



**FEED THE FUTURE**

The U.S. Government's Global Hunger & Food Security Initiative

**EatSafe - Evidence and Action Towards Safe,  
Nutritious Food**

# Training with Media for Social and Behavior Change: Desk Review

*October 2020*



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*This EatSafe report presents evidence that will help engage and empower consumers and market actors to better obtain safe nutritious food. It will be used to design and test consumer-centered food safety interventions in informal markets through the EatSafe program.*

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Agreement Officer Representative (AOR): Lourdes Martinez Romero

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**For additional information, please contact:**

Bonnie McClafferty, EatSafe Project Director  
Global Alliance for Improved Nutrition (GAIN)  
1701 Rhode Island Ave NW  
Washington, D.C. 20026  
Email: [bmclafferty@gainhealth.org](mailto:bmclafferty@gainhealth.org)

Caroline Smith DeWaal, EatSafe Deputy Director  
Global Alliance for Improved Nutrition (GAIN)  
1701 Rhode Island Ave NW  
Washington, D.C. 20026  
Email: [cdewaal@gainhealth.org](mailto:cdewaal@gainhealth.org)

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## ACRONYMS

A&T	Alive and Thrive
CBPR	Community Based Participatory Research
FGD	Focus Group Discussion
IEC	Information education and communication
ICT	Information Communication Technology
IDI	In-depth interviews
IYCF	Infant and young child feeding
KII	Key informant interview
LMIC	Low and middle-income countries
MIYCN	Maternal, infant, young child nutrition
PI	Principal Investigator
PM	Pierce Mill Entertainment & Education
PD	Positive Deviance
PVM	Participatory visual methods
RCT	Randomized controlled trial
RQ	Research Question
SBCC	Social and Behavior Change Communication
SCT	Social Cognitive Theory
SEM	Social Ecological Model
WASH	Water, Sanitation and Hygiene

## EXECUTIVE SUMMARY

To develop actionable steps towards interventions for food handlers, primarily in informal markets in low and middle income countries (LMICs), this desk review analyzes literature from the last decade (2010 – 2020) on training interventions that intentionally incorporated media-based social and behavior change communications (SBCC) and how these can help inform the design and implementation of food vendor trainings on food safety. This desk review was undertaken both to describe how SBCC media have been applied to training, specifically involving lay people, community workers, leaders, and volunteers, and to provide recommendations for vendor food safety training that incorporates SBCC media. The results represent 19 unique interventions implemented in 12 countries by either training workers or community members on issues related to food safety; nutrition; and water, sanitation, and hygiene (WASH).

This review found many gaps in the literature, specifically in descriptions of training components and how SBCC was incorporated into the training. However, based on a qualitative thematic analysis, this review provides recommendations for planning, designing, delivering, and evaluating training programs that intentionally incorporate SBCC media. This includes, among others, applying community-based theory, using culturally sensitive planning, and documenting training and media components, all of which can be applied to EatSafe interventions targeting food vendors for improving food safety.

This review helps EatSafe identify good practices in designing education (or what is referred to here as training) interventions. Because education will likely be a key strategy in the EatSafe program, such as the training of food vendors in informal markets, or in consumer education, it is important to identify the way in which media has been used not only to deliver critical content (i.e., inform), but also to motivate and engage audiences (i.e. entertain).

## I. INTRODUCTION

EatSafe is led by a consortium of three partners: Global Alliance for Improved Nutrition (GAIN), the International Livestock Research Institute (ILRI), and Pierce Mill Entertainment & Education (PM). PM is tasked with developing media-based interventions for informal market vendors in peri-urban areas. These media will be paired with or embedded into more formal training programs for market vendors. Understanding how social and behavior change communications (SBCC)<sup>1</sup> media could be intentionally incorporated into vendor training is of particular interest for EatSafe, as the regulatory environment might not be sufficient by itself to encourage safe food handling practices.

For the purposes of this review, training interventions investigated in this review are broadly defined as planned efforts to improve the knowledge and skills of trainees, including community health workers, health workers, and caregivers of young children. As such, a *training intervention* may be delivered via an education strategy or a capacity building strategy in an SBCC program. We also define *intentionally incorporating SBCC media* as using media as part of the training with the aim of effecting behavior change in the trainees, in addition to improving their knowledge and skills.

To learn about and potentially inform its vendor training efforts, EatSafe commissioned this desk review covering literature published within the past 10 years to address the following research questions:

**1. How have training interventions on health and food safety, specifically those involving lay people or professionals, intentionally incorporated media based SBCC with a focus on low- and middle-income countries (LMICs)?**

**2. What recommendations from previous programs can be used to design and implement food safety training that intentionally incorporates SBCC media?**

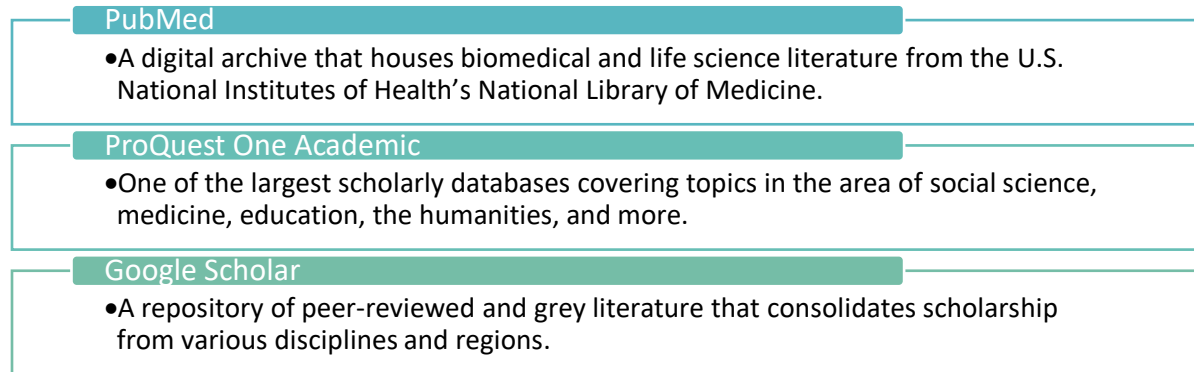
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<sup>1</sup> There is no universally accepted definition of SBCC, which is also referred to as "Communication for Development (C4D)." However, there is general consensus that SBCC implies a systematic process using communication strategies to design, implement, and evaluate interventions that aim to positively shift individual and social behaviors. The term behavior change communication (BCC) added the social component (SBCC) in recent decades to recognize the need to intervene at different interactive levels of the social ecological model.

## 2. METHODOLOGY

### 2.1 Databases

This review began with a systematic search for peer-reviewed and grey literature across three databases: PubMed, ProQuest One Academic, and Google Scholar (Figure 1). Together, these three databases allowed for a wide search of relevant literature across disciplines.



**Figure 1: Databases selected for review**

### 2.2 Eligibility Criteria

Table 1 illustrates the inclusion and exclusion criteria that were used to select literature for this desk review.

**Table 1: Inclusion and exclusion criteria**

Inclusion Criteria	Exclusion Criteria
Peer-reviewed or grey literature	Publications not evaluating training
Publications evaluating interventions that train workers or educate communities	Publications which do not integrate a media based SBCC strategy as part of training
English language publications	Editorials, commentaries, conference proceedings, doctoral theses, and book chapters
Published between 2010-2020	Non-English publications
	Published prior to 2010
	Experimental studies comparing curricular modalities



Database searches focused on development issues including, or near in subject matter to, food safety such as health; nutrition; and water, sanitation, and hygiene (WASH).

### 2.3 Search Procedure

The search strategy identified four domains of key words (primary intervention, media based SBCC, population, and issues). A list of equivalent key word terms was then established to gather the widest range of potentially relevant literature. To ensure a systematic search process, the same combinations of searches were undertaken across each of the three databases. Each search employed a combination of one term from each domain until all combinations of terms were searched (Table 2).

**Table 2: Search terms investigated across three databases**

Searched Conducted	Primary Intervention	Media-based Social and Behavior Change	Population	Issues
<b>First Search</b>	Training Capacity Building	Video Audio Mass media Social media Mobile media Entertainment-education		Nutrition Health WASH Food Safety
<b>Second Search</b>	Training Capacity Building	Video Audio Mass media Social media Mobile media Entertainment-education	Vendors Lay People Leaders Community Workers	Nutrition
<b>Third Search</b>	Training Capacity Building	Video Audio Mass media Social media Mobile media Entertainment-education	Food handlers	

Table 2 shows the search terms combined via “and” as a Boolean term deployed across three search sessions and within each of the three databases. The first search session used key terms in 48 combinations with “and” as a Boolean term in each of the 3 databases for a total of 144 searches (Table 2, first row), yet it yielded few relevant results. A second search session was

devised to remedy low results by employing a new set of terms across the same domains and databases (Table 2, second row). Searches again included “and” as a Boolean search term and all possible combinations. This required 180 additional searches which yielded more results, but also revealed the term “food handlers” as showing up frequently in search title hits. Therefore, a third search session was conducted in the same manner using the Boolean search term “and” to 12 combinations of the terms from intervention and media domains and the term “food handlers” (Table 2, third row). This required an additional 36 database searches and provided satisfactory results for abstracts to review. During each search session, resulting article titles were reviewed until 10 consecutive titles were deemed irrelevant.

Using PRISMA guidelines (1), 2,794,189 articles were identified across the three databases. A review of titles yielded 5,419 potentially relevant articles, of which 5,058 articles were excluded (see Table 1 for exclusion criteria). Upon review of the abstracts, a total of 361 articles were retained. Of those, 334 articles were excluded due to irrelevance, such as the intervention lacking a media component or being unrelated to health and/or food safety. Discarded articles also may have had relevant content but did not adequately answer the research questions of this desk review.

A total of 27 articles were shortlisted for full-text review. After full-text review, four additional articles were excluded as they were literature reviews or meta analyses rather than studies including a single training intervention with an evaluation. In the end, 23 articles were kept for synthesis (see Appendix 1 for PRISMA diagram). Two reviewers (RH and MO) were responsible for all the searches. The Principal Investigator (PI) (SS) reviewed select articles that the primary reviewers submitted for reliability. Once the final selection was complete, the PI read each article to assess its suitability for inclusion.

## ***2.4 Data Coding Process***

Two coders (RH and MO) independently coded each article by using a standardized template developed by the research team and finalized in consultation with PM (Appendix 2). The coding template included criteria such as background information, theory or conceptual frameworks, elements of programming such as training and SBCC components, and evaluation methods and results. Strengths, limitations, and recommendations were also collected from the articles and entered into the coding sheet as text. The PI coded six of the 23 articles to compute inter-rater reliability. The threshold for substantial agreement is 84% according to Landis and Koch (2); a value of 0.61 - 0.80 can be considered as substantial agreement. Inter-rater reliability for both coders combined was 93%, indicating substantial agreement.

### 3. LIMITATIONS OF THIS REVIEW

Because of the challenges inherent in finding studies on this narrow scope of interventions of a very specific type, it is important to clarify upfront some limitations of this review. Peer-reviewed, published evaluations do not generally detail their design and implementation strategies. This limited our ability to extract details on the training either as a stand-alone intervention or as part of a larger program. Moreover, the literature often pitted different communication approaches (e.g. interpersonal communication and counseling, community approaches, mass media and interactive communication technologies) as alternatives to one another. This might be due to the nature of rigorous academic research, which often is designed to evaluate alternatives through experimentation. Thus, we are not able to fully understand the effectiveness of combining different modalities. As a result, we only offer general recommendations on how SBCC media can be intentionally incorporated into training interventions.

Another key limitation is that the use of media as an intentional core or value-added SBCC component to trainings, specifically on food safety, is relatively new in global development. Though video and visual components are commonly evaluated educational tools, the process of strategic engagement by practitioners of intentionally incorporating SBCC media into training efforts is nascent. Therefore, this review is unable to provide specific examples of best practices based on replication of results from previous interventions.

The knowledge gap regarding the use of SBCC media as a part of training in development contexts is further complicated when it comes to food safety in LMICs. Behavior change interventions among informal market vendors and people who shop in informal markets, while being recognized as important, are understudied. There was no evidence in the literature of existing training interventions that intentionally incorporated SBCC media components addressing food safety in LMICs. This review is therefore unable to draw upon previous examples on addressing food safety specifically in this context, and thus highlights the need to build the evidence-base through EatSafe Program.

Another weakness in this review is methodological in nature and involves our inability to compare the articles quantitatively, for example, through a meta-analysis. Both the trainings and the subsequent implementation and evaluation of the programs were often too specific as to topic and context to yield useful and robust statistical information for designing future interventions.

The boundaries of what constitutes SBCC is a topic of debate among donors, researchers, and practitioners alike. Those who identify SBCC broadly as encompassing any intervention designed to promote social and behavior change might argue that “training” is one part of an overall multi-

pronged SBCC strategy. For example, service platforms in SBCC interventions include interpersonal communication and counseling training for health workers or local extension-worker training for agriculture related interventions. However, media platforms would include the use of traditional or new media channels. This terminological issue emerges as a limitation in this review because the articles, when discussing the training component of a larger intervention, do not focus on process, but rather report outcomes. And many of the training components include media training, making it difficult to examine “training” and “media” independently.

Finally, though not necessarily a limitation, a note about terminology is important to understanding how the results and recommendations in this review are framed. The terms “training program” and “training intervention” are used interchangeably throughout this report, as they are within the literature reviewed. Furthermore, articles described their interventions in a variety of ways and didn’t always use the term “training.” We broadly defined training as “planned efforts to improve the knowledge and skills of trainees”; we include training-only programs (i.e., the only component of the program is training), as well as others where training is part of a larger SBCC intervention.

## 4. RESULTS

The results from this review are categorized into four sections: Background Information, Results for RQ1, Recommendations for RQ2, and Limitations and Strengths of Reviewed Articles.

### 4.1 Background Information

The 23 selected articles present a breadth of interventions targeting lay people and adult community members in LMICs, as well as in North America and Europe. Among the sample set of articles, South East Asia and North America (34.8% each) were the most commonly represented regions. All programs set in North America were implemented in the United States. Although the guiding research questions focus on programs in LMICs, over half (52.2%) of the US interventions were in rural communities, which were included in the synthesis due to their potential replicability in LMIC countries (Table 3).

**Table 3: Summary of background information of included articles**

Categories	Number of studies (N=23)	%
<b>Region (some articles had more than one)</b>		
South East Asia	8	34.8%
North America	8	34.8%
East Africa	2	8.7%
Middle East	1	4.3%
West Africa	1	4.3%
Oceania	1	4.3%
Central America	1	4.3%
Europe	1	4.3%
<b>Community Type (some articles had more than one)</b>		
Rural	12	52.2%
Urban	6	26.1%
Peri-urban or Peri-rural	5	21.7%
NA	2	8.7%
<b>Implementation Level by the social ecological model (some articles had more than one)</b>		
Community	9	39.1%
Individuals	7	30.4%
NA	4	17.4%
Interpersonal	3	13.0%
Policy	1	4.3%
Organizational	1	4.3%
Family	1	4.3%

Most of the articles mentioned a guiding theory used in the interventions, with only four articles (17.4%) not mentioning any specific theoretical orientation (conceptual model or theory of change). The most used theoretical frameworks (39.1%) functioned at a community level and slightly less than a third relied on individual change (30.4%). Out of specific frameworks that were used, the social cognitive theory was the most often cited (mentioned four times), and the social ecological model was mentioned twice (Figure 2). We briefly discuss these two theoretical frameworks below.

Social cognitive theory (4)	Social ecological model (2)	Realistic evaluation programmed theory	Social learning theory	My Community Model (participatory)
Proctor's conceptual model	Theory of reasoned action	Critical theory and global health	Transformative framework	Behavior centered design
Extended Elaboration Likelihood Model	Family systems theory	Empowerment education theory	Positive Deviance model	Diffusion of Innovation

**Figure 2. Example of theories and program models mentioned in the reviewed articles (included number of articles if more than one)**

Albert Bandura’s social cognitive theory (SCT) is derived from his work on social learning in the 1960s. SCT posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behavior. The theory focuses on observational learning and describes how individuals watch behaviors being done by others. Then, they weigh the pros and cons of doing the same behavior in the context of their own environment. To successfully perform a behavior, a person must know what to do and how to do it. Efficacy gained through "modeling" of behaviors allows for successful replication and modification (3). SBCC interventions, especially those using narratives (storytelling) have relied heavily on SCT and its core constructs of vicarious learning and role modeling to illustrate the process of change (4).

The social ecological model (SEM) divides society into levels of influence and posits that an individual is embedded within a dynamic social system. These levels interact in such a way that an individual’s behavior is shaped by what others do, by the social norms, and by whatever policies and systems are in place. At the same time, the actions of the individual can shape what occurs at other levels. Thus, for social or behavior change to occur and to be sustained, the intervention must address multiple levels (Figure 3). Previous research from globally successful

communication efforts for polio eradication provides evidence for approaching fundamental development issues from multiple perspectives (5).



**Figure 3: The social ecological model**

#### **4.2 RQ1**

This section provides results to Research Question 1: How have training interventions, specifically those involving lay people, community workers, leaders and volunteers, intentionally incorporated media-based SBCC, with a focus on low and middle income countries (LMICs)?

As mentioned above, this review was limited by the information available in the articles. In many cases, the articles described evaluation of effectiveness and did not provide adequate information regarding the design, duration, location, and training participants. In addition, the reviewed interventions had different objectives, modalities, and content and were generally tailored for unique contexts based on multiple factors such as audiences, locations, and resources.

Despite these limitations, three paradigms on incorporating SBCC media into trainings seem consistent in this review:

1. When media (primarily video and visual aids) are incorporated into trainings, they are generally used to repeat training content or as an add-on tool.
2. Media are often used as dissemination channels for programming; training interventions do not intentionally incorporate media to promote social and behavior change.
3. Less frequently documented and/or practiced is the intentional use of media as a means to train (educate) via entertainment.

## 5. SUMMARY OF INTERVENTIONS

Table 4 below summarizes overall information from the reviewed articles (information is presented in more detail in Table 5). Of all the training interventions covered in this review, 83% aimed to improve practices, 70% aimed to increase knowledge, and 48% aimed to improve skills and behaviors. For the purposes of this review, practices and behaviors were coded as terms used explicitly in articles and with the general understanding that behaviors are constituted by sets of practices and that practices are repeated activities.

Face-to-face trainings were the most prevalent training technique either in a hybrid model or with media as an added component. Some of the articles documented the use of video and visual aids as educational tools and evaluated their efficacy. One study, for example, innovatively addressed whether video use of first-person camera angles is easier to interpret and replicate by food-handlers than third-person camera perspectives (6, 7). Through this, the first-person perspective allowed food-handlers to study themselves instead of watching someone else practice the behaviors being taught.

With regards to the focus of the trainings, health was the most frequent at 39%, including maternal health, HIV, and preventive screening for HIV. Nutrition, WASH, and food safety were each equally represented at 26%. Five of the nineteen interventions from this review dealt directly with food safety, presented first and in bold in Table 5. Of the five food safety interventions, only two took place in LMICs, in India and Uganda (8, 9).

**Table 4: Overall intervention key elements**

Categories	Number of interventions n = 19	%
<b>Training Objectives (some articles had more than one)</b>		
Practices	19	83%
Knowledge	16	70%
Behaviors	12	52%
Attitudes	7	30%
Skills	6	26%
Self-Efficacy	5	22%
<b>Intervention Modality (some articles had more than one)</b>		
Face to Face capacity building	11	48%
Hybrid	7	30%
Mass Media	7	30%
Online asynchronous	4	17%
Online synchronous	1	4%



Topics Covered		
Health	9	39%
Nutrition	6	26%
WASH	6	26%
Food Safety	6	26%
Sustainable Fishing	2	9%

Note: Total of over 100% is due to articles and studies often including multiple elements such as modality, evaluation, or community type.

The training components of the interventions included in this review were either the sole activity, i.e. the objective of the intervention was to improve knowledge and skills, or the training was a part of a larger program where training was one activity among many. After identifying each intervention, we extracted the training component information (including the type, issue, design, duration, and location, as well as the audience and sample sizes), followed by information on the SBCC media component (Table 5). The last two columns of Table 5 summarize the evaluation design and key results, as reported in the articles.

### 5.1 Intervention Components

A general trend evident in Table 5 is that trainings in LMICs tended to be a part of long running (between one and five years) population-based programs, whereas most of the interventions from the United States were short term. For example, Aligarh Muslim University implemented food safety training with food handlers over a two-year duration in India, while a WASH related training with cheesemakers in Pennsylvania was just one hour long (6, 8). This could relate to organizations having a more focused approach to address knowledge and skills in the West and a developmental approach aiming for long term capacity building in LMICs.

Overall, most of the articles described trainings that were limited in size and scope. Studies interested in testing efficacy of different program components had even fewer participants (6, 9). The one exception to this were results from five articles that described a Bill and Melinda Gates Foundation-funded, multi-country project (Bangladesh, Vietnam, Ethiopia), Alive and Thrive (A&T), on infant and young child feeding practices, which included nationally representative samples in the thousands. These articles primarily examined the effectiveness of their multi-level interventions on program beneficiaries and not specifically their training of community health workers.

With a range of media usage, combinations, and emphasis as part of overall interventions, the level of detail describing the media component varied greatly. Some articles simply listed using video or television as part of a larger training project, without a description of content, while

others listed details around the media component including length, frequency, content, as well as integration with other media.

Eight studies used video as a value-added tool for community health workers or researchers. A common theme among them was that trusted peers were intentionally part of the training design. By and large, the results indicated that using a multi-channel approach that highlighted interpersonal relationships was effective. Face-to-face training that used media (typically video) helped develop trust (9-12).

Media-based SBCC channels represented a variety of technologies from simple print (e.g. flipcharts with photos), to videos for training, to more sophisticated channels such as social media using first-person perspective video with GoPro cameras (7). Print was the most used channel at 48% followed by video and television each at 30%.

Engaging audiences using entertainment-education (EE) and/or via fictional but believable characters as peer models was described in a handful of articles (10, 13, 14).

Only 35% of interventions evaluated the effectiveness of the SBCC media component separately from the training itself. All studies relied on quantitative analysis and end line evaluations, though two of the studies were in preliminary stages and were not yet fully implemented or evaluated. The use of self-reported data was most achievable, frequent, and cost effective and yet often cited as a limit to accurate evaluation. Whether for quantitative, in-person, structured interviews, or qualitative feedback via discussion, interviews and focus groups were commonly employed across studies. Five studies used or planned to use some observational methods.

**Table 5. Summary of interventions (n=19) from articles (N=23)**

Five articles discussed the same Alive & Thrive intervention in multiple LMIC locations. Project names or implementing organizations are listed as provided in articles. Some articles had limited descriptions of intervention and/or media design. Duration of program and/or content delivery is provided as available in articles. The first five studies in bold text addressed the issue of food safety.

Project Name or Implementing Organization	Intervention					SBCC Media Component	Evaluation	
	Training type	Issue/content	Design	Duration & Location	Audience Sample Size		Type	Key Results
The Sharjah Food Safety Program (15)	Direct Training with broad based structural modifications	Food safety: hygiene, WASH, hazardous food practices and preparation (Codex food safety standards) across food related sectors.	Media and business certification process. Modality not clearly described.	5 years in United Arab Emirates	Urban Food handlers ~ 100 businesses.	Presentations, games, videos, and quizzes.	Observational- exam pass rates, audit results, and numbers of trainees or businesses fined for violations.	Media and SBCC materials not evaluated during pilot at time of publication. Planned 3 <sup>rd</sup> party pre-assessment and pilot observations.
Aligarh Muslim University (8)	Direct Training	WASH and food safety: personal hygiene and tobacco use.	Hybrid information, education and communication	2 years in India	Urban Food handlers N=701	Print, illustrations including Power Point presentations,	Observational. I. Measured practices. Interviews throughout	Preliminary study SBCC component not well documented or evaluated. Gradual improvement in

Aligarh Muslim University (8) (Cont'd)			on (IEC) program. Not well documented.			posters and pamphlets.	program. Mostly demographic data collected.	hygienic practices Recommended enforcement and penalties for non-compliance.
Safe Eats (16)	Direct Training	WASH and Food Safety: hand washing, cooking, preparation, and storage of food.	Online synchronous and asynchronous participatory training.	4 weeks in the United States.	Urban Adults. College students. N=710	15 minutes minimum of exposure on Facebook over 4 weeks and 7 minutes of videos.	Quantitative. Pre and post-test.	Online student participation helped define intervention. Student focus group discussions (FGDs) enriched content and channels. Findings tailored future curriculum to target audience. More time on Facebook associated with greater improved attitudes and practices.
University of Arkansas (7)	Direct training	WASH and Food Safety: hand washing.	Videos developed by researcher.	Length unknown. Videos under 4 minutes. In the United States.	Urban food handlers N=108.	First person and 3rd person perspective videos. Novel wearable technology approach.	Quantitative. 2 arm randomized controlled trial (RCT). Post-test only.	Two thirds of participants prefer first person perspective videos that encourage correlation between self-efficacy and behavior intentions.

Pennsylvania State University (6)	Direct training	WASH and Food Safety.	Face-to-face capacity building and low-tech media tools.	1-hour training in the United States.	Rural food handlers, cheesemakers N=17.	Print, photo-illustrations and 6:34 minute video vignette "mock news excerpt" based on real regional outbreak. Journalist interviews doctor on prevention of outbreak.	Quantitative. 2 arm trial. Pre and post-test.	Good connection between public health, food safety, and clinical disease treatment. Countertop flip chart was perceived as "very effective." Increase in the number of participants who washed their hands after tasting product.
Farmer videos administered by Sasakawa Global 2000 (11)	Participatory training as part of an overall program	Farming: planting, harvesting and pesticide/fertilizer use for healthy crop production.	Online asynchronous videos and discussion.	3-year project in Uganda.	Rural farmers N=100 who watched the videos.	Video (2:30 long) emphasizing peer-modeled farming practices and discussion	Mixed Methods- Traditional. Field observations, FGDs, key informant interviews (KIIs), semi-structured interviews. Post-test only.	Video enhanced awareness. Sharing knowledge through well-facilitated use of video improves knowledge and practice acquisition.

<p>The Entre Familia: Reflejos de Salud (Within Family: Reflections of Health) <b>(13)</b></p>	<p>Training community -based providers on using media to achieve outcomes</p>	<p>Nutrition and Health: increase intake of fruits and vegetables and decrease sugary drinks.</p>	<p>Face-to-face capacity building and media.</p>	<p>4 months in the United States.</p>	<p>Rural Adults. N= 361 families</p>	<p>Print and video, 9 episodes of 12-minute situation comedies showing social-behavioral influence within families across environments.</p>	<p>Quantitative. Measured 6 behaviors/issues. Pre and post-test.</p>	<p>Evaluation length acknowledged as brief. Improvement in 3 food related behaviors in intervention group. Recommended long term evaluations.</p>
<p>Where's Maria? <b>(14)</b></p>	<p>Comparison of training techniques</p>	<p>Health: prevention, mammograms.</p>	<p>Face-to-face capacity building. Comparing media formats</p>	<p>Facilitated 8-minute narrative video in the United States.</p>	<p>Urban Adults. N=141 women</p>	<p>Primarily video, and print. Entertainment education narrative vs. didactic videos.</p>	<p>Quantitative. 3 arm RCT. Pre and post-test.</p>	<p>Tested story absorption and identification with culturally centric characters. Increased knowledge and self-efficacy but not perceptions of behavioral norms.</p>
<p>Punta Fuego <b>(10)</b></p>	<p>Training local staff and researchers for an entertainment-</p>	<p>Sustainable Fishing: rights, responsibilities and fish stock.</p>	<p>Hybrid with community involvement.</p>	<p>21 months in Belize.</p>	<p>Urban/ Peri-Urban adult fishermen. Sample size unknown.</p>	<p>Primarily radio. Two seasons. Total of 46 episodes each 15 minutes long. Call-in 30-minute talk-</p>	<p>Mixed Methods- Traditional. Pre- and post-surveys, qualitative FGDs and in-depth</p>	<p>Key metrics of knowledge including attitude, interpersonal communication, perceived benefits, personal advocacy, and behavior showed marked improvement.</p>

Punta Fuego (10) (Cont'd)	education program					show followed episodes. Also print, theater and interactive technology as "phone-in" shows.	interviews (IDIs), registries of participation logs of call-ins, emails, text messages, letters, and comments.	
University of California, Davis (17)	Comparison of training techniques	WASH and Food Safety: preparation and hygiene.	Face-to-face capacity building with supportive discussions.	SBCC 3x 1-hour sessions. 3 months in the US.	Urban adults. n=89 with diabetes n= 93 pregnant.	Print. Summaries, Narratives, and PD interactions.	Mixed Methods- Participatory-casual calls. 3 arm trial. Pre and post-test.	Sample exposed to Positive Deviance storylines scored higher in self-risk assessment, or their own need for behavioral change.
SPRING, Digital Green, and Varrat as partner organizations. (18)	Participatory training of agricultural extension agents to deliver nutrition information	Nutrition: Adapted from agriculture to include WASH, dietary supplements, maternal diet, workload, breastfeeding and maternal, infant, young	Face-to-face capacity building.	10 months in India.	Rural adults. 30 villages.	Community participation in locally produced video.	Mixed Methods- Traditional. IDIs, structured observations. Purposeful sample selection of previous agricultural programs. Quasi-	Identified as only source of community information. Video content easier to understand and recall than verbal content. Some messaging was perceived as conflicting with traditional beliefs and norms.

SPRING, Digital Green, and Varrat as partner organizations. <b>(18)</b> (Cont'd)		child nutrition (MIYCN).					experimental	
Alive & Thrive <b>(19), (20), (21), (22), (23)</b>	Training community and government health workers on infant and young child feeding (IYCF) counseling	Health: nutrition, WASH, IYCF, stunting and growth.	Hybrid, face-to-face capacity building, and advocacy.	Average of 4 years in Bangladesh, Vietnam, and Ethiopia.	Rural adults (N=2,720 Ethiopia) N~500 children in Bangladesh and N~500 children in Vietnam.	Media channels varied across sites to include telecast, 12 story episodes (aligned with IYCF messages), 2 TV spots (30 and 45 seconds on breast feeding), social media, theatre, community video, and radio broadcast on	Quantitative. (One site also and Qualitative). Cluster-Randomized.	Associations between exposure and outcomes were highest among respondents exposed to multiple channels of communication.



Alive & Thrive <b>(19), (20)</b> <b>(21), (22),</b> <b>(23)</b> (Cont'd)						IYCF and hand washing using mobile vans with speakers.		
OSNAP <b>(24)</b>	Direct training	Nutrition: Children's diet and physical activity.	Face-to-face capacity building or online asynchronous.	One school year in the United States.	Urban adults' staff in after-school sites N =70.	7 self-paced online learning modules (1-1.5 hours/each month via Canvas platform with videos, quizzes, and a web-based assessment. Online discussion boards.	Quantitative, observational . 3 arm randomized trial.	The online training model showed promising positive effects at a lower cost. Could be useful option for geographically disbursed sites with limited resources.
Project SoL <b>(25)</b>	Training of Trainers	Nutrition.	Face-to- face capacity building, online synchronous.	19-month period in Denmark.	Rural children. N= 48.	Print, broadcast, telecast, interactive technologies, social media (Facebook).	Mixed Methods traditional- 8-month follow-up survey. Quasi-	Interactive bingo game did not solicit adequate audience participation. Results not included in article. Recommends careful planning.

Project SoL <b>(25)</b> (Cont'd)							experimental .	
<b>Multinational partnership (9)</b>	Participatory training for key influentials	WASH: pit latrine use, handwashing.	Collaborative, participatory face-to-face capacity building.	3-day workshops in Ghana and Uganda	Rural adults. N=22.	Video (reiterated workshop content), photos, illustrations, and Participatory visual Methods (PVM) i.e.: community mapping, photos.	Mixed Methods-ongoing surveys, Participatory and Qualitative. Long-term survey of recall at 8 months. Quasi-experimental .	Evaluation at 8 months showed great recall of video content. Community-led video creation is ideal for sustainably guiding education programs Recommend introducing participants to PVM prior to the exercise.
Improving maternal neonatal and child survival (IMNCS) program of BRAC <b>(26)</b>	Participatory training for key influentials and community-based providers	Health: Maternal, Neonatal, and Child Health	Face-to-face capacity building.	Hybrid modalities interpersonal, community, media and advocacy	Rural adults. Existing programs. Sample size not provided.	Print, photo, theater, songs and music.	Qualitative, quasi-experimental . 45-minute KIIs, 1-2 hour FGDs measuring existing	Measured community perceptions of intervention as well as content recall from media components and evaluation of channel use. Respondents considered that

Improving maternal neonatal and child survival (IMNCS) program of BRAC <b>(26)</b> (Cont'd)							interventions in Bangladesh.	frequent community health worker visits and watching theatre performances or hearing the folk songs were useful for memorizing messages. Most of the respondents had the ability to recall the messages of a drama.
WeCARE <b>(27)</b>	Peer training	Health: HIV counseling.	Online asynchronous.	4 years in the United States.	N/A	Social media, interactive technologies, photo-illustrations, bilingual access to Facebook group, culturally appropriate peer delivery.	N/A	Published before evaluation.
Healthy Youth Healthy Communities <b>(28)</b>	Peer training	Nutrition: (some content on physical exercise).	Face-to-face capacity building.	3 years in Fiji. (2-year intervention preceded by	Peri-Urban Children. Multiple sample sizes.	Print, broadcast, telecast and photos/illustrations as separate part of overall	Mixed Methods- Traditional without interviews. No evaluation of	Student leadership training and individual champions of healthy diet trainings were critical. Evaluation identified as

Healthy Youth Healthy Communities (28)(Cont'd)				1-year awareness campaign)		program. Media content not well documented.	the SBCC component. Process data collected throughout	“burdensome” due to staffing/time.
Gerakan Rumpi Sehat (the Healthy Gossip Movement) (29)	Participatory training for key influentials and community-based providers	Nutrition: IYCF, dietary diversity, unhealthy snack avoidance.	Collaborative, participatory face-to-face capacity building via home visits and group meetings.	90 days in Indonesia.	Peri-urban Adults. 12 villages.	Integrated community and media components: print, telecast, photo-illustrations, social media: local religious leaders, social media posts, daily TV ads, community notice boards, posters.	Quantitative-Self-reported data and Qualitative. 2 arm RCT.	Gossip is a useful lever to behavioral change around dietary diversity. The behavior-centered design approach is applicable to nutrition.

## 5.2 RQ2

Consistency in planning, documentation, evaluation, and reporting is lacking in the literature selected for this analysis. This limits our ability to provide a quantitative response to Research Question #2: “What recommendations from previous programs can be used to design and implement food safety training that intentionally incorporates media-based SBCC?”

Nonetheless, qualitative coding of individual articles allowed for the identification of key themes. In order to provide useful guidance for program designers, this thematic analysis is organized around program planning, implementation, and evaluation. Individual studies are presented below not as exemplars but to illustrate results.

## 6. PROGRAM PLANNING

The key themes around planning for training interventions that intentionally incorporate media based SBCC include:

- Addressing different levels of the social ecological model (SEM)
- Utilizing a place-based approach
- Valuing community participation
- Developing a theory of change
- Using a systematic planning process
- Building upon existing resources and systems

### *6.1 Addressing different levels of the social ecological model (SEM)*

Using the SEM as a guiding framework is helpful even when designing a training intervention focused on outcomes at a singular level within it. One of the articles in this review clarified that interventions designed to impact individuals through social domains need to clearly think through larger SEM domains at the outset and be viewed as parallel, complementary tracks rather than as competing and creating tension (28). This suggests that training interventions that incorporate SBCC media components need to work across multiple levels of the SEM framework, complementing existing initiatives and even integrating training into other programs (19, 23). One illustration of the value of the SEM is a case study from India, where agricultural extension workers were trained to provide nutrition information using videos. The authors found the need for and subsequent benefits of collaboration across different levels, for example, through existing

health services, continued technical support for implementing partners, and engagement with local cultural norms and beliefs (18).

A food safety example from this review illustrated the use of the SEM in a longitudinal study among 701 food handlers including cooks, helpers, and waiters in 18 kitchen establishments in Aligarh, Uttar Pradesh, India. This intervention resulted in marked improvement among food handlers' knowledge, attitude, and practice towards personal hygiene. However, authors advise that it is not enough to build individual capacity, but that it is critical to situate a program into the overall environment in which individuals operate (8). In practical terms, this would imply tailoring the training with media-based SBCC components for different participants, including primary, secondary, and tertiary audiences.

#### **Recommendation:**

A core recommendation from almost all reviewed articles highlights the value of an ecological perspective. Examining a situation through a SEM lens, allows program designers to think holistically from both the bottom-up and the top-down. This recommendation can be actualized in the EatSafe program by studying the determinants of foodborne illnesses at every level of the SEM, carefully parsing out the specific determinants that the training of informal market vendors is designed to address and digging deeper into how the media component can enhance the training as well as overall program implementation.

## ***6.2 Utilizing a place-based approach***

The SEM model is conducive to designing place-based approaches—those that take into account where people spend their time or make decisions related to the target behavior. For example, schools are often situated within community systems that help increase buy-in from key stakeholders, which, in turn, contributes to the success of SBCC efforts within those schools (28). Project SoL, implemented in a Danish municipality over a period of four years, combined training of school staff with SBCC components to promote healthy eating and physical activity among children aged 3-8 years. The authors described engaging a “super-setting strategy” by incorporating childcare centers, schools, and supermarkets into the intervention, as well as using local mass media and social media (25).

#### **Recommendation:**

Pertinent to EatSafe, targeting vendors within informal markets necessitates a landscape analysis for the identification of various settings, environments, and key stakeholders that impact food safety. This approach helps to focus SBCC interventions by providing a more holistic understanding of intended audiences. In the context of food safety, it is important to take the time to plan beyond obvious workspaces to understand the settings and spaces where informal

market vendors and their customers live, where customers work, and where both vendors and consumers interact beyond the marketplace.

### ***6.3 Valuing community participation***

Audience participation needs to be an integral part of the overall design of training interventions to increase their effectiveness. Program designers can gain understanding of existing knowledge and skills of trainees through audience analysis, media landscape analysis, and exploring existing levels of knowledge, attitudes, practices, and norms among the overall program's intended audiences. At least two articles in this review illustrate the value of audience participation and recommend it for future programming. O'Donovan et al. describe an impactful community-based project in Uganda that successfully incorporated audience participation in the making of videos, hence extending the reach of the overall program (9). Project SoL also combined a participatory approach with rigorous summative evaluation (25).

Based on the reviewed articles, we would like to emphasize the value of community participation in all phases of program design, implementation and evaluation. This can take the form of including trainees and program beneficiaries in planning appropriate training content, design and pretesting of SBCC components, measuring program fidelity and engaging in community involvement through community-based participatory research (CBPR) for evaluating both perceived and observed participation (10, 25).

#### **Recommendation:**

Utilize community based participatory planning and research throughout the program lifecycle to achieve strong levels of audience engagement. This recommendation is especially applicable for the EatSafe program given the complexity of food systems and practices, where multiple stakeholders and even local political support may be required for implementation.

### ***6.4 Developing a theory of change***

The results from this review further reiterate that to the extent possible the same theory of change should guide an entire programmatic effort, in this case with the long-term result of decreasing foodborne illness. Specific training with media based SBCC activities can then use an overarching theory of change<sup>2</sup> for planning, implementation, and evaluation while soliciting local

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<sup>2</sup> A theory of change provides a roadmap to the outcomes that a program was designed to achieve (desired results), how the program was going to get there (the inputs, activities, and outputs directly associated with activities), and factors to account for during the journey (assumptions and external factors).

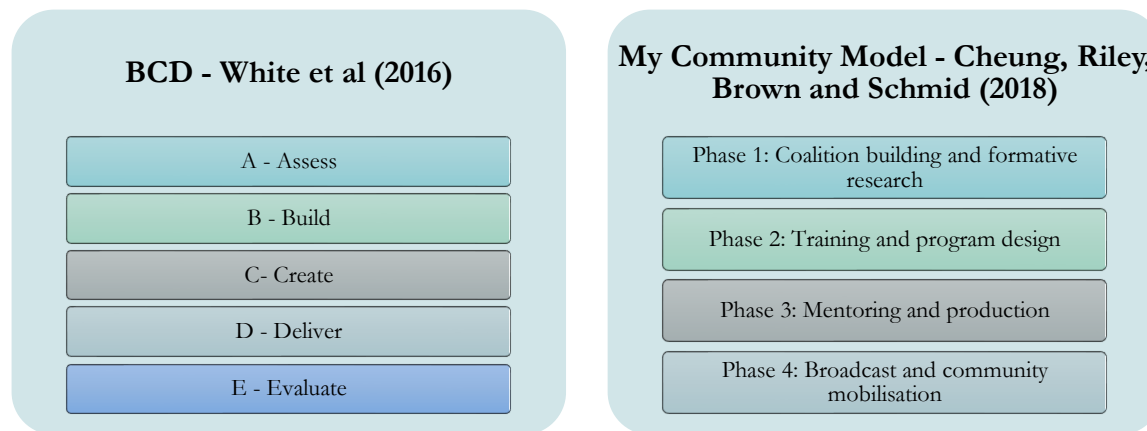
input. A theory of change is often mapped visually to articulate the process through which expected social and behavior change will occur. This review identified at least three articles that articulated a context specific theory of change to guide their program implementation and evaluation illustrating the relevance of using a theory of change for planning future interventions on food safety (9, 23, 29).

**Recommendation:**

Training that intentionally incorporates media-based SBCC should be designed within the framework of EatSafe’s theory of change and should identify change pathways that link the contribution of the training and SBCC media components to social and behavior change.

### 6.5 Relying on a systematic planning process

The value of systematic planning is well understood, and the SBCC field has over time developed several evidence-based planning models to guide program planning and evaluation.<sup>3</sup> However, based on the lack of documentation of this step across the articles in this review, this point needs reiteration. Figure 4 illustrates two specific planning models used by authors under this review (10, 29).



**Figure 4: Examples of planning models**

**Recommendation:**

Four specific planning considerations from this review for future interventions are as follows:

1. Gain understanding of key audiences, including levels of knowledge and skills and gaps that training can strengthen or provide. Additionally, programs which use training as a

<sup>3</sup> Some examples of SBCC planning models from the Johns Hopkins Center for Communication Programs include: the P Process, Pathways to Health Competence, and the Global Framework for Health Communication (Health Communication Capacity Collaborative, 2013; JHU/CCP Pathways Model, 2014; Storey & Figueroa, 2012).



strategy to achieve social and behavior change require an understanding of demographic and psychographic characteristics as well as communication preferences.

2. Test sample messages and materials to ensure they resonate with intended audiences. For example, pretesting communication intervention materials for a maternal, neonatal, and child health program in rural Bangladesh allowed implementers to realize that their audiences were struggling to differentiate between pregnancy, delivery, and postpartum danger signs (26).
3. Ensure that the information from different channels is complementary and not repetitive. When using media as a tool for training, one study found that participants' gain of knowledge and handwashing skills occurred with or without the inclusion of the video vignettes. The authors suggested that all problems and situations presented in the vignettes were repeated in the training. The effectiveness of the video was therefore hard to measure (6).
4. Document training information to provide a holistic picture. Though it may seem obvious, planning for staffing and funding of program implementation and often simultaneous evaluation and documentation cannot be emphasized enough. As evidenced both by the findings of this review and the frequent recommendations or limitations expressed within the articles themselves, documenting training will provide valuable insights for scale-up and sustainability of future efforts.

## ***6.6 Building on existing systems and resources***

One of the core themes from this review was the importance of integration of the intervention within existing platforms and programs. Some examples included how schools integrated behavior-modification education into an existing life skills curriculum using a 'peer approach' or 'student champion' model (28). Another illustration of this is a maternal, infant, young child nutrition (MIYCN) intervention from India that built upon an existing agricultural program. Results showed that use of video for MIYCN was met with high levels of enthusiasm and acceptability as it was adapted from a familiar existing program. This allowed the nutrition intervention to overcome resistance that might have arisen if they had started from scratch (18).

### **Recommendation:**

Along with the potential to improve cost effectiveness and mitigate replication of services, an added benefit of building on existing and familiar programs is that trainees may already possess adequate experience, and beneficiaries may consider the existing structures to be credible sources of information. Food safety is linked with other developmental concerns including health,

nutrition, and education. Leveraging interventions that work in these and other related domains will help future horizontal programming, as opposed to only utilizing vertically implemented interventions (e.g., only in wet markets).

## 7. PROGRAM IMPLEMENTATION

The key implementation strategies described in the selected articles included the following:

- Combining SBCC approaches
- Including social media and mobile technology
- Innovating with programming
- Including behavior cues to action
- Using and Entertainment-Education approach

### *7.1 Combining SBCC approaches*

Combining SBCC approaches was demonstrated as valuable at two levels. First, for multi-level interventions it is important to integrate training and SBCC media content, such that they build upon and reinforce knowledge and skills. Secondly, programs aiming for population level impact need to integrate multiple SBCC strategies, rather than relying on one standard strategy or a singular channel. In Ethiopia, the Alive and Thrive (A&T) SBCC program provided intensive behavior change interventions through multiple SBCC strategies: interpersonal communication, nutrition-sensitive agricultural activities, community mobilization, and mass media (19). In Bangladesh, A&T training focused on teaching frontline workers counseling skills to improve home visits. This intervention combined multiple strategies to complement staff training, including community mobilization, audience-specific mass media campaigns reaching mothers, fathers and opinion leaders, and policy advocacy.

Similar results were obtained by Rahman et al., where the program combined training of community health workers in the use of printed materials as job-aids during counseling along with community dispersed entertainment-education using narratives and traditional musical performances (26).

Integration is likely to work because it enhances the ability to build upon the core strengths and advantages of specific approaches. For example, WeCare, a U.S. program to address HIV in men, trained health educators to provide several services: to clarify misconceptions related to HIV, help connect individuals to essential HIV-related care, and develop trust between the educator and the patient. Once that trust was established, health educators were able to engage patients at a deeper level using social media and therefore further understand patient needs (12).

### Recommendation:

Much of the evidence reviewed supports the claim that in order to be effective in the long term, a program designed to promote population level change in foodborne illnesses must combine different approaches and channels, based on a thorough understanding of audience preferences.

## *7.2 Including social media and mobile technology*

Because this review examines interventions from the past decade, corresponding with the explosion in social media access and use, it is not surprising that this emerged as a core implementation strategy. At least three of the studies in this review report on hybrid approaches incorporating social media channels (16, 27, 29).

Social media primarily emerged as serving two purposes: assisting in developing and delivering content and extending the reach of messages and materials across multiple groups (26, 30). For example, Rahman et al. mentioned uploading videos and print materials on social media and linking them to mass texting of counseling information to community health workers to complement their classroom-based learning.

Another example of the successful use of social media is illustrated through an intervention for undergraduate students in the United States to improve food safety attitudes, practices, and knowledge. The article compared using social media versus using a traditional classroom lecture format to train students on food safety. Results showed that participation in the "Safe Eats" Facebook intervention led to improvements in food safety attitudes, practices, and knowledge. Further, students in the program self-reported that they learned more from the social media information than from the traditional classroom-based lecture (16).

Additionally, the articles highlighted the value of mobile devices not only to access social media, but also to access training. The level of adaptability and its increasing penetration among marginalized populations makes mobile phones "a necessity" (30). According to these authors, in a classroom environment, mobile technologies facilitate alternative pedagogies, categorized as "new learning." Youth in particular are likely to view and listen to audio-visual and text-based content in a more amenable manner if the communication medium is mobile based (30).

### Recommendation:

The global expansion of social media and increasing ubiquity of mobile phones provide a unique opportunity hitherto denied to SBCC implementers to reach large numbers of hard to reach

individuals with training that intentionally incorporates SBCC media. Social media accessed via mobile technology can supplement training components, increase interactivity, and help make the training iterative. The growing global reach of social media combined with its ability to connect different stakeholders in the food supply and utilization chain in real time should be leveraged by the EatSafe program.

### ***7.3 Innovating with programming***

Innovation in planning and implementation is another finding of this review. One example was a food safety program in the United States that used a “positive deviance” approach. This intervention focused on participants discussing their food handling behaviors and trying practices modeled by peers who have adopted the target behaviors themselves. This study explored the effectiveness of food safety education utilizing three interventions: positive deviants, personal story reading, and reading standard material. Findings showed that participants who engaged with positive deviants had higher knowledge scores and adopted more safe food handling recommendations (17).

Another reported innovation was the use of media training tools as “job-aids” by community health workers. In one specific case, locals self-produced videos promoting maternal, infant, and young child nutrition practices. These videos were then used by local community health workers in thirty different villages in the region as the basis for health training. Using locally produced videos featuring locals broadened the health workers’ reach within communities (18).

Finally, an article reported that by using videos created with GoPro cameras attached to food handlers, trainees were able to study food safety practices from a first-person perspective vs a third-person perspective. Participants in the study preferred the first-person approach, and researchers found that using first person videos in training correlated with “compliance intentions” and “compliance self-efficacy” (7).

#### **Recommendation:**

One of the values of this type of review is to provide a basis for developing evidence based and innovative interventions. Innovations like engaging positive deviants, using wearable camera devices, and featuring locals in self-produced videos could be effective when it comes to food safety handling practices such as food handling and preparation tasks.

### ***7.4 Including behavioral cues to action***

A cue to action is defined as a catalyst or spark that prompts behavior at the appropriate time and place. These cues can range from visual, auditory, or behavioral prompts that exist in the

environment. Interventions that incorporate training and SBCC media have the distinct advantage of being able to catalyze action for audiences by allowing for review and repetition. In addition, SBCC media components can be used to broadcast role modeled behaviors and improve audience confidence about their abilities to adopt new behaviors.

Several articles in this review highlight this point. White et al. referred to the challenges of simultaneously changing several behaviors by using one format for information dissemination as a limited cue to behavior change (29). Waqa et al. reported using a variety of communication formats, highlighting one specific theme at a time with behavioral cues related to food and/or physical activity habits (28). Sanghvi et al. recommended a focus on small, achievable action cues tailored for key audience segments identified through rigorous testing (23).

#### **Recommendation:**

To achieve behavior and social change outcomes, programs need to provide clear action cues to audiences. Behavioral cues can be reinforced and leave individuals with a clear sense of what they can do and how they can do it. In the case of food safety, key informal market vendor context and associated behaviors along the path of procurement, storage, transport, and sale of food need to be identified in order to identify the opportunities for cueing action.

### **7.5 Using an Entertainment-Education (EE) approach**

EE is a specific SBCC approach, formally defined as “the process of purposely designing and implementing a media message to both entertain and educate in order to increase audience members’ knowledge about an educational issue, create favorable attitudes, shift social norms, and change overt behavior” (31). Several of the reviewed articles singled out EE as an approach of value to interventions (10, 13, 29). Some articles did not use the term EE specifically and others were not specific about how the EE content complemented training. At a minimum, they integrated storytelling with didactic learning, highlighting the power of narratives and opportunities for behavior modeling within EE programs (6, 11, 17). Such programs can be leveraged, both as a training tool to enhance skills, and as a dissemination tool, complementing and extending the reach of programs.

Review of the articles specifically highlighted two unique advantages that EE has as an SBCC approach.

1. *The power of narratives in EE programs.* At the heart of every EE program is a cast of characters designed to be like members of the primary audience and carefully planned, entertaining storylines. This review shows that narrative formats which employ emotional motivators are effective (6, 10, 29).

Previous research by Murphy et al. comparing effects of entertainment-education narrative versus non-narrative interventions has shown that both narrative and nonnarrative interventions were effective in increasing knowledge, self-efficacy, and behavioral norms (32). However, the behavioral effects of narrative interventions are stronger. One of the interventions included in this review by Borrayo, Rosales, & Gonzalez, reinforced this result with participants exposed to narratives displaying higher levels of self-efficacy compared to those who were exposed to non-narrative information on breast cancer (14). The ability of narrative based EE programming to serve as a pathway to behavior and social change through story telling is well documented in the SBCC literature as audience involvement, narrative persuasion, character identification, narrative transportation and narrative engagement (33-36). This review provided additional insights into these pathways with specific mention of participants' absorption in the story and identification with the story characters as a moderator for norms change (14).

2. *Opportunities for behavior modelling.* Long running narrative entertainment-education programs from around the globe have long utilized Albert Bandura's social cognitive theory (SCT) as their foundation (4). SCT, as previously discussed, is based on the premise that any behavior is a function of a person and their environment. Hence, people learn from watching actions of others, weighing the benefits and risks of doing those same actions for themselves (37). A story arc with positive, negative, and transitional characters, performing both positive and negative behaviors and facing direct rewards and punishments for these behaviors, provide a unique role modelling opportunity for engaged audiences.

This vicarious learning process was detailed in one of the articles included in this review (11). The authors described how a combination of the audio and visual elements in a video triggered a conversational exchange among the farmers undergoing training. This exchange further extended through interpersonal contact to those who did not watch the videos: *"In the conversations, farmers exchange what they have learnt and reflect together to evaluate the feasibility and relevance of the knowledge acquired and technologies observed. Through such collective and critical reflections, farmers experiment and adapt the technologies and practices seen in the videos and even innovate to generate new knowledge and technologies or practices"* (p. 14).

#### **Recommendation:**

Using storytelling and social modeling has proven to be effective in motivating both individual and normative change across development issues in LMICs. In order to encourage people to adopt behaviors and change prevailing norms, such as informal market vendors adopting safer food practices, stories with realistic scenarios and characters can provide role models that

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vendors can emulate. The EatSafe program can explore EE as an option in several ways: by including food safety messaging in popular media, by collaborating with development partners engaged in capacity building and training in related sectors like health and nutrition, and by ensuring that the instructional design of training programs is engaging for participants. There is also likely room to design and implement a regional or national EE intervention to address informal market vendors, while at the same time reaching additional stakeholders to address the individual as well as the broader community regarding socio-cultural and political influences on food safety.

### Box 1. The Case for Entertainment-Education, an example from beyond this review.

A valuable evidence-based example<sup>4</sup> of using media, specifically EE for training as well as achieving population level health outcomes is worth highlighting here. This project is not included in this review because it was implemented outside of the time frame for this review<sup>5</sup>. This radio communication project (RCP) in Nepal had the dual focus of both demand-generation for family planning (FP) as well as improvement in service delivery. The project comprised two EE radio drama serials, one for the general public called *Cut Your Coat According to Your Cloth (Ganti Heri Had Nilaun)* and another targeting an audience of community-based health care workers via a distance education serial called *Service Brings Reward (Sewa Gare Mewa Paaincha)*. The purpose of the distance education was (1) to improve the knowledge and skills of the Health Workers towards providing high-quality family planning and reproductive health services to their clients, and (2) to encourage Health Workers to learn and use counseling skills. Geographical and resource constraints in Nepal made face-to-face training of community health workers unsustainable. Initial results showed that face-to-face trainings were marginally more effective. However, overall reach and impact of the radio-based training far outpaced the face-to-face training. One of the more exciting findings from the RCP's impact evaluation was the synergy between the elements of the RCP. Designers had hoped that improved provider interpersonal communication (IPC) skills would also improve client provider interaction. The largest gains over time were observed in interactions with providers who were exposed to the radio-based distance education component. However, client participation increased over time even with untrained providers. This increase in client participation can be attributed to client exposure to both radio serials, highlighting the direct and indirect effects of media-based training programs. Based on the success of the initial radio programs, and to further the reach of the distance education component, radio listening groups were later established. These groups allowed health workers to listen to radio broadcasts in a group setting, as they accessed counseling knowledge and skills across a broad range of sexual and reproductive health for adolescents and adults. Additionally, the listener clubs provided an opportunity for the community health workers to engage in interpersonal dialogue and discussion with peers as well as self and peer evaluation of counseling behaviors.

<sup>4</sup> Storey, D., Boulay, M., Karki, Y., Heckert, K., & Karmacha, D. M. (1999). Impact of the integrated radio communication project in Nepal, 1994-1997. *Journal of health communication*, 4(4), 271-294.

Boulay, M., Storey, J., and Sood, S. (2002). *Indirect Exposure to a Family Planning Mass Media Campaign in Nepal*. *Journal of Health Communication*, 7, (5), 379-399.

Sood, S., Sengupta, M., Mishra, P., and Jacoby C. (2004) '*Come Gather around Together*': *An Examination of Radio Listening Groups in Fulbari, Nepal*. *Gazette*, 66, (1), 63-86.

<sup>5</sup> Information on this program is included because the principle investigator for this review was involved between 1994 - 2002 in various capacities in the programming as well as monitoring and evaluation of this long running program.



## 8. PROGRAM EVALUATION

This section of the results discusses the key themes that emerged regarding program evaluation of training interventions with media based SBCC including:

- Monitoring program fidelity
- Calculating cost effectiveness
- Measuring dose and recall
- Disentangling outcomes

### *8.1 Monitoring program fidelity*

One of the findings from this review is the importance of tracking the extent to which programs are implemented as planned. At least two of the reviewed studies reflected that multi-component interventions were implemented as planned and claimed that the achievement of desired results was a result of program fidelity. For example, in a program for rice farmers in Uganda, program fidelity was higher when training videos were consistently used as a tool that enhanced their learning and not as a substitute for in-person extension workers in the field (11).

#### **Recommendation:**

Delivery of EatSafe training programs that incorporate SBCC components needs to be monitored to ensure that the intervention is true to the strategy and plan. Without knowing how many people received training or whether the training was delivered as designed, it is hard to measure effectiveness. Media can help with fidelity of implementation.

### *8.2 Considering cost effectiveness*

There is limited research on the cost-effectiveness and reach of interventions. Some evidence from this review showed that media-based training can be less costly than face-to-face alternatives that require intense field-based engagement. Media interventions can also garner large audiences. For example, Sanghvi et al. reported that their A&T intervention in Bangladesh benefitted 8.5 million women across the country (23).

Costs must be weighed against desired outcomes. One of the studies in the United States attempted cost comparisons between face-to-face and online trainings on nutrition and physical activity practices for after-school staff. The authors estimated that the total cost of the online training was half of the total cost of the in-person training. However, fewer participants per site took part in online trainings. Though the article did not specify reasons, one can hypothesize that

in-person training took place during working hours or provided additional incentives including peer social motivation, whereas online trainings were solitary and required self-motivation to attend (24).

**Recommendation:**

Multi-faceted programs like EatSafe should plan for cost-effectiveness analysis of various intervention components in order to set the stage for sustainable scale-up. Cost benefit analysis should weigh the value of audience reach and ease of participation versus the effectiveness of the training itself in various formats.

### ***8.3 Measuring dose and recall***

The value of repeated exposures and dose was noted in the reviewed articles (20, 21). Some examples illustrated how dose and effectiveness were linked. Multi-channel dosing has proven critical to audience recall, as evidenced in the Rahman article where a combination of trained community health worker home visits, street theater, and folk songs were considered helpful by respondents for recalling maternal, neonatal, and child health messages (26).

**Recommendation:**

The EatSafe program should ensure that it invests sufficient resources into distribution of its media components that a critical mass of its intended audience will be exposed to the intervention enough times to benefit from the dose-response effect. Repetition of the messages, either through multiple viewings of the same programming, or by being exposed to the messages via different channels, will increase the effectiveness of the intervention.

### ***8.4 Disentangling outcomes***

To the extent possible, evaluation should be used to find ways to attribute change to specific activities. One example from this review comes from the A&T intervention. The authors, while admitting to methodological limitations, attempted to link the population-level impact of SBCC interventions to prevent childhood stunting through maternal breastfeeding and complementary feeding behaviors (20).

**Recommendation:**

This review recommends observing behaviors and collecting information on attitude and belief changes well after implementation concludes and then linking changes back to intervention components. Different implementation modalities within one overarching program may well yield unique results to study the efficacy of different implementation modalities but also to link activities to outcomes.





### Strengths

- Community Based Participatory Research
- Local language and dialects
- Appealing to emotional levers of behavioural change
- Entertainment Education + interpersonal communication
- Dose analysis
- Positive Deviance and building rapport
- Technology and Social Media
- Focus Groups to develop intervention
- Plan and programme alignment with theory
- Peer educators
- Local media production
- Diverse stakeholders
- Multi-level SEM approach
- Validated evaluation tools
- Observational data and informed consent
- Multiple media channels
- Embedded social learning
- Video
- Broad exposure
- Repeated doses across channels
- Character modeling + didactic reinforcement of same content
- Strong community partnerships

### Limitations

- Low sample size
- Low cultural acceptance or validation
- Low reach
- Low dose
- Policy barriers
- Lack of social marketing
- Lack of political support
- Non-evaluated media component
- Frequent staff transitions
- High costs
- Relying on strictly self-reported data
- Non-evaluated instructional design
- Unrepresentative sample of target population
- Lack of pilot testing

**Figure 6. Strengths and limitations from the reviewed articles**

## 9. CONCLUSION

This review uncovered no evidence in the literature of training interventions that intentionally incorporated SBCC media components addressing food safety in LMIC, and only little evidence in related fields such as WASH, health, and nutrition. Despite the relatively small number of papers published specifically on the use of SBCC media in training interventions, the selected articles in this review sparked numerous insights on how to effectively plan, implement and evaluate these types of programs. Key themes that emerged offer guidance on the process, as well as the format, for implementing EatSafe interventions. As with the development of any SBCC program, much of the intervention's success will come from understanding the intended audience and how best to reach and serve them.

Trainings are just one strategy for conveying information and skills within a behavior change program, and within that approach, media based SBCC is one of many techniques that can be drawn upon to solely deliver or enhance the training. To ensure that EatSafe's trainings are as effective as possible in increasing food safety behaviors, any SBCC media and/or other elements of the program must be built on a foundation of formative research as well as a systematic process, grounded in an actionable theoretical model, which is monitored during implementation and evaluated for effectiveness. Through a combination of building on what is already familiar and bringing in innovative but proven solutions, EatSafe trainings that intentionally incorporate media based SBCC can raise the likelihood that vendors will pay attention and ultimately adopt the recommended food safety practices.

## **Box 2. Recommendations for intervention design and future studies under EatSafe.**

While EatSafe will undertake novel primary research to design and implement training programs with media components for informal market vendors, it is essential to ensure that this work is informed by and builds on what has already been done. The purpose of this review was to collect and share development approaches that can be adopted and gaps that should be prevented in future interventions around promoting food safety and the prevention of food-borne illnesses.

This review captures a sample of how training interventions with a media component in health, WASH, nutrition, and food safety are documented in the current literature. Though SBCC has a history of being used for a variety of development sectors, it appears relatively recent within the area of food safety. This review resulted in the following key recommendations that EatSafe should consider in developing training and education interventions:

- The social ecological model and a place-based approach provide good starting points for designing an intervention because they allow for a better understanding of the environment in which food safety behaviors are practiced and a characterization of where to best reach the audience.
- Seek to design a training intervention that can build on or work through existing systems and structures to achieve scale and sustainability.
- Develop a theory of change and follow a participatory and systematic planning process in order to link training and media activities to overall outcomes. It is important to utilize and value community participation throughout the program lifecycle.
- It is important to recognize that training can serve multiple objectives. Most often, in SBCC, training as a strategy is deployed on the assumption that having more information will motivate participants to action. The education-entertainment strategies serve a dual purpose: they seek to inform while entertaining the audience through story-telling, via captivating narratives and characters. The narratives help deliver content in an engaging format while the characters activate social cues and social norms, which are critical determinants of behavior change.

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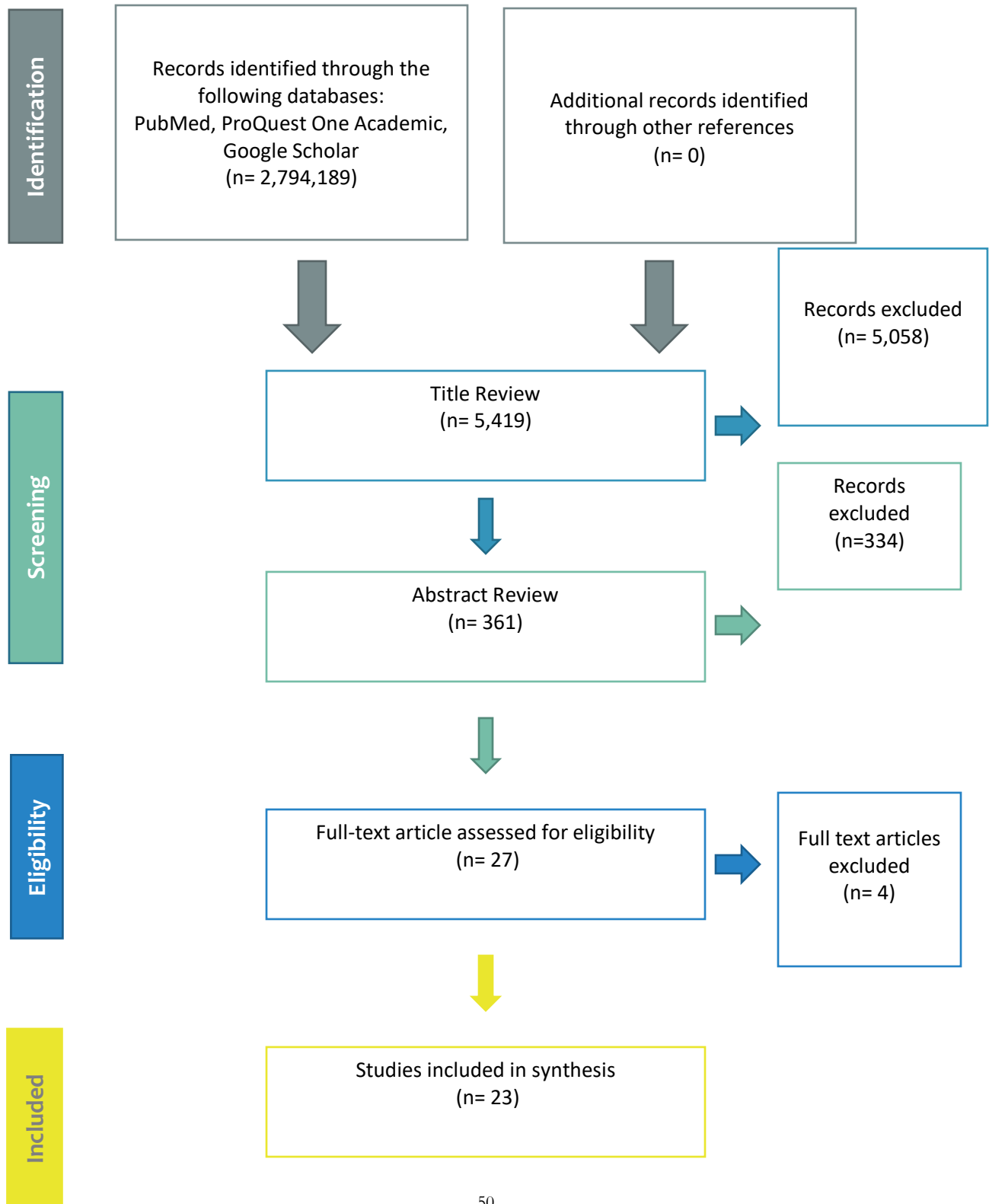
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# APPENDICES

## Appendix 1: PRISMA Flow Diagram



## Appendix 2: Code Sheet

Element	Coding Criteria	Coding Categories
Background	DOI	
	Entered By	Coder Name
	Article Title	Citation in APA 6 <sup>th</sup> ed
	Global/Region/ Country/State	See Table
	Community Type	<ol style="list-style-type: none"> <li>1. Urban</li> <li>2. Rural</li> <li>3. Peri-Urban or Peri rural</li> <li>4. NA</li> </ol>
Theory/Conceptual Framework	Theoretical/ Conceptual Framework	Social Ecological Model Levels <ol style="list-style-type: none"> <li>1. Policy</li> <li>2. Organizational</li> <li>3. Community</li> <li>4. Interpersonal</li> <li>5. Individuals</li> <li>6. Family</li> </ol>
	Specific theories mentioned in these articles	Social Cognitive Theory Social Ecological Model Realistic Evaluation Program Theory Social Learning Theory My Community Model (Participatory) Extended Elaboration Likelihood Model (E-ELM) Family Systems Theory Positive Deviance Behavior Centered Design Empowerment Education Theory Diffusion of Innovation Theory Theory of Reasoned Action Proctor's Conceptual Model Critical theory and global health Transformative Framework
Training Program Quality	Training Objectives	<ol style="list-style-type: none"> <li>1. Knowledge</li> <li>2. Skills</li> <li>3. Attitudes</li> <li>4. Self-Efficacy</li> <li>5. Behaviors- sets of practices</li> <li>6. Practices-individual repeated actions</li> </ol>

	Training on	<ol style="list-style-type: none"> <li>1. Nutrition</li> <li>2. Health</li> <li>3. WASH</li> <li>4. Food Safety</li> <li>5. Sustainable Fishing</li> <li>6. Farming</li> </ol>
	Training by	
	Training to	<ol style="list-style-type: none"> <li>1. Doctors</li> <li>2. Community Health Workers</li> <li>3. Community Volunteers</li> <li>4. Nurses</li> <li>5. Farmers</li> <li>6. Community members- adults</li> <li>7. Community members- children</li> <li>8. Food handlers</li> </ol>
	Training length	Weeks #    Days # Enter 0 if weeks or days do not apply
	Training Modality	<ol style="list-style-type: none"> <li>1. Face to Face capacity building</li> <li>2. Online synchronous</li> <li>3. Online asynchronous</li> <li>4. Hybrid</li> <li>5. Media</li> </ol>
	Training innovation	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol>
	Training Innovation Description	Text
	Evaluation of Training Quality	<ol style="list-style-type: none"> <li>1. Yes, training only</li> <li>2. Both training and SBCC together</li> <li>3. No SBCC section</li> </ol>
	Training Evaluation Type	<ol style="list-style-type: none"> <li>1. Quantitative</li> <li>2. Qualitative</li> <li>3. Mixed Methods – Traditional</li> <li>4. Mixed Methods – Participatory</li> </ol>
	Training Evaluation Results	Text
	Training evaluation Limitations	Text
	Training Evaluation Recommendations	Text
	SBCC Component	SBCC Component

		3. Media 4. Governmental
	SBCC Implementers	Name of organizations
	SBCC Length	Weeks #Days # Enter 0 if weeks or days do not apply
	SBCC Channels	1. Print 2. Broadcast 3. Telecast 4. Interactive Technologies 5. Video 6. Photography/illustrations 7. Social Media 8. Theatre 9. Songs/Music
	SBCC Approaches	1. PSAs 2. Narrative 3. Interactive – call in? magazines? 4. Didactic/Demonstrative
	SBCC Strategies and Appeal	5. Text
	Training innovation	1. Yes Blank- No
	Training Innovation Description	2. Text
	Evaluation of SBCC Quality	1. Yes, SBCC only 2. Both training and SBCC together No. Overall Evaluation Section
	SBCC Evaluation Type	1. Quantitative 2. Qualitative 3. Mixed Methods – Traditional 4. Mixed Methods – Participatory
	SBCC Evaluation Results	5. Text
	SBCC Evaluation Limitations	Text
	SBCC Evaluation Recommendations	Text
	Research Partners	Names of organizations
Overall Evaluation – if evaluation for training and	SBCC Evaluation Type	1. Quantitative 2. Qualitative 3. Mixed Methods – Traditional 4. Mixed Methods – Participatory 5. Observational

SBCC are together	Overall Evaluation Results	Text
	Overall Evaluation Limitations	Text
	Overall Evaluation Recommendations	Text
	Links between Training and SBCC by issue	Text
Overall Article	Links between Training and SBCC by content	Text
	Links between Training and SBCC by evaluation	Text
	Strengths	Text
	Limitations	Text
	Recommendations	Text
	Notes	Text