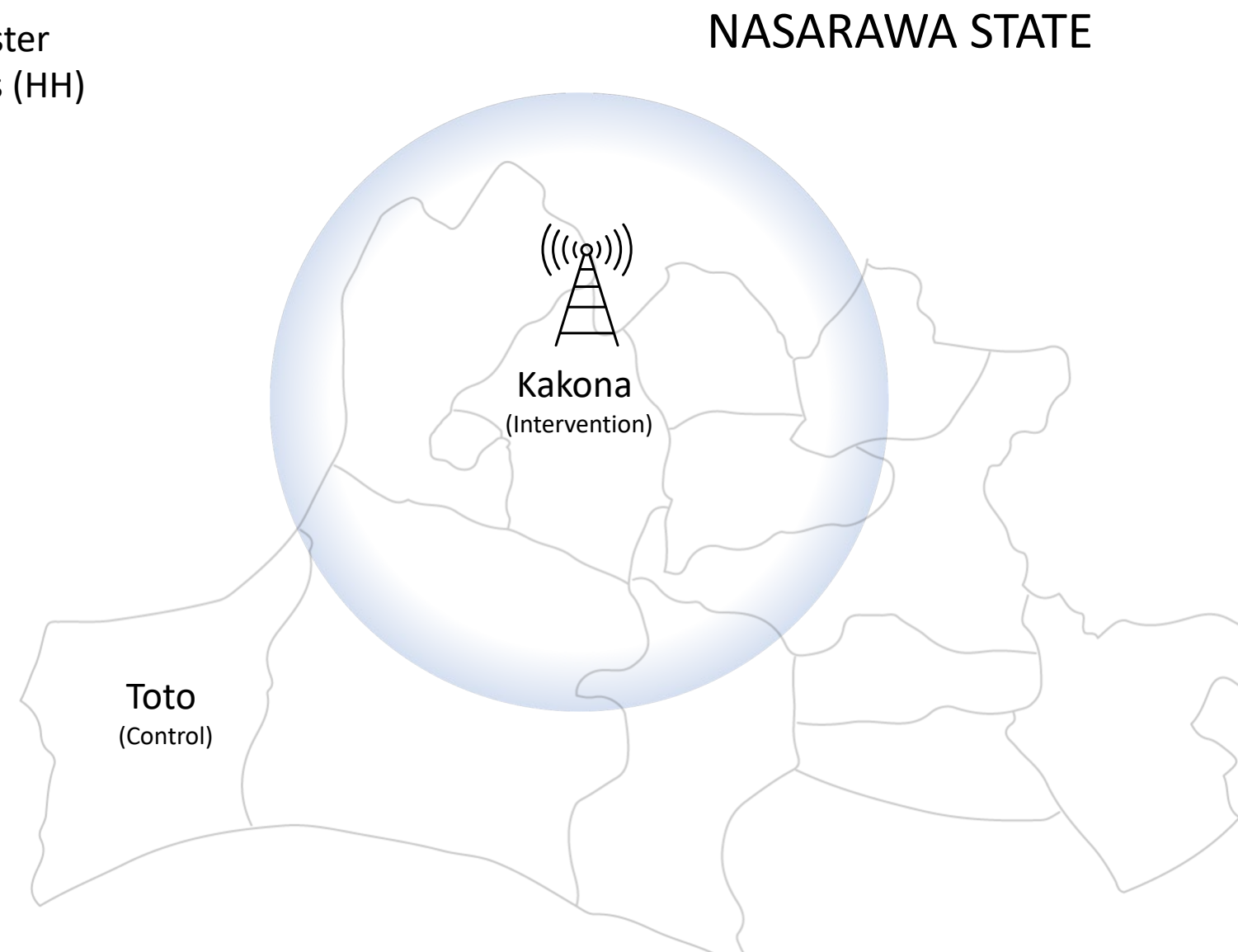


SBC Model


Attitudes
Intentions
Behaviors
Outcomes
Knowledge of how to care and repair
Social norms and beliefs
Perception of importance of net integrity for net efficacy/prevention
Perception of malaria risk
Perception of importance of net integrity for looking good/tidiness
Perception of net value
Perception of money saved by using an effective net
Self –efficacy
Perception of time available to repair/adapt
Perception of damage as repairable or not
Perception that net no longer effective
Perception that net no longer 'nice'
New/replacement nets affordable/accessible
Intend to adapt net
Intend to avoid holes
Intend to repair holes
Needle / thread available
Intend to replace net
Adaptive behaviors: Add borders, modify shape
Preventive behaviors: Careful handling, washing, tying up during the day, drying correctly; fire hazards
Repair behaviors: Soon after tear; while it is small; sewing, patching, tying
Textile strength
Knitting pattern
Environmental factors: # of <5's; rough/smooth bed; wall material; rodents; dust; temperature
Replacement behavior and disposal, re-purposing of "old" nets
Net Integrity
Bioavailability of insecticide
Insecticide-resistant vectors
IMPACT:
Longer net lifespan
Decreased parasitemia/ incidence
Programme cost-savings
HH cost-savings (~10$ per episode)

Sampling

Baseline and midline: two-stage cluster sampling: 20 clusters, 15 households (HH) each (300 total) per site and time



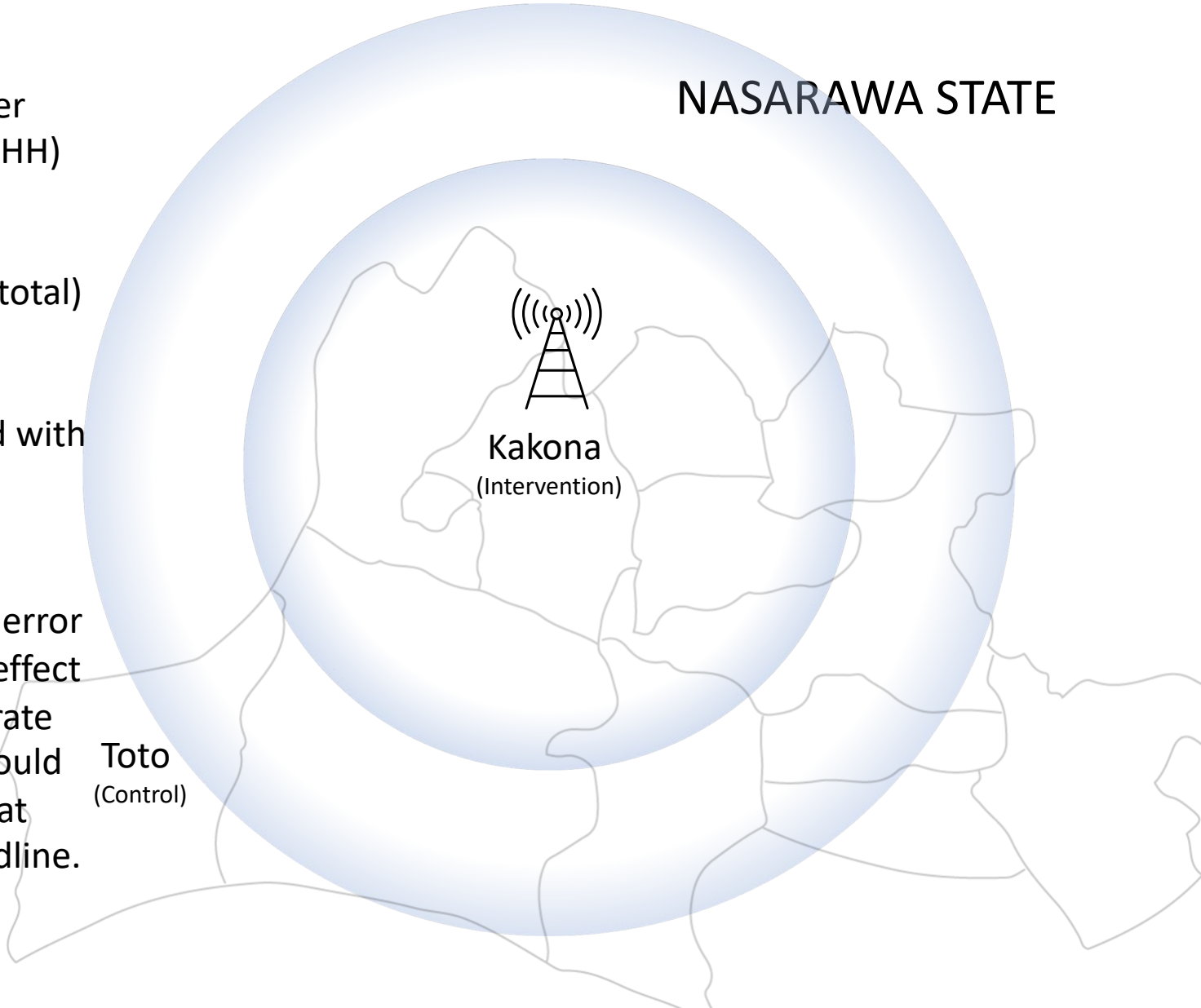
Sampling

Baseline and midline: two-stage cluster sampling: 20 clusters, 15 households (HH) each (300 total) per site and time

Endline: 28 clusters, 15 HH each (420 total)

All: Clusters selected with probability proportional to size (PPS), HH selected with simple random sample (SRS), one respondent per HH

Sample size calculated using an alpha error of 95%, a beta error of 80%, a design effect of 1.75, an anticipated non-response rate of 5%, and the expectation that HH would own an average of 1.8 campaign nets at baseline, 1.5 at midline, and 1.0 at endline.



Questionnaire

Structured questionnaire assessed the following:

- Household characteristics
- ITNs received from the December 2010 campaign
- ITNs lost
- Net care and repair behavior and attitudes
- Exposure to care and repair messages
- Assessment of existing campaign nets

Methods

Study design, intervention, data collection

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Methods: Analytical approach

- To assess impact of SBC on outcomes, outcome indicators were assessed by exposure to the campaign.
- Multivariate logistic regression was performed to determine relative contributions of attitudes and exposure to messages, controlling for background variables and predictors selected.

Methods: Analytical approach

- Scored ITN care and repair attitudes with a **Likert** scale where 1 was “strongly disagree” and 4 was “strongly agree”
- Calculated **overall attitude score** by summing and dividing attitude score by eight
- Computed wealth index at the household level using **principal component analysis**
- Categorized ITN condition as good, serviceable, or too worn according to **proportionate hole index**

Intervention – Phase 1

Messages

- “How To” for care and repair behaviors
- Nets are valuable, worth the time investment
- Torn net can still be effective if repaired
- Repair small holes immediately

Activities

- Advocacy
- Community interpersonal communication (IPC) with 40 mobilizers
- Radio spots
- Print materials
- Song contest

Intervention – Phase 2

Strategy Refinement

- Moving from initial exposure of new messages to making behaviors routine
- Refined radio airtime plan for >exposure
- Focused IPC on activities with most impact
- Leveraged success of song contest
- Capitalized on gains: confidence of mobilizers and trust of local leaders

Activities

- Aired radio spots ~260 times
- Aired 14 episodes of 15-minute radio magazine program
- 60 community dialogues, reaching approximately 6,500 people
- 1,737 house visits, reaching approximately 13,700 people

Results

Intervention outcomes

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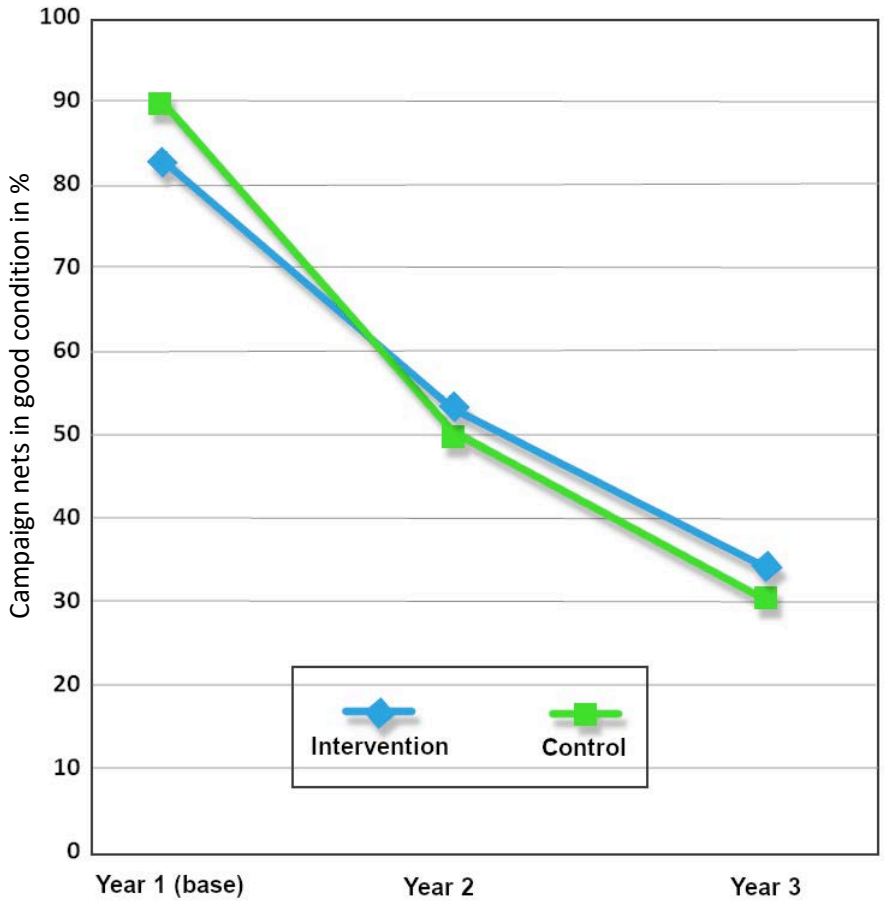
Results: No differences in intention to treat analysis

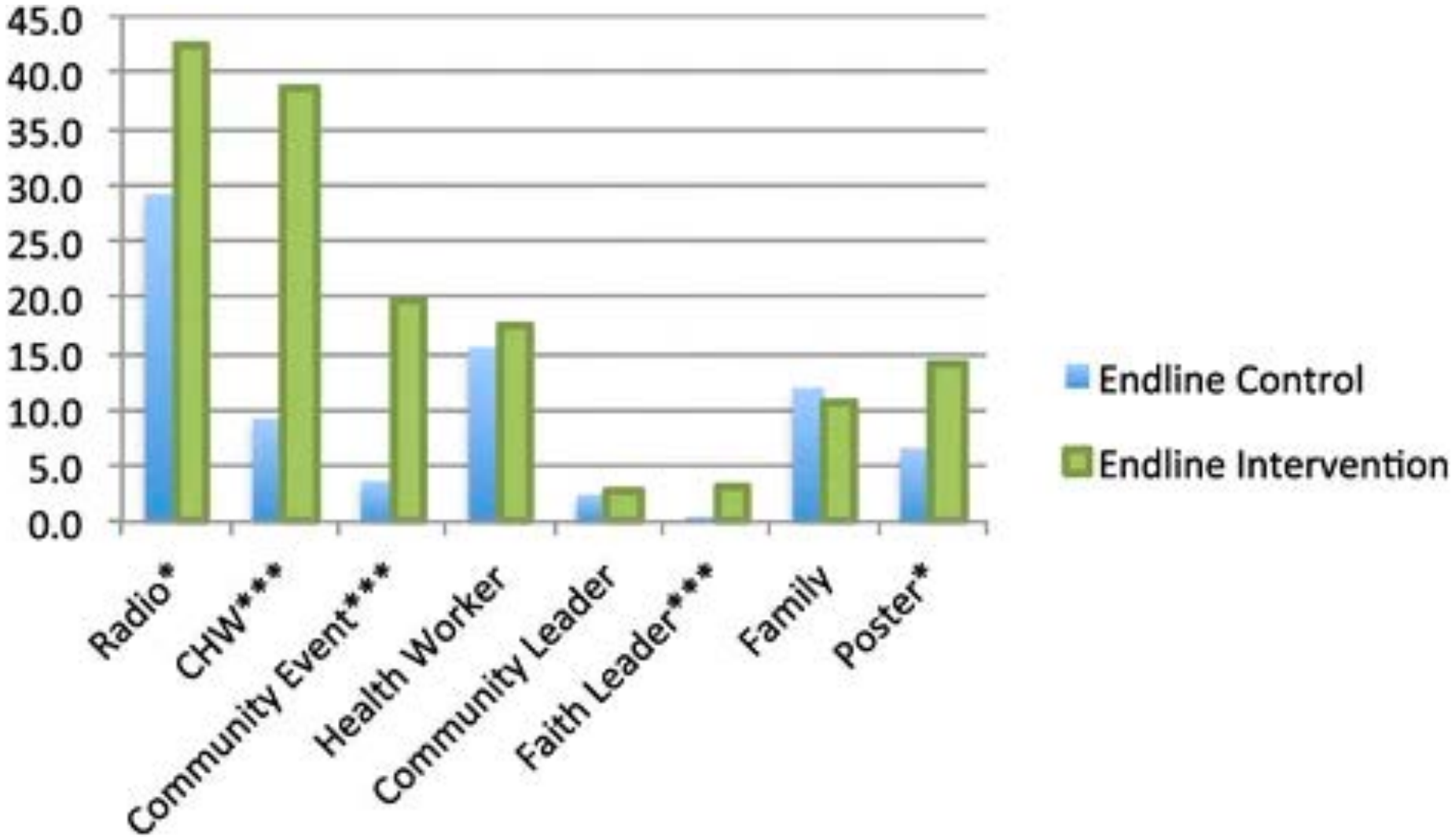


Net characteristics	Baseline control	Baseline intervention	p	Endline control	Endline intervention	p
n	156	134		443	253	
Any observed repairs (among nets with holes)	10.3	10.5	0.961	17.8	26.5	0.128
n	425	376		522	327	
% nets in good condition	79.1	82.7	0.443	30.7	33.3	0.684
% nets in serviceable condition	92.5	92.0	0.862	51.5	55.7	0.514

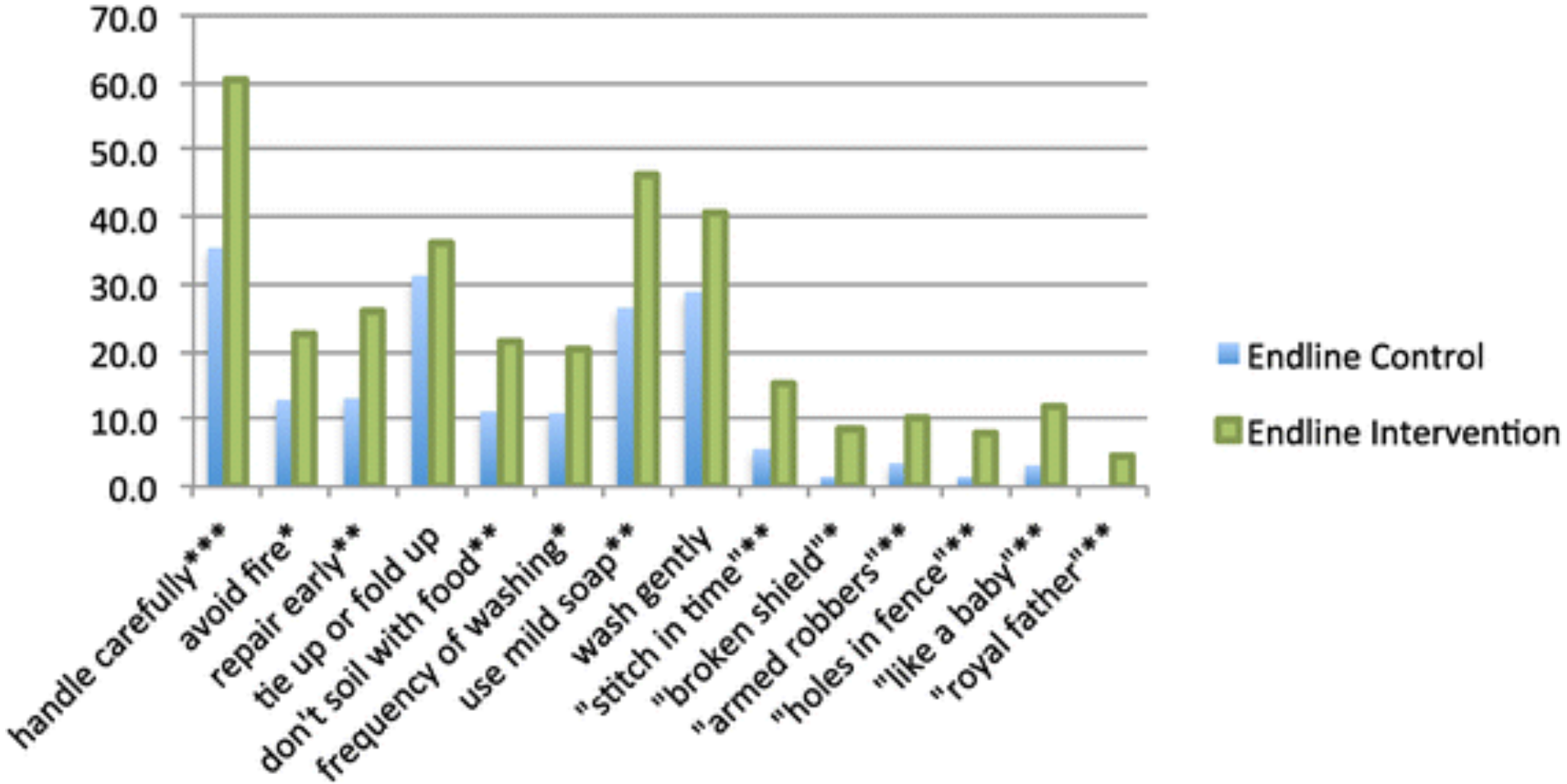
Results: Exposure to messages

	N	Baseline control	Baseline intervention	p	n	Endline control	Endline intervention	p
Heard/saw any messages about care and repair	591	0.3	1.4	0.176	709	46.8	72.7	0.0005
Dose (No. of sources cited)	591				709			0.0001
0		99.7	98.6	0.176		53.2	27.3	
1						25.7	23.6	
2		--	--			12.6	28.0	
3+		--	--			8.5	21.2	

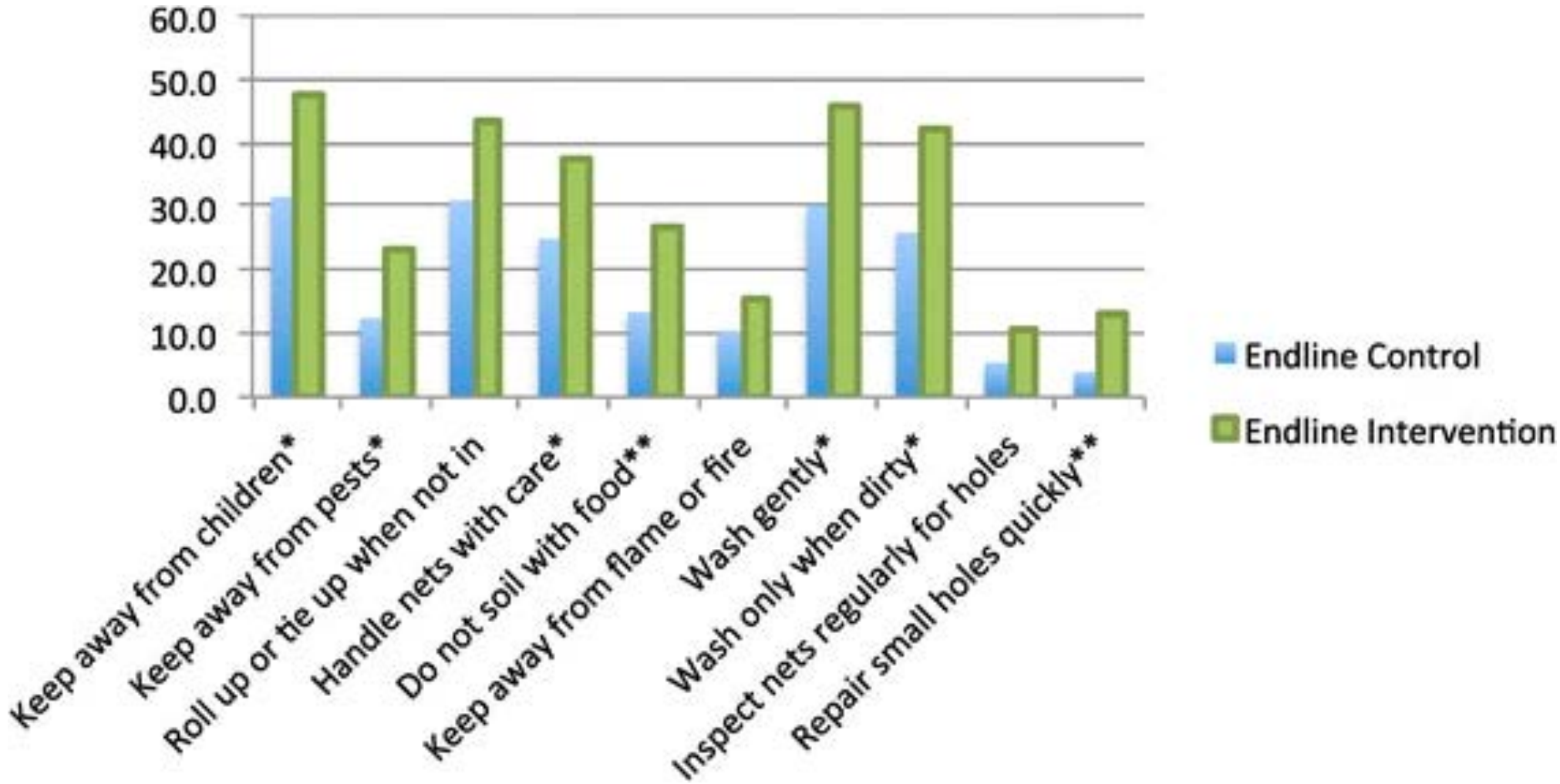
Results: Exposure to SBC (by channel)



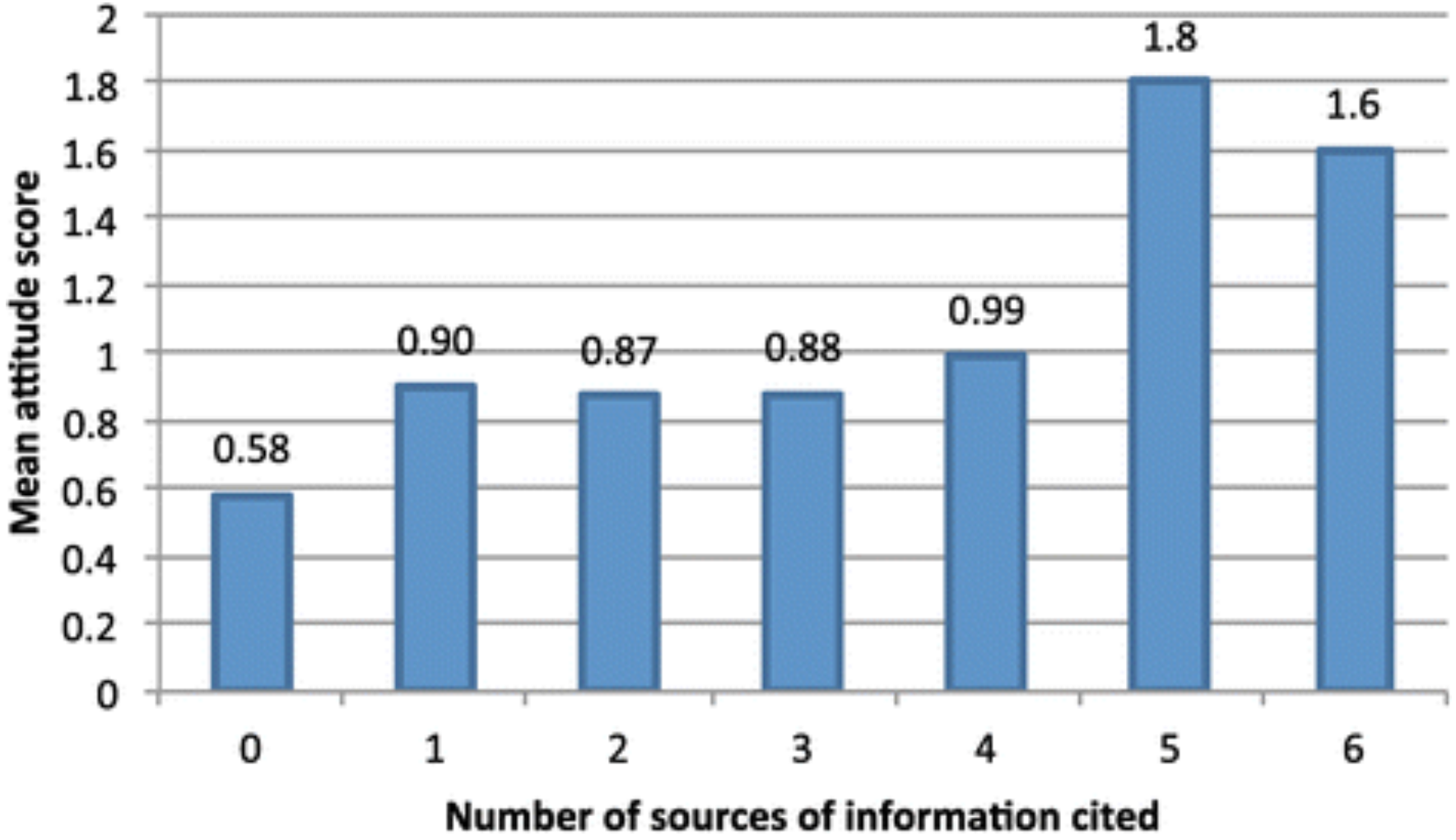
Results: Exposure to SBC (message recall)



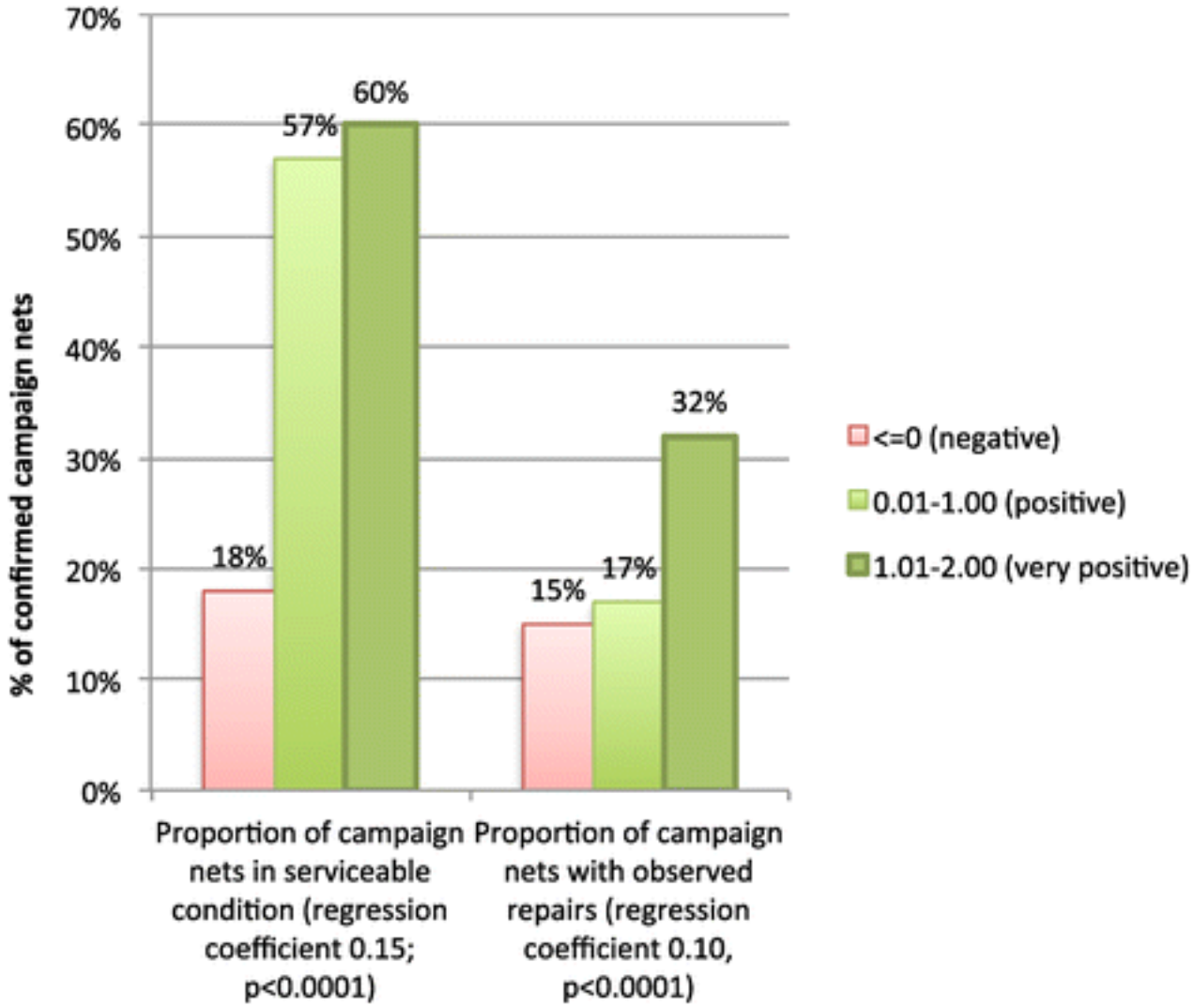
Results: Exposure to SBC (care behaviors)



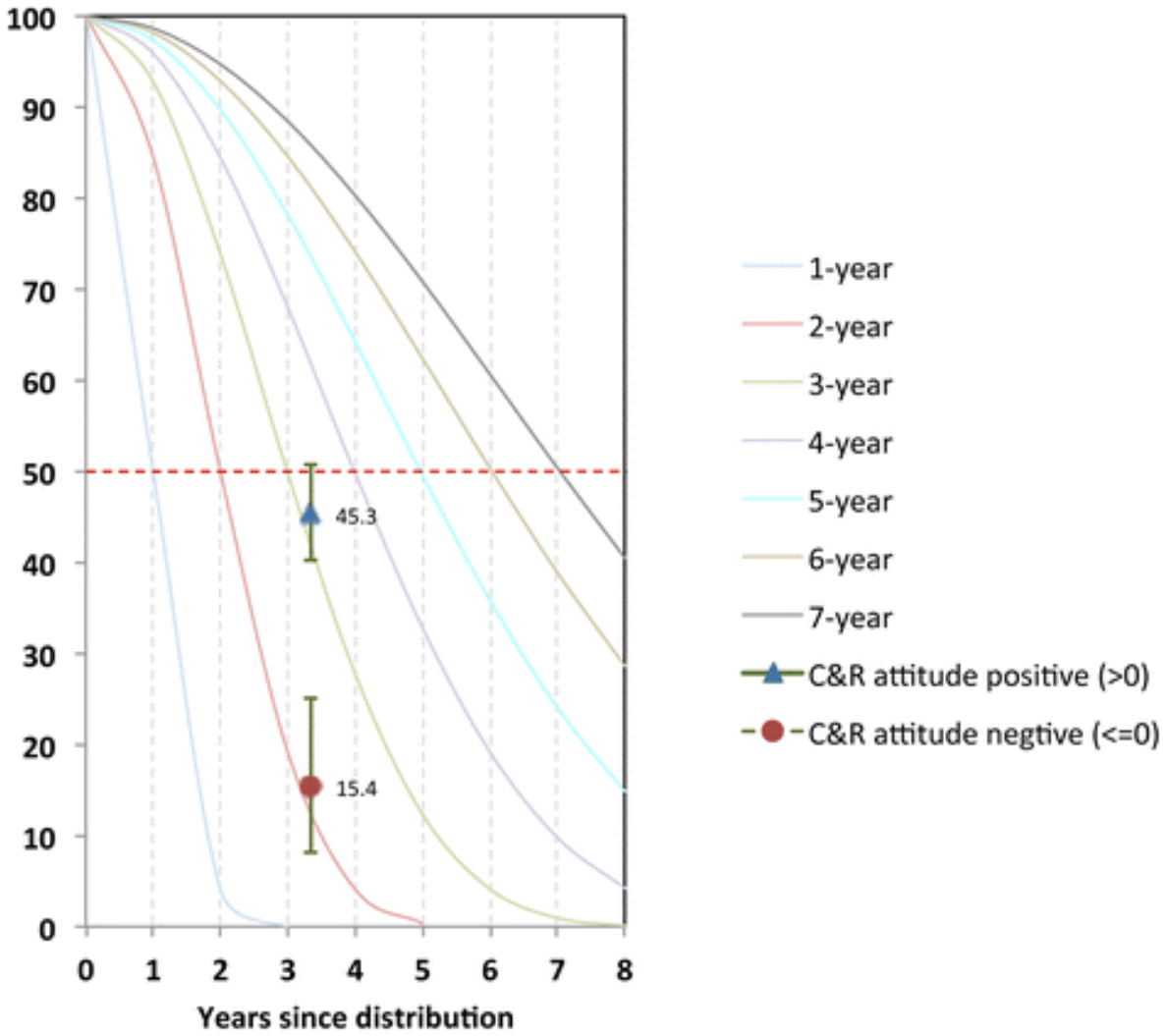
Results: Exposure correlated with positive attitudes



Results: Attitude is correlated with net condition and presence of repairs



Results: Positive attitudes are associated with an additional year of ITN lifespan



Results: Factors predicting serviceable condition of ITNs

Table 7 Multivariate logistic regression for confirmed campaign nets in serviceable condition at endline in both study sites

Confirmed campaign net is in serviceable condition	Odds Ratio	95% CI	p
Positive attitude towards care and repair	6.17	2.19-17.36	0.001
Net has any observed repair	0.36	0.18-0.73	0.005
Net is tied up	2.70	1.50-4.86	0.001
Dose			
1 source	4.00	2.30-6.94	0.000
2 sources	2.67	1.35-5.31	0.006
3+ sources	9.34	3.75-23.29	0.000
# of children under five	0.82	0.69-0.97	0.022
Poorest Quintile	0.47	0.24-0.95	0.035
Respondent is the spouse	1.62	1.00-2.62	0.05
Intervention LGA	0.48	0.24-0.97	0.04

Which channel?

- Exposure to radio was a better predictor of serviceable condition than IPC, indicating that radio alone might be sufficient to promote positive net care attitudes and behaviors.
- However, the dose-response association also supports the central tenet of SBC: that multiple channels with reinforcing messages are more effective than a single channel.

Table 9 Types of exposure predicting serviceable condition of campaign nets, using same regression model as Table 7

Confirmed campaign net is in serviceable condition	Odds ratio	95% CI	p
Type of exposure (vs none)			
Radio only	2.77	1.34-5.74	0.007
IPC only	1.63	0.82-3.25	0.160
Radio and IPC	1.82	1.02-3.24	0.042
Other	1.80	0.77-4.16	0.168

Programmatic implications

Strengths, weakness, validity, methodological challenges

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Programmatic implications

- The number of channels through which respondents were exposed and their attitudes about ITN care were predictive of nets being in serviceable condition.
  - Implication: **multi-channel SBC** is more effective than use of a single channel.
  - In this case, radio alone also performed well.
- SBC interventions extended the median lifespan of ITNs by approximately nine months for households exposed to the campaign.
  - Implication: SBC between distributions can **extend ITN lifespan,** maintaining higher levels of ITN access for longer periods.

Generalizability

Formative research conducted in Senegal, Mali, Nigeria, and Uganda in 2014 indicated that attitudes around net care and repair were largely similar across these settings prior to SBC interventions**. It is reasonable to suspect that SBC interventions in other areas would potentially have similar impact**, particularly in places where formative research or durability monitoring baselines reveal low levels of net care attitudes and practices.

Strengths

Intervention-control design with before-after assessment:

- Randomization in two-stage cluster sampling **limits selection bias.**
- The control and intervention communities were demographically, socioeconomically, environmentally and culturally similar, which increases likelihood of meaningful comparison and **reduces allocation bias.**
- **Response bias** was mitigated by comparing self-reported data with observed net condition and observed repairs.

Limitations

- Contamination caused by the strengthened radio tower
- Repairs were possibly overlooked during some observations. Results indicate some response bias was present for self-reported repair, particularly in the intervention LGA (for this reason, only observed repairs and net condition were included as outcome indicators, to be conservative)

Programmatic implications

- Net repair did not improve net condition.
- ITNs hanging tied up were far more likely to be in serviceable condition compared to repaired ITNs.
  - Implication: focus SBC on **net care,** not net repair.
- Frequency of washing and drying practices were not significant predictors of net condition.
  - Implication: washing and drying may not be damaging as previously thought**, there may not be a need to prioritize these behaviors.**

Linking up with current research

1. Durability monitoring studies over the past five years demonstrate that net lifespan varies across settings more than across brands.
2. While in many cases nets wear out physically before they lose bioefficacy, in some places bioefficacy is found to be very poor early on.
3. Durability monitoring (both physical and insecticidal) allows programs to track net cohorts and identify problems that may arise from poor net care, as well as from manufacturing.

Discussion

Please type your questions in the chat box

BEHAVIOR CHANGE IMPACT
Evidence in Action

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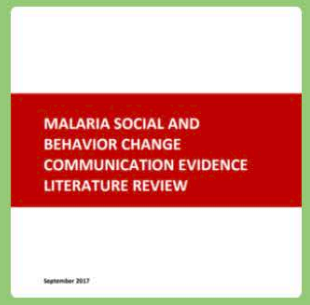
Showing 1 to 10 of 111 entries

Search:

CITATION	YEAR	INTERVENTION DESCRIPTION	RESULTS SUMMARY
Ainslie, R. (2016). Community Change Agents: "Doctors" of Malaria Information. Johns Hopkins Center for Communication Programs. Powerpoint presentation.	2016	The COMMIT project in Tanzania promoted malaria prevention behaviors through community mobilization, mass-media, movies and print. The program also used health provider skills strengthening and advocacy meetings with community change agents. Project activities included community-led activities, group talks, programs for children and one-on-one discussions among community members.	When comparing baseline to endline surveys in a pre-post study, awareness of the community change agents ranged from 21% to 52% among the four project villages. Between 19% and 36% of the community members surveyed had attended an event with a community change agent in the previous year. Community change agents were found to be more effective in changing attitudes around the effectiveness of nets

Additional Resources

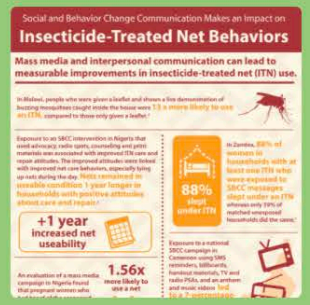


Malaria Social and Behavior Change Communication Evidence Literature Reviews

Literature Review (English)

Examen de l'evidence dans la litterature en matiere de communication pour le changement social et comportemental dans la lutte contre le paludisme

Literature Review (French)

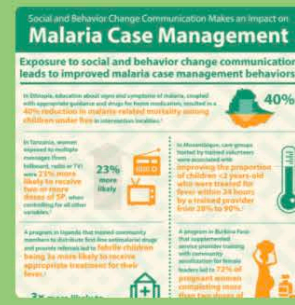


Social and Behavior Change Communication Makes an Impact on Insecticide-Treated Net Behaviors

Infographic

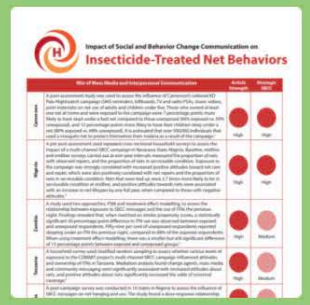
Social and Behavior Change Communication Makes an Impact on Service Provider Behaviors

Infographic



Social and Behavior Change Communication Makes an Impact on Malaria Case Management

Infographic

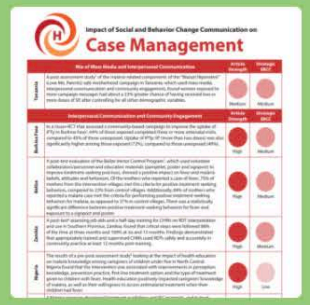


Impact of Social and Behavior Change Communication on Insecticide-Treated Net Behaviors

Summary

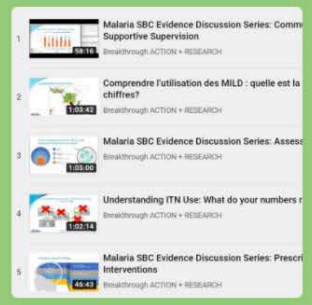
Impact of Social and Behavior Change Communication on Service Provider Behavior

Summary



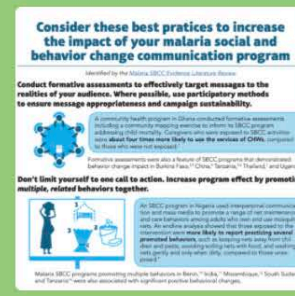
Impact of Social and Behavior Change Communication on Case Management

Summary



Malaria SBC Evidence Discussion Series

Webinars



Malaria SBCC Best Practices Infographic - English

Infographic

Thank you!

- Questions, comments, follow-up:
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- We will send an email with today's slides and the discussion recording shortly.
- Please complete the short post-webinar survey that will appear in your browser.


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