

Building Research Integrity and Capacity (BRIC): An Educational Initiative to Increase Research Literacy among Community Health Workers and Promotores

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While citizen science is gaining attention of late, for those of us involved in community-based public health research, community/citizen involvement in research has steadily increased over the past 50 years. Community Health Workers (CHWs), also known as Promotores de Salud in the Latino community, are critical to reaching underserved populations, where health disparities are more prevalent. CHWs/Promotores provide health education and services and may also assist with the development and implementation of community- and clinic-based research studies. Recognizing that CHWs typically have no formal academic training in research design or methods, and considering that rigor in research is critical to obtaining meaningful results, we designed instruction to fill this gap. We call this educational initiative “Building Research Integrity and Capacity” or BRIC. The BRIC training consists of eight modules that can be administered as a self-paced training or incorporated into in-person, professional development geared to a specific health intervention study. While we initially designed this culturally-grounded, applied ethics training for Latino/Hispanic community research facilitators, BRIC training modules have been adapted for and tested with non-Latino novice research facilitators. This paper describes the BRIC core content and instructional design process.

INTRODUCTION

Community Health Workers (CHWs), also known as Promotores de Salud, are natural leaders and advisors who share the language, customs, ethnicity, and life experiences of the residents of their local community (5–9). A CHW may be engaged as a volunteer or paid staff to deliver health services in hard-to-reach urban and rural communities where health disparities are prevalent (5–9). A National Workforce Study conducted in 2007 estimated the number of CHWs in the United States (US) at 86,000 (9). The World Health Organization reported that CHWs make up a significant part of the global work force and are identified by a wide variety of classifications including, to name a few: community nutrition worker (India), community resources person (Uganda), monitora (Honduras), promotores (Americas), and outreach educators (various countries) (9). For this paper, we use the term “Community Health Workers”

or “CHWs” recognizing that the term “CHW” covers a number of titles and/or classifications.

Over the past 50 years, CHWs in the US have become more involved with planning and implementing community-based research studies, which may involve serving as a community liaison, assisting with participant recruitment, obtaining informed consent, implementing an intervention, collecting data and, in some cases, reporting study results (5–8). Over the past decade, as the community-based participatory research (CBPR) approach has gained acceptance, CHWs are increasingly considered to be part of the research team (5, 10). Given their role as front-line research workers, it is remarkable that CHWs have been largely overlooked in most conversations about, and approaches to, research ethics or responsible conduct of research (RCR) education. Recognizing the need to increase research literacy and capacity among CHWs, we designed a research ethics training program to educate those facilitating community health research (5). Our overarching aim is to foster research literacy and understanding of responsible research practices across the continuum of community research (i.e., community-based, community-engaged, and participatory research) via educational initiatives informed by stakeholders who train or supervise novice research support staff.

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During our early formative research, we learned that CHWs receive little or no formal academic training in research methods or on the ethical dimensions of human research protections (5). The lack of consistent and foundational training in the scientific method and human research protections may contribute to decisions in the field that compromise the integrity of research studies in which CHWs are involved (5, 8). For example, when CHWs assist in research, they may be asked to randomly assign subjects to different conditions of an intervention. Lacking sufficient knowledge in research design and the purpose and process of random assignment, the CHW may assign by convenience in order to provide what they believe may benefit the research participant and not consider the impact on data integrity (8). Likewise, because of the social nature of the relationships between CHWs and members of their community, there is the potential that the intent of the informed consent and the ideal outcome of complete disclosure and voluntary participation will be compromised (8).

In 2009, O'Brien and colleagues examined the literature to learn how CHWs are selected and trained for their role in intervention studies (6). They found inconsistent reporting of CHW selection criteria and training overall. Moreover, even though the CHWs in these studies managed confidential information, only one third of the 44 studies reviewed included research-related training (6). The O'Brien et al. findings document a gap that we began to explore in 2002, shortly after the US National Institutes of Health (NIH) published a requirement for key personnel to receive training in human research protections. While CHWs may not rise to the NIH definition of key personnel, we prioritized development of training to provide CHWs with culturally appropriate and relevant training on responsible and ethical research practices (5).

INSTRUCTIONAL DESIGN

Background

Our initial work in this area was supported by the NIH and resulted in an educational initiative we called "Training in Research Ethics and Standards" or Project TRES (5). TRES focused specifically on human research protections (e.g., obtaining informed consent, data confidentiality) and the roles and responsibilities of CHWs involved with community-based health research studies. While conducting formative research to guide development of the TRES instructional design, we discovered that CHWs lacked an adequate foundation in the scientific method, making it difficult to contextualize the ethical principles and practices upon which our training would be built. To address this gap, we developed a training called Basic Research Concepts (BRC), with support from the federal Office of Research Integrity. The BRC training introduces fundamental elements of the scientific method (e.g., research design, reliability, random assignment, bias) and takes into account learners who have limited or no formal academic research education.

Recently, we combined the BRC and TRES content and incorporated updates to bring these two separate programs into one training program that we call Building Research Integrity and Capacity or Project BRIC. BRIC consists of eight culturally relevant training modules and is available in both English and Spanish.

Purpose

The BRIC training objective is to increase research literacy and capacity among community members who assist with the design and/or implementation of health-related research and who have little or no formal academic research training. We define "research literacy" as having *familiarity with the scientific method and accepted ethical research practices sufficient to comprehend basic research concepts (knowledge), communicate with research staff and participants about responsible research practices (behaviors) and demonstrate an appreciation for promoting the ethical conduct of health research (attitudes)*. We are presently assessing the extent to which the BRIC curriculum influences research literacy among CHWs who complete the training.

Formative research

Developing instruction for novice research support personnel with a goal of improving research competencies necessary to carry out research with human participants was a formidable challenge. However, without culturally tailored and contextually relevant training, these community research facilitators would be unprepared when making decisions in the field that ultimately could compromise the fidelity of data and interpretation of study results (5, 8). To inform both the content and process, we conducted group and individual interviews with university faculty, principal investigators (PIs), project managers (PMs), and CHWs. While our methods have been reported elsewhere (5, 8), it is important to note that we have engaged key stakeholders at every step of the instructional design process to ensure we were communicating complex concepts in a manner that was accessible to our learners.

Learning theory

Guidelines for teaching and learning advanced by Bransford et al. (1) and the principles of andragogy (also known as the art and science of adult learning) promoted by Knowles (2) were considered during the BRIC instructional design phase. This literature suggests that learning is more appealing if it is directly relevant to the learner's personal interests or professional goals. Teaching strategies that include formative assessment (e.g., reflective writing, low-risk quiz questions), opportunities to actively engage the learner (e.g., problem-based learning, debate, role play), and use of contextually relevant scenarios support the transfer of knowledge to practice (1, 2).

Process and content

Each BRIC module includes learning objectives, which are addressed by providing accurate content, emphasizing key points, and using contextually relevant examples. The curriculum presents frequent opportunities for participants to review information, reflect on their understanding of concepts, and contextualize concepts to their work through the review of case-study scenarios and videos that depict ethical dimensions of health research in both community and clinical settings. Learners are invited to answer questions and suggest ideas for how best to respond to ethical challenges in the field; they are then able to access feedback to check their understanding of responsible research practices (see Figs. 1 and 2) (3–5).

After the CHW answers the question, the “Show Answers” prompt presents a detailed response to the scenario that includes important points that we want the learner to know or things the learner should be able to do as a result of completing the module.

The content was derived from experts in research methods and human research ethics. The modules cover content typically included in an entry-level research methods course; however, the text is written using non-technical terminology to be accessible to individuals who have little or no research experience. Based on stakeholder feedback, we designed the BRIC modules either to be accessed by a learner interested in a self-paced, independent study (via hard copy or web-based platform) or to be used by an instructor to augment training for a specific project (5).

The BRIC content is organized in eight modules, beginning with an introduction to research and how it is conducted and concluding with the researcher’s responsibilities when conducting the informed consent process—from recruitment to study completion. Table 1 identifies the BRIC training content by module.

Formative and summative evaluation

Until recently, our efforts have focused on formative evaluation to improve the content and process. Over the past year, we initiated a summative evaluation to assess course effectiveness. The BRIC assessment inventory was guided by input from CHWs and CHW supervisors and includes a self-assessment of perceived knowledge and skills as well as objective measures to assess knowledge and critical thinking skills using multiple-choice and open-ended questions that map to learning objectives. A randomized controlled trial to evaluate the BRIC course recently concluded, and results will be reported in a forthcoming manuscript.

RECOMMENDATIONS

Professional development focusing on research literacy and competencies is needed if CHWs are to be effective in their role as community partners and research facilitators.

Since there is a growing movement to conduct clinical research in community settings, the CHWs collectively, in their role as community gatekeepers and research facilitators, will need to become more critical of research that targets their community. It is important that academic partners take the initiative to facilitate the development of research-savvy citizens, including CHWs, who will contribute to the design and conduct of community-based research studies. Through our interactions with CHWs and PIs/PMs, we have learned that researchers may not be aware of the gaps in CHW research knowledge and skills (i.e., research literacy, applied ethics, etc.) that can ultimately influence the integrity of their research data and, subsequently, development of policy and best practices (5). While the BRIC training is designed to increase research literacy and capacity among community research facilitators, it is important to also educate the research investigators about the necessity of relevant research ethics training and inform them that it is available. This holds true for investigators who engage any novice research staff, including community researchers, peer educators, and patient navigators, as well as students in academic research settings.

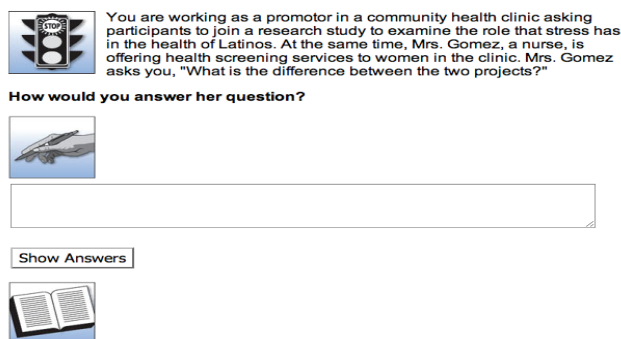


FIGURE 1. “Situation” example from BRIC Module 6. The learner reviews a situation, reflects on the differences between health research and health service delivery and writes a response.

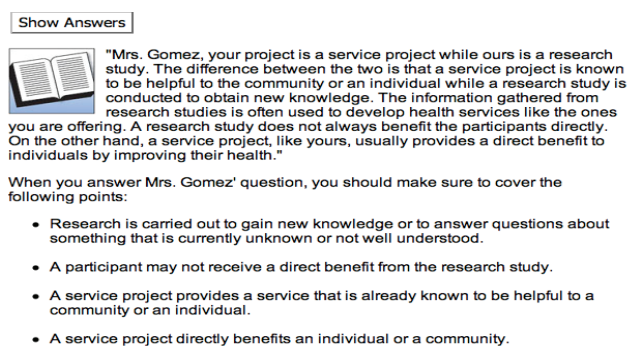


FIGURE 2. “Show Answers” example from BRIC Module 6. After the learner writes a response to a “Situation,” they can review a desirable response. This feedback is designed to facilitate learning about the concept and to address learner misconceptions.

CONCLUSION

Community health workers play a prominent role in providing health services and implementing health research. These key members of the research team are largely overlooked when it comes to research ethics education. Existing research ethics training available through academic institutions (e.g., Collaborative for Institutional Training Initiative (CITI)) are generally designed for individuals with some academic research experience. We learned from our stakeholders that, even when translated, the content of research ethics training is not contextualized to community-based research and is written using terminology unfamiliar to the average CHW. We developed BRIC to bridge this gap and prepare community members to become skilled research-literate research facilitators. While our target learner was initially Latino/Hispanic CHWs, we recognized early on that introducing basic concepts of the scientific method and standards for human research ethics to learners with limited

formal research training would have broad application. To this end, we are actively expanding our reach to a wider audience of novice researchers and research support staff (high school and college undergraduates, CHWs working with other marginalized communities).

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TABLE 1.
BRIC content by module.

Module 1	Introduction: What is Research?
	Module 1 provides an overview of how the scientific method is used to develop new knowledge and why it is important to follow a research plan.
Module 2	Research Design
	Module 2 presents information on descriptive and experimental designs used to answer research questions and the role of research support staff in enhancing research integrity.
Module 3	Elements of Research
	Module 3 introduces terms used in research such as ‘variable,’ ‘random selection,’ ‘random assignment,’ and ‘blinding.’
Module 4	Methods of Information Collection
	Module 4 provides examples of how information is collected and factors that influence the reliability and validity of the data.
Module 5	Handling Information
	Module 5 speaks to the importance of good data management and practices for handling information collected in research.
Module 6	Introduction to Human Research Ethics
	In Module 6, we transition to distinguishing health service delivery from community-based research. Learners are introduced to federal regulations, ethical principles, and groups involved in research participant protections.
Module 7	Research Risks and Benefits
	Module 7 introduces the process of evaluating research risks and benefits and consideration of possible harm based on the type, probability, severity, and duration of the research. Guidance for protecting participant privacy and confidentiality of data is included in this module.
Module 8	Informed Consent in Research
	Module 8 concludes with an overview of the process of identifying eligible participants, initiating recruitment, conducting the informed consent discussion, and factors that may influence the decision to participate.

contributed to the BRIC development process, including the community leaders, faculty, project managers, CHWs/Promotores, and students. Likewise, we acknowledge our local partners who have adopted BRIC for training community research facilitators including the San Diego County Promotores Coalition (SDCPC), Pacific Islander Community Health (PIC Health), and the California PROMISE (CaPROMISE) Initiative. The authors declare that there are no conflicts of interest.

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