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Curriculum Development to Increase Minority Research Literacy for HIV Prevention Research: A CBPR Approach

Malika Roman Isler, MPH, PhD[1,2], **Andre L. Brown, MPH**[3], **Natalie Eley, MPH**[4], **Allison Mathews, MA**[5], **Kendra Batten, MA**[6], **Randy Rogers, MS**[7], **Noah Powell**[6], **Caressa White, MS**[6], **Rosalee Underwood, BSW, BA, AAS**[6], and **Kathleen M. MacQueen, MPH, PhD**[4]

[1]NC TraCS Institute, University of North Carolina-Chapel Hill

[2]Department of Social Medicine, University of North Carolina-Chapel Hill

[3]Department of Health Behavior, Gillings School of Global Public Health, University of North Carolina-Chapel Hill

[4]FHI 360

[5]Department of Sociology, University of North Carolina-Chapel Hill

[6]LinCS 2 Durham Collaborative Council

[7]Durham County Health Department

Abstract

Background—Minority engagement in HIV prevention research can improve the process and products of research. Using community-based participatory research (CBPR) to develop capacity-building tools can promote community awareness of HIV prevention, clinical research, and community roles in research.

Objectives—We sought to describe a CBPR approach to curriculum development to increase HIV prevention research literacy among Blacks ages 18 to 30.

Methods—Community members and researchers documented the iterative and participatory nature of curriculum development and lessons learned.

Results/Lessons Learned—We used specific strategies to support and verify multi-stakeholder engagement, team building, capacity building, and shared decision making. Objective or formal assessments of baseline capacity, ongoing stakeholder engagement, and reinforcing the value of multiple perspectives can promote further equity in curriculum development between researchers and community members.

Conclusions—The iterative process of shared discussion, development, and consensus building strengthened collaboration between stakeholder groups and produced a stronger, more culturally appropriate curriculum to promote HIV prevention research engagement among young Blacks.

Keywords

Research literacy; HIV prevention; community research partnerships; curriculum development; CBPR

Despite the continued emergence of new strategies to prevent HIV,[1,2] Blacks continue to account for 44% of new HIV infections, while comprising only 14% of the U.S. population.[3] Widespread uptake across all ethnic groups of these biomedical discoveries is contingent upon minority engagement in research, as both participants and partners. However, many barriers have prevented full minority engagement in research. These include a lack of information about the research process[4,5] and clear descriptions of research benefits,[5] as well as long-standing mistrust of medical and research establishments,[6–17] misconceptions about trials,[18,19] concerns about being used as a guinea pig,[16,20] and low perceived risk of HIV infection.[21] Furthermore, community engagement models have demonstrated the need for capacity building in communities for them to fully engage in research, capacity building that includes information sharing[5,12,16,22–25] and, according to the World Health Organization, teaching knowledge and skills to enable communities to practice effective health promotion.[26] We used participatory approaches to develop knowledge and skills within the community to support engagement in HIV prevention research. Participatory approaches can create awareness of the importance of HIV prevention research, identify opportunities for research engagement, and support access to emergent prevention technologies among Blacks.

There are many benefits for both the collaborative research process and a capacity-building tool when academic researchers and community members partner together. Development of a capacity-building tool shared between stakeholder groups, particularly when conducting CBPR, promotes co-learning for both community members and researchers.[22,23] Both groups have expertise that is necessary to ensure technical accuracy and practical use of the capacity-building tool. Researchers offer clinical and methodological expertise and community members contribute knowledge on the cultural salience of research, community priorities, and strategies for ensuring the successful translation of research to community members.[22,23,27,28] Researchers and community members can also establish trust and equitable participation in the research process by engaging in collaborative learning and tool development.[22,23] Trust and equitable participation create lasting value and buy-in,[22,23,29,30] improve information dissemination,[22] and increase the likelihood that community members embrace the research being conducted in their community.[22,31]

There is a strong history of national and international efforts to increase community participation in HIV/AIDS research.[32–34] However, to meet the needs of the local context, it is still necessary to put community engagement into practice at the local level. The LinCS 2 Durham study developed a research literacy curriculum to inform and engage Durham's Black young adults around HIV prevention research. Research literacy involves training community members to understand the research process, how research can help to improve health outcomes in their communities, and how to partner with academic researchers.[35] This article describes the collaborative development of an HIV Prevention Research Literacy Curriculum (RLC) to increase familiarity with clinical research, HIV prevention technologies, and community roles in research among Blacks, ages 18 to 30 years old, living in Durham County, North Carolina, a group at high risk for HIV infection.[36]

Methods

The RLC was developed as part of a larger CBPR study, LinCS 2 Durham: Linking Communities and Scientists to Durham HIV Prevention. The 5-year study uses CBPR to bring together Durham's Black community and scientists to talk, listen, and learn about new ways to prevent HIV. The LinCS 2 Durham study is guided by a Collaborative Council (CC), which includes community members, social activists, public health and human service professionals, and researchers. The RLC was developed over 18 months by a 10-person (5 researchers and 5 community members) Research Literacy Workgroup (RLWG). The RLWG was a subcommittee of the LinCS 2 Durham CC, and followed CBPR principles and popular education[37] to develop the curriculum and this manuscript. CBPR principles included co-learning, democratic decision making, active participation in one's own learning process, and belief that life experiences are as informative as knowledge attained from formal education.[25,37] Community and research partners in the workgroup claimed co-ownership over the collaborative process and resultant curriculum, and strove jointly to adhere to the CBPR framework. As such, all partners participated in shared decision making regarding content, implementation, and further use of the curriculum.

Formative Phase of Curriculum Development

To begin the formative phase, the RLWG conducted a brainstorming session on the challenges of Black engagement in HIV prevention research. Group discussion confirmed that many Black community members are unfamiliar with the research process, protections designed to keep participants safe, ways communities can be involved in research, and different types of HIV prevention strategies that are currently being researched. To address these challenges the RLWG identified three core messages to incorporate throughout the curriculum: 1) The impact of HIV in local Black communities, 2) the safety measures involved in research participation and drug development, and 3) the necessity for community engagement in designing, implementing, and disseminating HIV prevention research. Although the RLWG wanted to ensure that the curriculum increased awareness of HIV prevention research, the group did not want to promote research participation per se. The purpose of the curriculum is to provide community members with the skills to support informed decision making regarding HIV prevention clinical research engagement, both as participants and partners. Each section of the curriculum was designed to increase knowledge, attitudes, and self-efficacy related to clinical research, HIV prevention technologies, and community roles in research.

Also, during the formative phase, researchers from the RLWG identified theories that reflected the factors identified by the RLWG as key contributors to African American engagement in HIV prevention research. Using the National Cancer Institute's *Theory at a Glance: A Guide for Health Promotion Practice*[38] as a guide, RLWG members participated in an overview session to familiarize workgroup members with the theories and constructs, as well as how the constructs applied to the messages the RLWG wanted to convey. The RLWG used the Health Belief Model and the Theory of Planned Behavior to inform curriculum development activities and messages to increase awareness, attitudes, and self-efficacy among young Black adults (Table 1). The Health Belief Model constructs included

perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy. Using the Theory of Planned Behavior, the RLWG also focused on Black's beliefs and attitudes toward HIV prevention research and the clinical research process. The RLWG then developed an initial outline based on the overall curriculum goals, theoretical constructs, and specific adult learning principles to be used in the curriculum (e.g., appreciating life experiences, emphasizing immediate application of knowledge).[24] This outline was shared with and modified by the CC. Next, the RLWG identified and reviewed existing HIV and clinical trials training curricula to generate additional ideas for content and structure, which were used to further refine the outline.

Before and during the course of curriculum development, the RLWG attended local research presentations to become familiar with prevention technologies and research developments.

Curriculum Development

The RLWG met in person twice per month on average to develop and review sections of the curriculum. To ensure balanced participation from both researcher and community members, group meetings were held only at mutually agreed upon times and locations, and when at least two community members could be present. Curriculum development occurred through an iterative process of group brainstorming and content development, review, and refinement. During each RLWG meeting, the workgroup used the curriculum's purpose, to provide community members with the skills to support informed decision making regarding HIV prevention clinical research engagement, as a guide to brainstorm key points of information, interactive activities, and additional resources to include in the curriculum and the facilitator's guide. As a result of the brainstorming sessions, two research members of the RLWG were designated as primarily responsible for drafting sections of the curriculum, and the remaining RLWG members provided detailed feedback during group discussions. At the following meeting, the same two researcher RLWG members presented the information, including mock sessions of all activities, to the workgroup. Workgroup members provided feedback on content, language, aesthetics of materials, and activities through group discussion. The group also discussed whether the draft reflected previous group discussions and reached consensus on further modifications. A research assistant documented the ideas and information discussed during the brainstorming sessions. At subsequent meetings, the entire RLWG reviewed the revised curriculum sections and recommended further revisions until the group reached consensus on the final draft for the pilot sessions. Each section of the curriculum underwent several reviews and revisions by the workgroup to ensure accuracy, clarity, and relevancy to the target population. The RLWG approved all rounds of revisions before inclusion in the final draft.

Scientists with advanced knowledge of HIV technologies conducted an expert review of the curriculum's Prevention Technologies section, which included information on vaccines, microbicides, and pre-exposure prophylaxis. Once additional modifications were made to the curriculum by the scientists, a combined group of the RLWG and the CC participated in a pretest of selected sections of the curriculum. Two research staff members incorporated feedback from the pretest before pilot testing the entire curriculum with the target population.

Capacity Building and Pilot Testing

The RLWG decided that both research and community members of the workgroup would facilitate the pilot test sessions with the target population. Each facilitator received individualized training with a co-investigator to increase her or his comfort with delivering the curriculum and to learn principles of group facilitation, for example, time management and establishing rapport.

The RLWG held two pilot test sessions with the target population (n = 13 and 9, respectively). Most pilot test participants were female (55%) and almost half had no previous research participation experience (45%). Participants were recruited by telephone from among those who had previously taken part in a LinCS 2 Durham community survey. Participants received a $50 gift card and refreshments for their involvement. The RLWG conducted three debriefing sessions during both pilot test sessions to assess participants' perceptions of the structure and content of the curriculum and preferences for delivery. Each pilot test, including the debriefing sessions, lasted approximately seven hours. The debriefing sessions were audio-recorded, summarized for thematic content by the workgroup, and incorporated into further curriculum revisions.

The Institutional Review Boards for FHI 360 and North Carolina Central University, both partnering institutions in the LinCS 2 Durham study, reviewed and approved all curriculum materials, the RLC workgroup process, and pilot test recruitment materials.

Process Indicators

The team documented the participatory nature of the curriculum development process, including the nature of the recommendations, the person(s) making the recommendations, his or her role (researcher, community RLWG member, or pilot test participant), and the result of the recommendation. The team also kept and reviewed RLWG meeting minutes to ensure accurate documentation of curriculum recommendations.

Results

The Curriculum

The curriculum consisted of seven sections (Table 2). Each curriculum section included information sharing, sharing participant experiences, application of information, and group discussion.

Stakeholder Suggestions

Thirty suggestions for the curriculum were made by community members, 92 by researchers and 36 by pilot test participants. Stakeholder groups generated suggestions throughout the curriculum development process through a) RLWG meetings to review and discuss sections of the curriculum, b) pretesting with the RLWG and CC, and c) participant debriefing sessions during pilot testing. We categorized suggestions into four areas: 1) Aesthetics, the visual aspects of the curriculum materials (e.g. reformatting statements into bulleted lists); (2) content, related to information (e.g., adding historical events that led to stronger protections for human subjects; (3) language, the words and phrases used to convey the

content (e.g. adding commonly used terms for vagina and rectum); and (4) other, for suggestions that did not fit discreetly into the previous three categories, but generally pertained to administrative aspects of delivering the curriculum (e.g., giving pilot test participants the information sheets before the session). Table 3 provides specific examples of the curriculum suggestions made by the various stakeholder groups.

Community and researcher RLWG members and pilot test participants primarily suggested changes to curriculum content (83%, 57%, and 72%, respectively). The team incorporated most of the suggestions from community members and researchers into the curriculum (63% and 91%, respectively), and 50% of pilot test participant suggestions. The RLWG reached consensus on suggestions that were not incorporated into the curriculum. Table 4 contains information on the distribution of suggestions across the four areas, delineated by stakeholder group, and how the suggestions were addressed.

We excluded some community members' suggestions owing to fiscal constraints (e.g., the cost of incorporating testimonial videos into the curriculum), or because the suggestions were beyond the authority of the RLWG (e.g., providing research ethics training certification). Some pretest participant suggestions were not incorporated owing to deviation from the curriculum objectives (e.g., they focused more on behavioral HIV prevention instead of "unavailable" biomedical strategies.). Researcher suggestions excluded included using skits to convey some of the curriculum information and changing the process for one of the activities.

Although some suggestions were not incorporated into the curriculum as proposed, through working group discussion, some aspect of the original suggestion was usually included, as shown in the following two examples. One, each stakeholder group expressed concerns about the duration of the entire curriculum. Therefore, we restructured the curriculum to allow a single-day format that included all content, or delivery of each section as a stand-alone training session. Two, pilot test participants suggested cutting much of the clinical research process section because some details did not contribute to their ability to make decisions regarding engagement in HIV prevention research. In response, we streamlined the information on the clinical research process, which reduced the length of the training by 1.5 hours.

Lessons Learned

Using a CBPR approach, we developed a comprehensive RLC that targets the specific needs of young Black adults making decisions about HIV prevention research. We followed a process that engaged researchers, community partners, and the target population in curriculum development and pilot testing. Given that we used CBPR principles to guide our collaboration, we discuss herein our lessons learned using several CBPR indicators of a successful participatory research process.

Team Building

CBPR requires team building to promote trust and facilitate group dynamics necessary to achieve a shared goal.[25,39] The World Health Organization defines team building as "the

process of gathering the right people and getting them to work together for the benefit of a project."[40] The RLWG team building process facilitated team camaraderie, and helped to develop a product that reflected the knowledge and expertise of all RLWG members and the target population. The RLWG identified several factors that contributed to the success of the team-building process. First, group members felt comfortable working with one another and sharing their opinions. This level of comfort was largely owing to existing relationships that RLWG members established by working together on the CC and other community activities. Second, some group members indicated that a shared racial identity created a shared sense of urgency to achieve the common goal of addressing an important health issue in the Black community. Third, having meetings only when two or more community members were available and documenting all suggestions and the results of the suggestions enhanced team trust and created a sense of accountability among RLWG members. When reflecting on the process, one RWLG community member stated that she was initially "fearful that she didn't have what [the RLWG] needed" and that her contributions to the group would not be relevant because of her lack of medical knowledge and public health experience. However, she felt validated after learning that she did have knowledge and experiences that were important to the process and valued by the other group members. Other RLWG members validated that the team-building activities fostered open sharing of information and thoughts, co-learning between group members, and cohesive group dynamics.

It should be emphasized that the time the RLWG committed to reviewing and discussing the curriculum as it evolved through many iterations was essential to strengthening the team-building process and producing a product that was reflective of all team members. During curriculum development, workgroup members frequently offered suggestions that built upon one another; however, time-intensive open discussion was critical to reach consensus to resolve particularly thorny issues, for example, balancing the scientific and social integrity of the curriculum. The workgroup spent significant time reflecting on the purpose of the curriculum and clarifying its messages and language, all the while ensuring that the perspectives of all its members were heard and valued.

Capacity Building

Building capacity among investigators and community members in a research partnership is foundational to balancing intellectual power and supporting equitable participation in the research process. Although members of the RLWG attended information sessions on HIV prevention technologies, individuals joined the workgroup with different HIV and research experience. Although researcher and community stakeholder groups provided critical contributions to the curriculum, community workgroup members indicated that some members might have been insufficiently prepared to contribute to the technical sections of the curriculum. A blinded assessment of stakeholder knowledge might have been helpful to identify any existing knowledge gaps without assigning those knowledge deficits to specific team members or stakeholder groups. The goal of capacity building is not to create experts in new fields; however, our process indicated a possible need to objectively assess the training needs of team members and provide more targeted capacity building. This approach may have increased equity across stakeholder groups during development of all sections of the curriculum.

Multiple Stakeholder Engagement

We solicited workgroup participation of both community and researcher representatives from the CC of LinCS 2 Durham study to demonstrate the value of multiple stakeholder engagement in a curriculum development process. We tracked the involvement of members, which proved a useful tool to 1) evaluate the balance of involvement of both community and researcher stakeholders, 2) quantify and qualify the contributions of stakeholders, and 3) define the participatory nature of our process. Additionally, we chose meeting times that accommodated a variety of schedules as another strategy to support multiple stakeholder engagement. We recognized that all research stakeholders received salary support to participate in the RLC activities; thus, the RLWG convened only when at least two community workgroup members, who participated on a voluntary basis, could be present

Despite our efforts, competing priorities and staff turnover compromised multi-stakeholder engagement. Over the 18-month process, the RLWG was able to maintain regular active participation from four of five researcher members and two of five community members, creating a 2:1 researcher-to-community member ratio. This imbalance in active participation among stakeholder groups might explain the disparity in the number of suggestions between researcher and community RLWG members. The group discussed barriers to ongoing community participation and noted community members' concerns with the level of expertise needed to contribute to the process and understanding how participation would build on their current skill set.

Previous research cites time as a major barrier to sustaining stakeholders' engagement in CBPR.[22,41,42] There were several time points when the RLWG met less regularly owing to competing priorities (e.g., other job demands, maternity leave) and to allow time to incorporate the many suggestions for curriculum revisions offered by stakeholder groups. The duration of a CBPR process and the intermittent meeting schedule may have also presented challenges to ongoing stakeholder engagement. In addition, given the significant time investment required to merge all RLWG member comments and develop initial section drafts, two research staff members led those activities.

Periodic feedback from the CC and pilot test sessions with the target population strengthened the curriculum. Despite having community member representation on the RLWG throughout RLC development, there were a number of suggestions made by pilot test participants that were not offered by RLWG community members, for example, including more information on behavioral HIV prevention strategies. RLWG community members were likely much more familiar with HIV prevention and research than pilot test participants because they were already working in public health and/or had attended research-related information sessions as part of the LinCS 2 Durham study. Although the pilot tests offered a necessary perspective, the differences between the perspectives of pilot test community members and RLWG community members suggest the need to have a more diverse range of community members involved throughout the development process to more adequately reflect the variety of perspectives that exist. Further diversifying community involvement and sustaining multi-stakeholder engagement may require additional strategies, such as rotating meeting times and using social media and smart phone technology to make group meetings more accessible to a broader audience of community members.

Shared Decision Making

The CC developed and followed a set of guiding principles that governed all decision making in the LinCS 2 Durham study that also guided the curriculum development. The guiding principles included provisions for respecting members' opinions, life experiences, and perspectives, and for maintaining egalitarian interactions and confidentiality. The consensus-building process consisted of proposal of an idea, evaluation of the idea for alignment with the curriculum goals, and group discussion to determine whether and in what manner the idea could be incorporated into the curriculum. The challenge of consensus building is that it may not, in fact, represent shared decision making. Power differentials, challenges with maintaining trust among group members, and even the extent to which individuals feel comfortable speaking in front of groups can inhibit stakeholders' willingness to engage in the open dialogue that informs shared decision making.[25,41] The workgroup strove to establish and maintain trust, minimize power differentials, and promote discussion; however, other strategies that were not used by the RLWG, such as anonymous voting, could promote further engagement in decision making. The group did review curriculum sections and ensured that each section accurately reflected the ideas decided upon by the entire group in previous meetings. As one research workgroup member noted,

> This was truly a live document, the tool was constantly evolving and being edited based on various forms of feedback from the RLWG, the CC, and participants of the pilot test. Feedback always influenced the curriculum… it was like an implied standard of operation with this process.

A community workgroup member noted

> As I became more familiar with HIV prevention research and technology, I felt I was able to take in the information, form an opinion, and contribute. I felt that [my contributions] were something to be considered and would help in the process of moving the curriculum along.

Throughout the curriculum development process, the RLWG had ongoing conversations regarding the future use of the curriculum. Many of the community members expressed strong sentiments toward making the information available more broadly than the LinCS 2 Durham research study. Study members plan to engage local human service providers around the use of the RLC in community-based programs, and potentially within an international research study. This manuscript is also evidence of the collaborative research process and shared decision making. Four of the co-authors are community RLWG members, who actively contributed to the writing process by conducting literature searches, developing lessons learned, drafting text, and reviewing and approving manuscript drafts.

Conclusion

Engaging community members, researchers, and the target population in RLC development yielded a product that 1) built on the expertise and experiences of each stakeholder group, 2) promoted community–researcher partnership, 3) built community familiarity with HIV prevention research, 4) increased researcher familiarity with community perspectives of HIV prevention research, 5) generated community ownership of the curriculum, and 6) ensured

the cultural relevance of the material and effective translation of technical information to the community. As one RLWG community member stated, “This process has positively impacted my ability to better inform my community and immediate social networks about the exigent need to educate Blacks about the benefit and necessity of participation in HIV prevention research as well as basic HIV knowledge.” Although the ultimate goal of the RLWG was to produce the RLC, the structure and process of the partnership was evidence of a successful collaboration. The iterative process of shared discussion, development, and consensus building required a significant amount of time; however, the time and resource investment built a stronger collaborative culture and produced a curriculum that is responsive to the cultural and cognitive needs of a population essential to HIV prevention research.

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Table 1

Theory-Based Curriculum Components

Theory	Construct	Change strategies	Key Messages and Activities
HBM	Perceived susceptibility	Define populations at risk for HIV infection and levels of risk	Level of HIV risk for Black people ages 18–30, living and working in Durham, NC
		Tailor risk information to target group characteristics or behaviors	Activity to model HIV transmission
		Develop an accurate perception of risk	Multilevel determinants of risk
HBM	Perceived severity	Specify consequences of not engaging in research process and recommended action	Limited engagement of the Black community to 1) develop HIV research agendas, 2) implement HIV prevention clinical research, and 3) develop HIV prevention technologies
			Limited access of Black communities to the benefits of research participation and partnership
HBM	Perceived benefits	Describe how, where and when to take action and potential positive outcomes	Familiarity with the clinical research process; benefits of research engagement
			Benefits of human subjects protections
			Prevention advances as a result of research
HBM	Perceived barriers	Describe barriers to research engagement and strategies to overcome them; correct misinformation	Familiarity with clinical research process and human subjects protections
			Purpose and process of informed consent
TPB	Self-efficacy	Provide training and guidance in performing action(s), demonstrate desired behaviors	Purpose and process of informed consent
			Rights and responsibilities of research participants
			Evaluating a research opportunity (participant or partner)

HBM, Health Belief Model; TPB, Theory of Planned Behavior.

Table 2

Curriculum Outline

Curriculum Section	Section Objectives	Section Activities
Overview of LinCS2 Durham	Describe the study activities	Lecture and group discussion
	Define the target population	
	Describe ways for community members to get involved with LinCS 2 Durham	
Basic HIV overview	Define HIV and AIDS	Lecture and group discussion
	Describe how HIV is transmitted	
	Explain the factors that influence HIV risk	HIV transmission activity
	Describe the statistics on HIV infection in the United States, North Carolina, and Durham County	
	Explain why HIV matters to young Black adults ages 18–30 in Durham	
Basic research overview	Define research	Lecture and group discussion
	Describe research types	
	Explain why HIV research matters to young Black adults Ages 18–30 in Durham	Generate research questions activity
Ethics and human subjects	Define ethics and human subjects	Lecture and group discussion
	Identify historical research examples	Jeopardy-style activity on research and ethics
	Describe history and structures for human subjects protections	
	Explain research participant rights and responsibilities	
Community roles in research	Define community	Lecture and group discussion
	Explain why HIV matters to the community	
	Demonstrate why community involvement in HIV prevention research is essential	Community involvement in research group activity
Clinical research	Define clinical research and clinical trial	Lecture and group discussion
	Describe key elements of clinical research	Informed consent activity
	Explain the structure and process of clinical research	Clinical research bingo activity
HIV Prevention	Define HIV Prevention	Lecture and group discussion
	Describe forms of HIV prevention (behavioral and technological)	Pin the tag on the technology activity
	Define prevention technologies (vaccines, Oral PrEP, microbicide); what it is, how it works, who can use it, benefits, risks, current research	

Table 3

Examples of Curriculum Suggestions

Aesthetics	Content	Language	Other
Use fewer words and readjust the spacing between the words to make it easier to read (R)	Give an example of the new intervention and standard of care when discussing the treatment and control group (C)	Add commonly used language for vagina and rectum and differentiate for participants what they might hear in the streets vs. what they might hear used during a research study (C, R)	Put an agenda for the pilot session into the participants' folders so that they will know what to expect for the training (C)
Rearrange the layout of the HIV statistics on the slide because they were hard to follow as they are currently laid out (C)	Consider adding Tuskegee to slide #31 as a historical event that led to stronger protections for human subjects between 1946–1976 (R)	Reword the text on slide 14 to remove the word 'worthless' when describing certain research. A new phrase or term like 'ineffective could be used (C)	Facilitators need to slow down when speaking, especially when discussing complex terms and concepts (R)
Highlight the text on the slide in red to make it stand out and easier to read (R)	Develop and provide participants a glossary of terms used during the curriculum (C)	Make the language of the facilitator's guide more conversational, and less like a lecture. (R)	Allow pilot participants to provide feedback on the curriculum in writing instead of just verbally (C)

(C), community member suggestion; (R), research member suggestion.

Table 4

Curriculum Suggestions, by Stakeholder Group

Types of Suggestions[a]	Proportion (%) of Community Member Suggestions, by type	Proportion (%) of Community Member Suggestions Incorporated into Curriculum, by type	Proportion (%) of Researcher Suggestions, by type	Proportion (%) of Researcher Suggestions Incorporated into Curriculum, by type	Proportion (%) of Pilot Test Participants Suggestions, by type	Proportion (%) of Pilot Test Participants Suggestions Incorporated into Curriculum, by type
Aesthetics	2/30 (7)	2/2 (100)	20/92 (22)	20/20 (100)	2/36 (6)	2/2 (100)
Content	25/30 (83)	17/25 (68)	52/92 (57)	44/52 (85)	26/36 (72)	12/26 (46)
Language	2/30 (7)	2/2 (100)	18/92 (20)	18/18 (100)	1/36 (3)	1/1 (100)
Other	1/30 (3)	0/1 (0)	2/92 (2)	2/2 (100)	7/36 (19)	3/7 (43)
Total	30/30 (100)	19/30 (63)	92/92 (100)	84/92 (91)	36/36 (100)	18/36 (50)

[a]Community, n = 30; researcher, n = 92; pilot test participant, n = 36.