Developing Training for and Establishing Partnerships between Community Health Workers and Medical Librarians for LGBTQIA+ Health Promotion
University of South Carolina National Leadership Grant Proposal

The School of Library and Information Science (LIS) at the University of South Carolina (SC) requests $357,367 for a two-year National Leadership Grant. The project seeks to understand and facilitate the health information practices of lesbian, gay, bisexual, transgender, intersex, and asexual (LGBTQIA+) community health workers (CHWs). Based on this understanding, the project will develop a toolkit for medical librarians with strategies for partnering with CHWs in their local communities; a specialized LGBTQIA+ training curriculum for CHWs; and cultural and community competency training for medical librarians working with LGBTQIA+ CHWs. The CHW Institute at the Arnold School of Public Health's Center for Community Health Alignment at the University of SC serves as a project partner. CHWs are "frontline public health workers who are trusted members of and/or have an unusually close understanding of the community served."[1] Their localized knowledge results in effective health promotion, particularly among underserved communities.[2] CHWs have gained enhanced recognition and visibility in the US, and are a vital part of the healthcare system.[1] While a critical role of CHWs is providing their communities with relevant and reliable health information, they may experience barriers finding, accessing, understanding, assessing, and disseminating this information.[3] This project highlights a unique opportunity for medical librarians to extend their provision of reliable health information and support[4] by partnering with CHWs during their training to understand and address these barriers. Through these partnerships, medical libraries can engage in information interventions for health promotion within underserved LGBTQIA+ communities that experience significant health challenges.[5–7] The project addresses the following broad research questions: 1) How can the health information practices of LGBTQIA+ CHWs be described? 2) How, if at all, do their health information practices change before, during, and after CHW training? 3) How can understanding their health information practices shape the information interventions offered to them by CHW training and medical librarians? 4) What are the characteristics, barriers, and facilitators of effective medical librarian-CHW partnerships in the context of LGBTQIA+ communities? This project contributes to the LIS and Public Health fields by advancing a conceptual model describing LGBTQIA+ health information practices developed by the PI (Kitzie) in her IMLS Early Career Development grant (LB21 Recipient, RE-07-18-0066-18). It also adds to the scant literature on the health information practices of CHWs and LGBTQIA+ communities. Understanding how LGBTQIA+ CHWs can engage in practices like finding, accessing, understanding, assessing, and disseminating health information is vital to informing how stakeholders like CHWs and medical librarians can promote community health and aligns with the call for evidence-based interventions within these fields.[8,9]

Statement of National Need

LGBTQIA+ people face significant health disparities compared to their heterosexual, cisgender peers.[5–7] A combination of external factors, such as stigma and discrimination, produce stressors that increase the risk of this population experiencing physical, sexual, and mental health issues.[10] These disparities can be specific to particular gender identities and sexualities within the LGBTQIA+ umbrella, and also vary based on intersecting social locations such as race, class, and age.[5–7] A key, yet under-examined factor contributing to LGBTQIA+ health disparities is informational. Individuals and communities find it challenging to learn about their healthcare needs, navigate the healthcare system, and overcome barriers to care.[11] Subsequent research informed by PI's prior grant work has identified additional informational barriers experienced by LGBTQIA+ populations including difficulty accessing relevant health information; assessing the safety of health information and resources; creating health resources; and disseminating health information and resources to community members.[12]

Information plays an essential role in health promotion and has various uses, including reducing uncertainty and facilitating decision making. Information can empower LGBTQIA+ people to define their health-related needs, meanings, and values, without having them imposed by outsiders.[13] A small, vital body of research examines the health information practices of LGBTQIA+ populations, focusing on seeking and literacy. Due to a history of homophobia and transphobia, LGBTQIA+ people experience a reduced amount of high-quality, relevant, and affirming health information.[11] In light of this absence, they often turn to communities of other LGBTQIA+ individuals to create, seek, share, and use health information.[12,14–23] Further, they engage in a variety of protective and defensive information practices, including avoidance and secrecy, to guard against experienced and anticipated stigma and discrimination from community outsiders including medical and information professionals.[12,16,24] While these practices represent an

important form of community resilience, the quality of information shared and exchanged within communities can be difficult to regulate, leaving individuals susceptible to misinformation and risks to personal safety.[25–28]

As evidenced by the PI's prior grant work, one way that communities address these issues is by relying on certain members to act as health information intermediaries between their communities and outside experts.[12] This role parallels that of CHWs, who act as key intermediaries between healthcare systems and their communities. CHWs promote community health via activities including outreach, community education, informal counseling, social support, and advocacy.[1] Many of these activities provide informational support as CHWs deliver educational presentations, give suggestions and referrals, help patients understand medical advice, and collect data.[29–33] Despite their documented effectiveness,[1,29–31,33–40] CHWs may experience challenges when providing informational support. The first, and, to the best of the authors' knowledge, the only study of CHWs' information needs and health information seeking behavior surveyed 100 CHWs in Northern India, finding that they experienced several barriers to accessing health information, including non-availability of needed materials, lack of practical and/or relevant information, and lack of finances to acquire the needed information.[3] Although these results are not generalizable to US CHWs, they are paralleled by findings from health information behavior studies of US public health workers more broadly.[41–45] It is reasonable to expect that LGBTQIA+ CHWs will face some of the same informational barriers as those documented in the health information behavior and practices literature on LGBTQIA+ populations. Medical librarians have a unique opportunity to extend their provision of reliable health information and support by partnering with LGBTQIA+ CHWs to understand and address these barriers. Medical librarians have a history of collaborating with public health workers to support them in determining their communities' information needs, as well as accessing, finding, evaluating, disseminating, and managing health information.[42] Through these partnerships, medical librarians can help address the needs of underserved communities who might not otherwise use the library.[46] To provide sufficient support for public health workers and CHWs, medical librarians must understand the roles health information play in their work to develop appropriate and effective interventions for community health promotion.

This project addresses practice and research-based opportunities identified in the literature. From a practice perspective, it uses evidence from the PI's prior grant work to identify a critical role for LGBTQIA+ community leaders to serve as CHWs and proposes a process to identify and train these individuals in SC. This practice addresses a national need to make CHWs more widespread by extending their services to a critically underserved population. As it currently stands, there is limited documentation of US CHWs explicitly serving LGBTQIA+ communities despite the significant health challenges these communities face. The project also identifies an opportunity to improve medical librarian engagement with underserved populations by partnering them with LGBTQIA+ CHWs to create an informational resource for their communities. While medical librarians have a history of partnering with public health workers, there is less evidence highlighting partnerships with CHWs. This project advances a process to formulate these partnerships that can be used by medical librarians working with CHWs in various community contexts. From a research standpoint, the project contributes to scant research on the health information practices of CHWs and LGBTQIA+ communities. It will also observe characteristics, barriers, and facilitators of effective medical librarian-CHW partnerships and identify the factors required to strengthen them. This project makes a theoretical contribution to the Health Information Behavior and Practices sub-areas of LIS by advancing a model for LGBTQIA+ health information practices developed by the PI in her prior grant work.[12] The study will test and extend this model by using it to inform data collection and analysis, focusing on capturing the health information practices of LGBTQIA+ CHWs.

This project aligns with the IMLS agency-level goal and objective to *increase public access* by engaging medical librarians and CHWs in *partnerships to address access barriers to health information* among LGBTQIA+ communities.[47] The project will be one of the first to study the health information practices of CHWs working with LGBTQIA+ communities and identify key characteristics, barriers, and facilitators to medical librarian-CHW partnerships. Due to the project's emergent opportunities and ideas, it is in the *exploratory* phase of project maturity. Having this understanding can lead to health promotion among LGBTQIA+ communities and engage medical librarians with an underserved population, firmly placing the study within the *community catalyst* project category. This project also falls under the *research in service to practice* funding category as the research design and theoretical approach are informed by the PI's prior empirical grant work examining the health information practices of SC LGBTQIA+ communities.[48]

Project Design

Based on the gaps and opportunities identified, this project addresses the following broad research questions: 1) How can the health information practices of LGBTQIA+ CHWs be described? 2) How, if at all, do their health information practices change before, during, and after CHW training? 3) How can understanding their health information practices shape the information interventions offered to them by CHW training and medical librarians? 4) What are the characteristics, barriers, and facilitators of effective medical librarian-CHW partnerships in the context of LGBTQIA+ communities? There is limited evidence that medical librarian-CHW partnerships are occurring or that US CHW specifically serve LGBTQIA+ communities. Therefore, this project requires several practice-oriented elements, including identifying and training SC LGBTQIA+ CHWS and establishing a process for partnering them with medical librarians. These elements will be detailed following an overview of the research design.

The research design has three stages. In *Stage One* (September 2020 – February 2021), the PI, co-I (Francis, Training Coordinator at the Center for Community Health Alignment), RAs (Wagner and Vera, University of SC School of LIS Ph.D. students), and key personnel (Smithwick, Director of the Center for Community Health Alignment) will recruit 10-15 SC LGBTQIA+ community leaders to participate in CHW training. Public Health research and practice have found that community leaders often exhibit CHW characteristics and are recruited to become CHWs.[31] Recruitment strategies are purposive, snowball, and theoretical. The team will use purposive sampling by contacting the PI's network of community leaders established in her prior grant work. This network includes 30 community leaders who have established research relationships with the PI, as well as a contact list generated of over 100 visible SC LGBTQIA+ communities and affinity groups. Three criteria for community inform this list: 1) geography, participants reside or perform a majority of community work in SC, 2) social interaction, members engage in shared activities, and 3) ties, members are connected via shared LGBTQIA+ identities.[49] The recruitment message will ask communities on the contact list to self-nominate a leader to participate. The team will also send out information to the SC CHW Association and/or speak about the project at a quarterly meeting to attract additional participants. The team will engage in snowball sampling by asking contacts to share the recruitment message with anyone else who might qualify. Further, the team will participate in theoretical sampling informed by intersectional approaches. These approaches, explained in more detail by the *Diversity Plan* section, focus on how intersecting experiences of social differences shape the health information practices of SC LGBTQIA+ communities.[50] The team will select 10-15 LGBTQIA+ community leaders based on their responses to a virtual application developed by the CHW Institute. This application captures the traits and skills necessary for CHWs, as evidenced by the American Public Health Association's CHW Core Consensus Project (C3).[51] Community leaders must be able to commit to all onsite events and meetings held in Columbia, SC, to participate. Travel support will be provided, and the team will work with community leaders to address any enhanced travel burdens prior to the training.

The PI, co-I, and RAs will then engage in 60-90-minute individual in-person interviews with the 10-15 recruited community leaders. These interviews will elicit their health information practices both at individual and community levels. Understanding these practices will inform the development of specialized CHW training and medical librarian partnerships enacted in *Stage 2* of the project. A conceptual model describing the health information practices of LGBTQIA+ communities developed by the PI with assistance from the project RAs in her prior grant work[12] guides the interview protocol. The model aligns with LIS and Public Health models and theories that envision sociocultural context as shaping how populations engage with health information and health behaviors.[8,52,53] Figure 1 displays this model. Contextual conditions produce risks and barriers faced by LGBTQIA+ communities. Individuals and communities immediately experience barriers and anticipate risks to present and future health promotion. Barriers produce defensive health information practices, where individuals and communities engage in the broad umbrella practices[54] of information creation,[55] seeking, sharing, and use to defend against barriers experienced. Risks produce protective health information practices where individuals and communities engage in these engage in these practices to protect against anticipated adverse outcomes proactively. Practices further divide at the self and community levels. The community level describes collective instances of creating, seeking, sharing, and use. The self-level describes an individual or group of individuals (not the same as a community) performing these activities. Although this study is most interested in the information practices of leaders at the community level of analysis, findings from the PI's prior
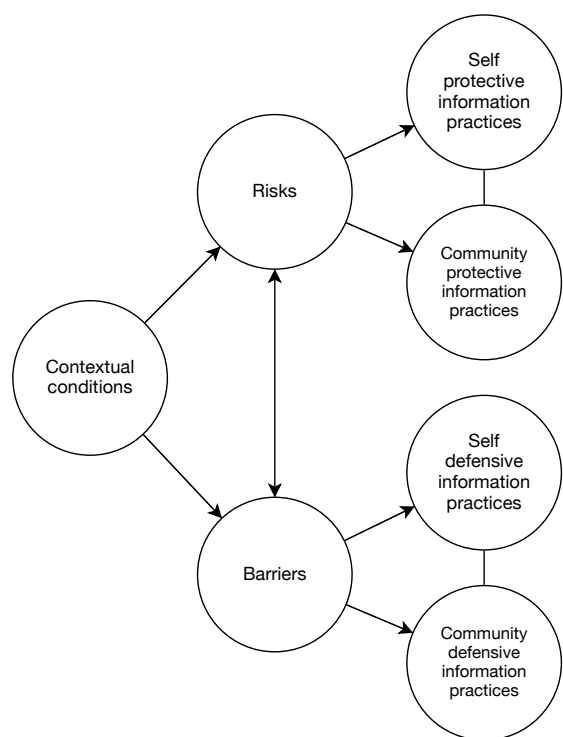
Figure 1: Model describing LGBTQIA+ health information practices.[12]

grant work demonstrate the importance of capturing practices at both levels of analysis. These levels inform one another, and it is difficult for community leaders to separate them in practice.[12] Further, prior research on the information needs and seeking of CHWs indicates that they seek health information for themselves as well as for their communities.[3]

Following the interviews, community leaders will engage in information worlds mapping, a participatory arts-based method intended to have the community leader elaborate further on interview responses.[56] This method has been applied successfully in studies examining the information practices of young parents[52] and in the PI's prior grant work.[12] Since the team will be recruiting in part from the PI's contact network, there may be community leaders in the participant pool that the PI has already interviewed using this methodology. The team will still interview these leaders a second time since they will revise the original interview instruments to reflect the conceptual model. Further, sociocultural context shapes information practices[54] and this context is subject to change over time. Therefore, the health information practices of community leaders have likely changed since prior interviews. Individual interviews will be recorded and transcribed verbatim by a third-party service. Key research questions asked at *Stage 1* include:

- What are personal health questions and concerns of SC LGBTQIA+ community leaders? Of others in their communities? Of the community collectively?
- How and where do community leaders look for information when they have personal health questions and concerns? How about when addressing those of others in their communities? When addressing those shared by community members? How and where do leaders receive health information for which they are not looking? What immediate obstacles or perceived risks does each group face when seeking health information?
- With whom do community leaders share information? How and why do they share it? What does sharing look like among individuals within their community and the community collectively?
- What are sources for health information community leaders want for themselves? For individuals within their communities? For their communities collectively? Why these sources? How do they help individuals, groups, and communities understand or use health information? How about sources that they do not want? Why not these sources?
- How and where do community leaders create health-related information to address an individual or community need? What kinds of information do they create? Why? What does information creation look like among individuals within their community and the community collectively?
- What immediate obstacles or perceived risks do community leaders, individuals within their community, and their community collectively experience when creating, seeking, sharing, and using health information?
- What do more do community leaders need or want in terms of informational support to be even more effective as they transition into becoming CHWs?

In *Stage 2* (March 2021 – August 2021), the team will identify 10-15 SC medical librarians to pair with community leaders during their CHW training. The team will sample these librarians using purposive and snowball methods. The PI and RAs will work with a medical librarian advisor (Jones, Director of Libraries at the Medical University of SC) to disseminate recruitment messages to SC chapter members of the Southern Chapter of the Medical Library Association and medical librarians at the Medical University of SC. The team will ask recipients to forward the message to other SC medical librarians that might be interested in participating. The PI, RAs, and the medical

librarian advisor will select medical librarians to participate in the project based on their geographic proximity to community leaders and their ability to attend all required meetings and events. If there is an instance where the team cannot find a geographic match between a medical librarian and community leader, they will identify a medical librarian who is willing to work virtually, either via telephone or video conference.

Medical librarians will meet in-person with their community leader partner at a geographically convenient location for the pair (the initial meeting must be done in-person). The PI, co-I, and/or RAs will attend this meeting. The estimated meeting duration is 60-90 minutes. Community leaders will use their information worlds maps from *Stage 1* as an elicitation device to describe their health information practices at the individual and community levels, and how contextual conditions, risks, and barriers, shape these practices. They will also identify what they need and want in terms of informational support during CHW training. The medical librarian will take notes leader's description and can ask follow-up questions. The medical librarian and community leader will then work together to identify potential health information interventions for the leader's community. The team will guide this brainstorming process using projective techniques. These techniques ask individuals to respond to a given stimulus in a way that uncovers their deep-seated thoughts, feelings, and beliefs and are well-suited to facilitating collaborative brainstorming and discussion.[57] They have been successfully applied in Knowledge Management research to engender valid and contextually relevant information about a community's knowledge base.[58] The team will use a specific type of projective technique, construction, in which the medical librarian and community leader will engage in a drawing exercise.[57] This exercise will ask them to draw a picture that depicts what would need to happen to address some of the risks, barriers, needs, and wants identified by the community leader's information worlds map. This brainstorming represents the beginning of a partnership between medical librarians and community leaders that will extend through the leader's CHW training, resulting in an informational resource for the leader's community. What this resource can look like is purposefully open; however, examples informed by the PI's prior grant work include a system to vet the safety, trustworthiness, and quality of professional practices; a relational map identifying interpersonal health information sources and establishing potential community connections; or a community health fair. This latter example illustrates that the resource can be immaterial since information can be a thing, process, or knowledge.[59] While the community leader and medical librarian engage in this brainstorming task, the team will perform unstructured observations, taking detailed notes on what is occurring. After the pair draw the picture, a team member will ask them to describe the process of creating the image and what it represents. Team members will then individually interview the community leader and medical librarian using a semi-structured protocol about the process with a focus on perceived challenges and facilitators to engaging in the brainstorming exercise. Both the meeting and interviews will be recorded and transcribed verbatim by a third-party service. Key research questions asked at *Stage 2* include:

- What are the key types of information interventions proposed by medical librarian-community leader partners to address risks and barriers identified in the community leader's information worlds map? What risk(s) and/or barrier(s) do these interventions address? How are these interventions informed by the health information practices of the community leader, individuals in their community, and their community collectively?
- What, if any, were challenges experienced by the community leader and medical librarian when brainstorming potential information interventions? What, if any, were key facilitators during this process?

In *Stage 3* (September 2021 – August 2022), community leaders will undergo CHW training. The Center for Community Health Alignment, specifically the co-I, along with the PI and RAs, who have expertise in SC LGBTQIA+ communities. The training will take 14-16 weeks to complete and includes a fieldwork component where leaders will engage with their community members as CHWs. During the training, the team will give each community leader and medical librarian an audio-recorder. They will keep monthly audio diaries reflecting on their continuing partnership to create an informational resource for the leader's community. The community leader will also detail how their health information practices, as well as those of individuals within their community and their community collectively, may have been shaped by these partnerships and CHW training. Diaries are a suitable data collection method for this stage to capture data from the community leader and medical librarians' everyday lives without requiring researcher presence and have been effectively used in prior information behavior and practices research.[60] To elicit rich data from the diaries, the team will develop a list of questions informed by the critical incident

technique.[61] Community leaders will identify memorable moments within the last month in which they, members of their community, and/or their community collectively created, sought, shared, and/or used health information. They will also identify positive and negative memorable moments from their continuing work with medical librarians and from CHW training. Medical librarians will identify positive and negative memorable moments from their continuing work with community leaders. The estimated duration of each recording is between 20-40 minutes for community leaders and 10-30 minutes for medical librarians. Community leaders and medical librarians will be required to meet either physically or virtually at least four times (once a month) during CHW training to develop their informational resource. To triangulate participant diaries, the PI, co-I, and/or RAs will attend one of these meetings to audio-record it and engage in unstructured observation by taking detailed notes. Meeting time durations are estimated to be between 60-90 minutes. Diary and meeting audio-recordings will be transcribed verbatim via a third-party service. During the training, community leaders and medical librarians will also have regular check-ins with key personnel Heyward (Systems Integrator at the Center for Community Health Alignment) and the medical librarian advisor to provide input and feedback on the CHW training and medical librarian-community leader partnership.

Following the CHW training, the project team will hold a half-day community forum with community leaders, medial librarians, and public health and medical library stakeholders. The team will recruit these latter groups from their professional networks. During this forum, the PI and co-I will describe the project, highlighting emerging findings, then allow the community leaders and medical librarians to present their informational resources. The RAs will take detailed unstructured observational notes during the presentation. In the two weeks following the forum, the PI, co-I, and RAs will engage in separate focus groups with community leaders and medical librarians (5-8 participants in each group). Focus groups will enable the team to gather insights from community leaders regarding how their health information practices changed prior, during, and after CHW training, what risks and barriers they experienced at each stage of the process, and what challenges and facilitators they experienced when partnering with medical librarians and during the CHW training. Medical librarians will reflect on how their partnerships with leaders changed over time, and the challenges and facilitators characterizing these partnerships. The estimated focus group duration for community leaders is 90-120 minutes, and 60-90 minutes for medical librarians. All focus groups will be audio-recorded and transcribed verbatim via a third-party service. Key research questions asked at *Stage 3* include:

- What are the health questions and concerns of community leaders during and after CHW training?
- How and where do community leaders look for information during and after CHW training? Who receives this information?
- With whom do community leaders share information during and after CHW training? How and why do they share it?
- What are sources for health information community leaders use during and after CHW training? Why these sources? How do they help community leaders understand or use health information? How about sources that they do not want? Why not these sources?
- What are the characteristics of the information resources created by SC LGBTQIA+ community leaders and medical librarians? What kinds of information did they create? Why?
- What immediate obstacles or perceived risks do community leaders experience when creating, seeking, sharing, and using health information during and after CHW training?
- How have the information practices of community leaders changed before, after, and during CHW training? How have the contextual conditions, risks, and barriers informing these practices changed?
- What were the key challenges experienced by the community leader and medical librarian when working together to create the informational resource during CHW training? What were the key facilitators during this process?

Study stages will produce the following data: *Stage* 1: 10-15 verbatim transcripts from individual interviews with community leaders (60-90 min.); 10-15 information worlds maps drawn by community leaders; *Stage* 2: 10-15 verbatim transcripts from initial medical librarian-community leader meetings (60-90 min.); 10-15 brainstorming drawings; 10-15 unstructured observational notes; *Stage 3*: 4 sets of 20-30 verbatim transcripts of community leader (20-40 min. each) and medical librarian audio diaries (10-30 min. each); 10-15 verbatim transcripts of medical librarian-community

leader meetings (60-90 min. each); 10-15 unstructured observational notes from these meetings; 1 set of unstructured observational notes from the community forum; 2 verbatim focus group transcripts with community leaders (90-120 min.); 2 verbatim focus group transcripts with medical librarians (60-90 min.). Also, the PI, co-I, and RAs will maintain reflexivity journals throughout the study. All data collection instruments aside from the semi-structured interview and information worlds mapping exercise, which have been developed by the PI in prior research, will be pilot tested by CHWs and medical librarians not involved with this project.

Data analysis constitutes a mix of inductive and deductive qualitative coding.[62] The PI and RAs will generate high-level deductive codes informed by the PI's conceptual model of LGBTQIA+ health information practices.[12] They will develop lower-level codes inductively informed by participant accounts using open, process, and in vivo coding.[63] Additional high-level codes will likely emerge inductively for study research questions not informed by the PI's conceptual model. For each form of data collection, the PI and RAs will code 20% of the data independently, then meet to compare and discuss codes, iteratively developing and revising a project codebook informed by this process.[64] They will apply this codebook to an additional 20% of the data, coding it independently and then meeting to discuss and resolve coding discrepancies. They will then divide and independently code the remaining transcripts. The PI and RAs will analyze the visual materials using situational analysis, a form of visual discourse analysis.[65] This analytic method is recommended by the originators of the information worlds mapping method as its epistemological focus on power relations captures external factors including contextual conditions, risks, and barriers.[66] They will create a separate codebook for analysis of visual features based on findings that reveal new insights not included in the analysis of interview (and other) data. At each stage of data analysis, they obtain feedback from the co-I, key personnel, and medical librarian advisor.

The team will assess the strength of the qualitative research design through the following four factors: credibility (i.e., how well the researcher represents participant accounts), transferability (i.e., degree to which researchers can apply findings to other settings), dependability (i.e., how well researchers account for changing research contexts), and conformability (i.e., whether others can corroborate results).[67] To counter credibility tests, the team will engage in member-checking at all project stages.[68] Member-checking entails sending verbatim transcripts and initial write-ups of findings to all research participants asking them to comment on how well they reflect their lived experiences. The research design addresses transferability threats by triangulating data collection methods at each juncture of data collection. The team will counter dependability threats by maintaining reflexivity journals documenting the biases and assumptions they bring to the study, including how their backgrounds shape interpretations of findings. The team will code these journals as an additional data source. Confirmability threats are addressed internally by multiple coding meetings at each project stage to discuss emergent coding categories and resolve discrepancies, and externally by having advisory board members perform data analysis audits. The advisory board will include CHWs, LGBTQIA+ community leaders, and medical librarians to be selected using the team's networks before beginning the project.

All data collected and analyzed for this project will receive Institutional Review Board (IRB) approval from the University of SC. Participants must be 18 or older to participate. Before participating at each point of data collection, participants will review and sign an informed consent form detailing the research design, and risks and benefits for participating in each project stage; they will separately consent for their interviews, meetings, diaries, and focus group groups to be audio-recorded. The overarching study, including risks and benefits, will be presented to participants during an initial informational session so that they have an idea of what data collection and analysis will look like at each stage. The research team will provide community leaders a $3,556 stipend inclusive of travel support paid out in three phases to correspond with each project stage, and medical librarians a $583 stipend inclusive of travel support paid out in two phases. This amount aligns with remuneration paid to CHWs in prior work.[31] Participants can withdraw from the study at any time and will be able to keep any partial stipend already awarded to them. The team will remove their data for any future analysis or reporting following their withdrawing from the study. The team will keep all participant identities confidential, meaning that the research team will know the identities of participants, but will not disclose these identities in any formal writing or reports of the project. Instead, participants will be referred to by their chosen pseudonyms. Informed by reflexivity journals maintained by team members engaged in data collection and analysis, the team will also critically consider if and when research becomes too sensitive or intrusive for participants and adjust their approaches accordingly. The PI has also illustrated further ethical concerns associated with researching LGBTQ+ populations in previous work, and the team will follow these additional practices.[69]

The project also has several practice-oriented elements. During *Stage 1* recruitment, all community leaders interested in participating in the project will be required by the team to attend mandatory interest meetings. Leaders have the option of attending the meeting in person or virtually using telephone and/or videoconferencing. The purpose of the meeting is for the PI and co-I to overview the project and to determine who would be the best fit to apply for CHW training. At the end of the interest meetings, the PI and co-I will provide attendees with a virtual application for CHW training. Following the selection of leaders to participate in the study, the PI, co-I, key personnel (Smithwick), and RAs will develop specialized CHW training. *Stage 1* findings will inform the curriculum, which will focus on strategies for addressing the informational barriers SC LGBTQIA+ leaders, individuals, and communities face when finding, accessing, understanding, assessing, and disseminating health information, and wants and needs in terms of informational support as they transition into becoming CHWs. It will also be informed by the Center for Community Health Alignment's established best practices for participatory learning.[70]

The PI and co-I will invite community leaders to a half-day, in-person meeting to overview the curriculum and "theater test" two sample units. Theater testing is a methodology where individuals demonstrate the content of a program to a relevant audience to elicit feedback and opportunities for improvement. Researchers and practitioners often use this method to test health promotion messaging.[71] Theater testing will take approximately 120 minutes, and participants will have lunch following the presentation. Then, community leaders will provide feedback in two focus groups, comprised of 5-8 community leaders each. The PI and/or RA(s) will moderate these groups, along with at least one team member from Center for Community Health Alignment. These focus groups will follow the theater testing and allow community leaders to comment on the relevance of the curriculum and content to the everyday lives of their communities. One member of the team will take detailed notes. Focus group findings will inform the revision and subsequent development of the curriculum and units. The estimated duration of the focus groups is between 60-90 minutes. Practice-based questions addressed during *Stage 1* include:

- What are effective strategies for identifying and recruiting CHWs within SC LGBTQIA+ communities? How do intersectional approaches inform these strategies?
- How can empirical evidence regarding the health information practices of these communities be incorporated into specialized CHW training?
- What are the ways that specialized CHW training can be improved to reflect better the lived experiences of these communities?

After identifying medical librarians to partner with community leaders in *Stage 2*, the PI, RAs, co-I, key personnel (Heyward, Smithwick), and the medical librarian advisor will create a half-day training for the selected librarians. The Center for Community Health Alignment training for CHW supervisors, which addresses the culture of communities, as well as the PI's prior grant work, will inform this training.[12] Participating medical librarians will be required to attend this training before working with community leaders. Practice-based questions addressed during *Stage 2* include:

- What are community and cultural competencies needed for medical librarians to work with LGBTQIA+ community leaders undergoing CHW training?

In *Stage 3*, community leaders will undergo CHW training. This training will include core competency training required of all CHWs and specialized training developed by the project team. The in-class facilitated learning piece is 110 hours and then another 80 hours where community leaders work as CHWs for their communities, supervised by an experienced CHW. The estimated training duration is between 14-16 weeks. During this time, key personnel (Heyward) and the medical librarian advisor will check-in via phone with each community leader and medical librarian at least four times throughout the training and meeting process. If an issue arises, the PI and co-I will hold a meeting with the medical librarian advisor and/or key personnel (Heyward) to discuss a plan to rectify the issue, and then meet with the community leader and/or medical librarian (separately or independently depending on the situation) to share and implement this plan.

Following the presentations by community leaders and medical librarians at the half-day community forum, there will be time for networking. This time is particularly important for community leaders who wish to work as CHWs. Health stakeholders, including medical professionals and policymakers attending the forum, could be hiring or could

give them job placement information and resources. The Center for Community Health Alignment will also provide job resources for community leaders interested in professionally practicing as CHWs. Practice-based questions addressed during *Stage 3* include:

- What are some of the challenges experienced by community leaders when undergoing CHW training? What about partnering with medical librarians? What are some challenges experienced by medical librarians when partnering with CHWs? What are effective strategies for addressing these challenges? How do these strategies inform the revision of CHW specialized training curriculum?
- What job-related support do community leaders need to practice as CHWs professionally?

Final products resulting from this study are specialized CHW training for LGBTQIA+ communities, including curriculum and course materials; cultural and community competency training for medical librarians working with LGBTQIA+ CHWs; a toolkit for medical librarians with strategies for partnering with CHWs in their local communities; research products including data collection and analysis instruments, and anonymized participant data (excluding audio recordings); and research outputs. The toolkit, research products, and outputs will be publicly available, while the trainings can be scheduled through the Community Center for Health Alignment. The team will work with the SC CHW Association, the National Association of CHWs, the SC Medical Library Association, and the National Medical Library Association to disseminate the toolkit, research products and outputs, and schedule trainings. The team will create a project website hosted by the University of SC, which will house the toolkit and link to the research products and outputs. The team will deposit research products into the Inter-university Consortium for Political and Social Research repository and research outputs into University of SC's Scholar Commons repository, following IRB protocols and publisher agreements. The team will also publish and present research outputs at a variety of scholarly venues focused on the following areas: LIS (sample journals: *JASIS&T, Journal of Documentation, Library Quarterly*; sample conferences: ASIS&T, ALA), health informatics (sample journals: *LGBT Health, Health Education and Behavior, Qualitative Health Research, Health Information and Libraries*; sample conferences: American Medical Informatics Association Symposium, National Medical Library Association), public health (sample conferences: American Public Health Association CHW section; CHW Unity Conference; SC CHW Association Annual Conference; SC Public Health Association; SC Primary Healthcare Association) LGBTQ+ studies (sample journals: *Journal of Homosexuality, Transgender Studies Quarterly*; sample conferences: Gender and Sexuality in Information Studies, Queer Internet Studies), and research methods (sample journals: *Library & Information Science Research, Qualitative Inquiry*; sample conferences: ALISE).

Diversity Plan

Although the project uses "community" as its unit of analysis, it represents a fraught concept since there is no collective authority or singular representation of what it means to be an LGBTQIA+ person. Often, different subsets of the larger population contest the meaning of LGBTQIA+ as an umbrella term. For example, transgender people have been systematically excluded from advances in LGBTQIA+ health, such as in the 1970s, when the American Psychiatric Association's Diagnostic and Statistical Manual removed homosexuality while categorizing transgender people under a new pathology.[72] Despite the fraught nature of the community, this project uses it as a centering concept because LGBTQIA+ people's information practices are shaped by shared histories of stigma and discrimination. In health contexts, these include a pathologic understanding of LGBTQIA+ identities, experiences of minority stress and familial rejection, and a lack of protection for specific insurance policies.[72,73]

The project will engage in an intersectional approach to data collection and analysis to capture diverse experiences within LGBTQIA+ communities.[74–76] Intersectionality posits that people's experiences are qualitatively distinct based on intersecting social locations ranging from marginality to privilege. The first way intersectionality will inform this research is through participant selection and recruitment by adopting a "bottom-up" approach. This approach posits that to remedy discrimination, researchers and practitioners must first address the needs of those most disadvantaged;[50] it parallels a call to advance health equity in CHW work, which must have "an intended disproportionate impact, mainly benefitting the few rather than the many"[77(p309)]. SC LGBTQIA+ people experience several barriers that heighten their health challenges as compared to those residing outside of SC and the South more generally.[78] Existing research has identified salient identity characteristics shaping their health outcomes: age, race and

ethnicity, socioeconomic status, gender identity, rurality, and faith.[12,79] The team will engage in theoretical sampling to ensure that SC LGBTQIA+ community leaders who have these marginalized identity intersections (e.g., transgender people of color, seniors, poor people) are included in the recruitment pool of community leaders. Further, the team will evaluate CHW applications on a case-by-case basis to ensure that the final selection represents those with salient marginalized identity intersections. The PI's prior grant work employed several data collection strategies to represent intersectionality; these include asking participants to identify salient identities, social locations, and experiences that they feel shape their community's health information practices and challenges. Also, the PI's conceptual model developed in this prior work will be applied to data analyzed as a way to account for intersectionality, as well as extending and further testing the model.[12] Since the team's social identities, locations, and experiences limit their interpretations, they will rely on critical analysis of their reflexivity journals, research participants' member-checking, and advisory board feedback as internal and external audits of these interpretations. The selection of medical librarians is another way to address intersectional concerns and lessen potential mistrust among community leaders. Aided by the medical librarian advisor, the team will locate medical librarians who have experience working with LGBTQIA+ populations and share some of the salient identities noted above.

National Impact

This exploratory project engenders systemic change for three key audiences: medical librarians, LGBTQIA+ communities, and CHWs. It offers new pathways for medical librarians to promote health equity among underserved populations by partnering with CHWs before, during, and after training. This process is codified in a toolkit for establishing these partnerships that can be used by medical librarians and CHWs serving varied populations. The medical librarian advisor has an extensive history serving on the National Medical Librarian Association and will work with the PI to disseminate the toolkit to medical librarians at the national level. Further, the project develops community competency training for medical librarians working with LGBTQIA+ communities, which can be conducted at a national scale via webinars offered by the University of SC's School of LIS and Center for Community Health Alignment. LGBTQIA+ communities will benefit by having unique, evidence-based informational interventions developed from them via specialized CHW training and an informational resource for their communities produced in partnership with medical librarians. By training LGBTQIA+ community leaders as CHWs, this project also responds to a lack of CHWs for these communities at the national level and develops materials for future trainings conducted by the Center for Community Health Alignment serving LGBTQIA+ communities in SC. This training can be adapted by other national CHW training organizations. At the end of the project, community leaders will have the necessary certification and support via the final community forum and Center for Community Health Alignment resources to obtain employment as CHWs. This opportunity can help them to more effectively address the health challenges faced by their communities and provide them with employment, which can be difficult to obtain in a right-to-work state where they can be fired for their LGBTQIA+ identities.[79] This opportunity can be extended to other LGBTQIA+ people as the project's process for training of CHWs serving these communities is shared. This project will benefit LIS research and practice by contributing empirical findings to an under-researched area about an underserved group and developing new models for medical libraries to help CHWs facilitate information practices that promote LGBTQIA+ health within their communities. These benefits will be extended beyond the grant award conclusion through dissemination strategies to reach LIS and Public Health communities. Finally, the project has pedagogical benefits, as research and practice-based findings can inform a CHW certification for early-career LIS professionals created by the School of LIS in partnership with the Center for Community Health Alignment.

See Supportingdoc1.pdf for references.

Activities	Pre-award	Year One (2020-2021)			
		Sep-Nov	Dec-Feb	Mar-May	Jun-Aug
Project Management	■				
Secure IRB Project Approval	■				
Identify 6-8 Advisory Board Members (comprised of CHWs, LGBTQIA+ community leaders, and medical librarians)	■				
Schedule Ongoing Consultations with Advisory Board (every six months)	■				
Schedule Interest Meetings, Trainings, and Half-day Community Forum	■				
Stage 1		■	■		
Develop and Refine Recruitment Strategies and Materials		▒			
Disseminate Recruitment Messages		▒			
Conduct Interest Meetings		▒			
Identify Cohort of Community Leaders		▒			
Develop and Refine Interview Protocol for Community Leaders		▒			
Develop LGBTQ+ Specialized Training Curriculum and Two Sample Lessons		▒			
Engage in 90-120-min. Individual In-person Interviews with Community Leaders			▒		
Analyze Interview Transcripts and Information Worlds Maps from Individual Interviews			▒		
Member-checking with Community Leaders re: Interview Findings			▒		
Theater Test Specialized Training with Community Leaders and Use Focus Groups to Elicit Feedback			▒		
Iterate Specialized Training Based on Findings and Create Rest of Curriculum			▒		
Consultation with Advisory Board			▒		
Stage 2				■	■
Develop and Refine Recruitment Strategies and Materials				▒	
Disseminate Recruitment Messages				▒	
Identify Librarian Partners				▒	
Create Cultural and Community Competency Training for Librarians				▒	
Conduct Cultural and Community Competency Training for Librarians				▒	
Schedule Initial CL and Librarian Discussion					▒
Develop and Refine Data Collection Instruments for Community Leader and Librarian Meeting					▒
Conduct Community Leader and Librarian Meetings					▒
Analyze Discussion Transcripts, Maps, and Drawings					▒
Member-checking with Community Leaders and Librarians					▒
Consultation with Advisory Board					▒
Practice Oriented Dissemination		■	■	■	■
Design and Launch Project Website		▒			
Provide Project Updates on Website		▒	▒	▒	▒
Publish Toolkit for Establishing Medical Librarian and CHW Partnerships					▒
Research Dissemination		■	■	■	■
Project Website		▒	▒	▒	▒
Conference Presentations					▒
Research Publications					▒

Activities	Year Two (2021-2022)			
	Sep-Nov	Dec-Feb	Mar-May	Jun-Aug
Stage 3				
Develop and Refine Diary Data Collection Instruction for Community Leaders and Librarians	▓			
Provide CHW Baseline and Specialized Training	▓	▓		
Community Leaders and Librarians Record Audio Diaries	▓			
Community Leaders and Librarians Meet to Create Informational Resource	▓			
Team Provides Community Leader and Librarian Check-ins	▓			
Recruit Health and Librarian Stakeholders for Half-day Community Forum	▓			
Hold Half-day Community Forum			▓	
Run Focus Groups with Community Leaders and Librarians			▓	
Analyze Diary, Meeting, and Focus Group Transcripts			▓	▓
Member-checking with Community Leaders and Librarians			▓	▓
Create Toolkit of Best Practices for Medical Librarian and CHW Partnerships			▓	▓
Consultations with Advisory Board		▓		▓
Practice Oriented Dissemination				
Design and Launch Project Website				
Provide Project Updates on Website	▓	▓	▓	▓
Publish Toolkit for Establishing Medical Librarian and CHW Partnerships				▓
Research Dissemination				
Project Website	▓	▓	▓	▓
Conference Presentations	▓	▓	▓	▓
Research Publications	▓	▓	▓	▓

DIGITAL PRODUCT FORM

INTRODUCTION

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to digital products that are created using federal funds. This includes (1) digitized and born-digital content, resources, or assets; (2) software; and (3) research data (see below for more specific examples). Excluded are preliminary analyses, drafts of papers, plans for future research, peer-review assessments, and communications with colleagues.

The digital products you create with IMLS funding require effective stewardship to protect and enhance their value, and they should be freely and readily available for use and reuse by libraries, archives, museums, and the public. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

INSTRUCTIONS

If you propose to create digital products in the course of your IMLS-funded project, you must first provide answers to the questions in SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS. Then consider which of the following types of digital products you will create in your project, and complete each section of the form that is applicable.

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS
Complete this section if your project will create digital content, resources, or assets. These include both digitized and born-digital products created by individuals, project teams, or through community gatherings during your project. Examples include, but are not limited to, still images, audio files, moving images, microfilm, object inventories, object catalogs, artworks, books, posters, curricula, field books, maps, notebooks, scientific labels, metadata schema, charts, tables, drawings, workflows, and teacher toolkits. Your project may involve making these materials available through public or access-controlled websites, kiosks, or live or recorded programs.

SECTION III: SOFTWARE
Complete this section if your project will create software, including any source code, algorithms, applications, and digital tools plus the accompanying documentation created by you during your project.

SECTION IV: RESEARCH DATA
Complete this section if your project will create research data, including recorded factual information and supporting documentation, commonly accepted as relevant to validating research findings and to supporting scholarly publications.

SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS

A.1 We expect applicants seeking federal funds for developing or creating digital products to release these files under open-source licenses to maximize access and promote reuse. What will be the intellectual property status of the digital products (i.e., digital content, resources, or assets; software; research data) you intend to create? What ownership rights will your organization assert over the files you intend to create, and what conditions will you impose on their access and use? Who will hold the copyright(s)? Explain and justify your licensing selections. Identify and explain the license under which you will release the files (e.g., a non-restrictive license such as BSD, GNU, MIT, Creative Commons licenses; RightsStatements.org statements). Explain and justify any prohibitive terms or conditions of use or access, and detail how you will notify potential users about relevant terms and conditions.

The main research products can be divided into three categories: 1) *toolkit and project website;* 2) *data products;* and 3) *research publications and presentations*.

The toolkit for this project will be open access and hosted on the *project websites*. The websites will be hosted by USC's College of Information and Communications (CIC) – the larger college of which the School of Library and Information Science (SLIS). This document and resources will be published under a Creative Commons Attribution 4.0 license, which allows the project's audience (librarians, researchers, LGBTQIA+ people, community health workers) to access, publish, share, and readapt the materials to suit their own purposes and contexts. These products will include attribution to the project team and all relevant stakeholders (health science librarians, community health workers mentors, advisory board) and IMLS for supporting the project. The PI will provide a clear overview of the license details including attribution and how the research products can be re-used. The toolkit will also be added to USC's Scholar Commons repository.

The *data products* include interview, diary, and focus group transcripts; information worlds maps and brainstorming drawings; observational (and other) notes; and reflexivity journals; and codebook(s). With participant consent, these data will be made available to facilitate re-use. In instances where participants do not consent to have their data made available, the PI will note what data is not available (e.g., individual interview transcript 18 is not available). This decision is made to engender participant trust in the research process and openness when discussing sensitive topics surrounding health-related informational issues. The data products will be added to the Inter-university Consortium for Political and Social Research's (ICPSR) data repository. Principal investigators and their institutions hold the copyright for the research data they generate. By depositing with ICPSR, investigators do not transfer copyright but instead grant permission for ICPSR to re-disseminate the data and to transform the data as necessary to protect respondent confidentiality, improve usefulness, and facilitate preservation.

Research publications and *presentations* will be published in open access venues when possible with a copy of each being added to USC's Scholar Commons repository. When open access is not possible, the PI will pursue agreements to publish pre-print versions.

A.2 What ownership rights will your organization assert over the new digital products and what conditions will you impose on access and use? Explain and justify any terms of access and conditions of use and detail how you will notify potential users about relevant terms or conditions.

The University of South Carolina has ownership of the *toolkit and project website; data products;* and *research publications and presentations*. The *toolkit* will be open access on the project website. These materials and website content will be published under a Creative Commons Attribution 4.0 license. *Data products* that participants consent to being accessible, including primary data (exclusive of audio recordings) and other supporting materials, will follow access protocols set by USC's IRB office to protect participant confidentiality.

Finally, *research publication and presentation* ownership will vary based on agreements with various publishing venues. The PI and research stakeholders will promote access to project resources via meetings, conferences, and other channels, such as social media.

A.3 If you will create any products that may involve privacy concerns, require obtaining permissions or rights, or raise any cultural sensitivities, describe the issues and how you plan to address them.

As mentioned, to foster participation and trust among participants, each participant gets to decide how their data is accessed and disseminated. If the participant consents to having their data made available, it will be de-identified, meaning that pseudonyms will be used and all potentially identifying information will be redacted. Participants will offer input as to what this identifying information may be during member-checking. In addition, the PI will limit access to data products (along with following University of South Carolina IRB access protocols) and require a confidentiality agreement from re-users. The PI will share more widely aggregate data and project codebooks that contain no sensitive information.

The other research products (guidance document and project website, research publications and presentations) will contain no sensitive information. Participants will be referred to using pseudonyms.

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS

A.1 Describe the digital content, resources, or assets you will create or collect, the quantities of each type, and the format(s) you will use.

Asset	Description	Quantity	Format
Toolkit for medical librarians	Provides strategies for medical librarians partnering with CHWs in their local communities	1 report	PDF/A

Asset	Description	Quantity	Format
Project website	Project website hosted by the College of Information and Communications containing project information and links to research and practice products from the project	1 website	HTML
Initial SC LGBTQIA+ community leader interviews	10-15 verbatim transcripts from individual interviews with community leaders before CHW training; 10-15 information worlds maps drawn by community leaders before CHW training; Data analysis codebook	10-15 transcripts; 10-15 maps	PDF/A; JPEG
SC LGBTQIA+ leader-librarian initial meetings	10-15 verbatim transcripts from initial medical librarian-community leader meetings; 10-15 brainstorming drawings from medical librarian-community leader meetings; 10-15 unstructured observational notes from medical librarian-community leader meetings	10-15 transcripts; 10-15 drawings; 10-15 observational notes	PDF/A; JPEG
SC LGBTQIA+ leader and librarian diaries	4 sets of 10-15 verbatim transcripts of community leader audio diaries and 10-15 verbatim transcripts of medical librarian audio diaries	40-60 transcripts of leader diaries; 40-60 transcripts of librarian diaries	PDF/A
SC LGBTQIA+ leader-librarian working meeting observations	10-15 verbatim transcripts of medical librarian-community leader meetings; 10-15 unstructured observational notes	10-15 transcripts; 10-15 observational notes	PDF/A

Asset	Description	Quantity	Format
	from medical librarian-community leader meetings		
Community forum findings	1 set of unstructured observational notes from the community forum	1 set of notes	PDF/A
Focus groups with community leaders and medical librarians	2 verbatim focus group transcripts with community leaders; 2 verbatim focus group transcripts with medical librarians	4 transcripts	PDF/A
Reflexivity journals	Maintained by PI, co-I, and RAs throughout project	4 journals	PDF/A
Data collection instruments	Interview, diary, and focus group protocols	1 initial leader interview protocol; 1 initial leader information worlds mapping handout; 1 leader-librarian initial meeting projective drawing handout; 2 sets of 4 diary questions for librarians and leaders to answer on a monthly basis; 1 leader focus group protocol; 1 librarian focus group protocol	PDF/A
Data analysis codebook	Master codebook for all project stages	1 master codebook	PDF/A
Research publications and presentations	Publication and conference presentations	TBD – multiple	PDF/A, HTML

A.2 List the equipment, software, and supplies that you will use to create the digital content, resources, or assets, or the name of the service provider that will perform the work.

Microsoft Office products will be used to create the toolkit, the codebooks, and reflexivity journals. The interviews will be recorded as verbatim transcriptions of audio files (not shared as part of the digital content) in Microsoft Word. All notes will be handwritten then typed in Microsoft Word. Information worlds maps and projective drawings will be scanned as JPEGs.

The project website will be hosted by University of South Carolina's College of Information and Communications on the University domain (sc.edu). University of South Carolina webpages are created using a custom CMS, which will also be the case of the project website.

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG, OBJ, DOC, PDF/A) you plan to use. If digitizing content, describe the quality standards (e.g., resolution, sampling rate, pixel dimensions) you will use for the files you will create.

.pdf (toolkit, course curriculum and sample materials, all transcripts, observational notes, reflexivity journals, data collection instruments, codebook, research publications and presentations); html (project website, research publications and presentations); .jpg (information worlds maps, projective drawings)

All documentation will be at or above relevant quality standards.

Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan. How will you monitor and evaluate your workflow and products?

The PI will manage all project deliverables and review data products before publication. The project team and advisory board will also review products as they are synthesized; participants will review initial data products to ensure they are accurate representations of their accounts/experiences. The PI and RAs will work in tandem to ensure quality of data transcription and anonymization of collected data.

B.2 Describe your plan for preserving and maintaining digital assets during and after the award period. Your plan should address storage systems, shared repositories, technical documentation, migration planning, and commitment of organizational funding for these purposes. Please note: You may charge the federal award before closeout for the costs of publication or sharing of research results if the costs are not incurred during the period of performance of the federal award (see 2 C.F.R. § 200.461).

University of South Carolina's College of Information and Communications will permanently host the project website on a stable sc.edu URL. The toolkit and research publications and presentations will be permanently hosted in USC's Scholar Commons repository.

The data products will be hosted by the ICPSR data repository. ICPSR is a data archive with a nearly 50-year track record for preserving and making data available over several generational shifts in technology. ICPSR will accept responsibility for long-term preservation of the research data upon receipt of a signed deposit form. This responsibility includes a commitment to manage successive iterations of the data if new waves or versions are deposited. ICPSR will ensure that the research data are migrated to new formats, platforms, and storage media as required by good practice in the digital preservation community. Good practice for digital preservation requires

that an organization address succession planning for digital assets. ICPSR has a commitment to designate a successor in the unlikely event that such a need arises.

Metadata

C.1 Describe how you will produce any and all technical, descriptive, administrative, or preservation metadata or linked data. Specify which standards or data models you will use for the metadata structure (e.g., RDF, BIBFRAME, Dublin Core, Encoded Archival Description, PBCore, PREMIS) and metadata content (e.g., thesauri).

The USC Scholar Commons repository interface will assign metadata to research and data products. The metadata is flexible and customizable based on dissemination needs. All of the metadata fields, whether or not they are patron- facing, are targeted to promote search discoverability. The PI will consult with USC librarians who maintain the commons on appropriate metadata standards and content based on the goals for dissemination, which will be established throughout the duration of the project.

ICPSR will create substantive metadata in compliance with the most relevant standard for the social, behavioral, and economic sciences—the Data Documentation Initiative (DDI). This XML standard provides for the tagging of content, which facilitates preservation and enables flexibility in display. These types of metadata will be produced and archived:

- *Study-Level Metadata Record*. A summary DDI-based record will be created for inclusion in the searchable ICPSR online catalog. This record will be indexed with terms from the ICPSR Thesaurus to enhance data discovery.
- *Data Citation with Digital Object Identifier (DOI)*. A standard citation will be provided to facilitate attribution. The DOI provides permanent identification for the data and ensures that they will always be found at the URL specified.
- *Variable-Level Documentation*. ICPSR will tag variable-level information in DDI format for inclusion in ICPSR's Social Science Variables Database (SSVD), which allows users to identify relevant variables and studies of interest.
- *Technical Documentation*. The variable-level files described above will serve as the foundation for the technical documentation or codebook that ICPSR will prepare and deliver.
- *Related Publications*. Resources permitting, ICPSR will periodically search for publications based on the data and provide two-way linkages between data and publications.

C.2 Explain your strategy for preserving and maintaining metadata created or collected during and after the award period of performance.

USC's Scholar Commons and ICPSR will support metadata for both data and research products after the award period.

C.3 Explain what metadata sharing and/or other strategies you will use to facilitate widespread discovery and use of the digital content, resources, or assets created during your project (e.g., an API [Application Programming Interface], contributions to a digital platform, or other ways you might enable batch queries and retrieval of metadata).

USC Scholar Commons works with all of the highly-used regular and academic search engines (e.g., Google, Google Scholar, Bing, etc.) to push repository content to the top of result lists. Scholar Commons is also part of Digital Commons, the institutional repository provider of over 500 institutions, and allows for easy cross-searching from within the platform. PlumX metrics are automatically added to most research. The Commons also will be promoted by the PI and research team during dissemination of research products, including at conferences, meetings, and via other communication channels.

To facilitate attribution, ICPSR will create a DOI for all research products; tag variable-level information in DDI format for inclusion in ICPSR's Social Science Variables Database (SSVD), which allows users to identify relevant variables and studies of interest; and resources permitting, will periodically search for publications based on the data and provide two-way linkages between data and publications.

Access and Use

D.1 Describe how you will make the digital content, resources, or assets available to the public. Include details such as the delivery strategy (e.g., openly available online, available to specified audiences) and underlying hardware/software platforms and infrastructure (e.g., specific digital repository software or leased services, accessibility via standard web browsers, requirements for special software tools in order to use the content, delivery enabled by IIIF specifications).

Access will be available via the project websites, which are accessible using standard web browsers, as well as deposited in USC's Scholar Commons repository and ICPSR.

ICPSR will make the research data from this project available to the broader social science research community. *Public-use data files*: These files, in which direct and indirect identifiers have been removed to minimize disclosure risk, may be accessed directly through the ICPSR website. After agreeing to Terms of Use, users with an ICPSR MyData account and an authorized IP address from a member institution may download the data, and non-members may purchase the files. *Restricted-use data files*: These files are distributed in those cases when removing potentially identifying information would significantly impair the analytic potential of the data. Users (and their institutions) must apply for these files, create data security plans, and agree to other access controls. *Timeliness*: The research data from this project will be supplied to ICPSR before the end of the project so that any issues surrounding the usability of the data can be resolved. Delayed dissemination may be possible. The Delayed Dissemination Policy allows for data to be deposited but not disseminated for an agreed-upon period of time (typically one year).

D.2. Provide the name(s) and URL(s) (Universal Resource Locator), DOI (Digital Object Identifier), or other persistent identifier for any examples of previous digital content, resources, or assets your organization has created.

Example of two project sites created by project web developer, Patty Hall:
http://bit.ly/hiplgbtq
http://scloccivilrights.com/

Example of project website hosted by University of South Carolina's College of Information and Communications:
https://www.sc.edu/study/colleges_schools/cic/research/sponsored_awards/hiplgbtq_communities/index.php

University of South Carolina's Scholar Commons: https://scholarcommons.sc.edu/

SECTION III: SOFTWARE

General Information

A.1 Describe the software you intend to create, including a summary of the major functions it will perform and the intended primary audience(s) it will serve.

NOT APPLICABLE FOR THIS PROJECT

A.2 List other existing software that wholly or partially performs the same or similar functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

NOT APPLICABLE FOR THIS PROJECT

Technical Information

B.1 List the programming languages, platforms, frameworks, software, or other applications you will use to create your software and explain why you chose them.

NOT APPLICABLE FOR THIS PROJECT

B.2 Describe how the software you intend to create will extend or interoperate with relevant existing software.

NOT APPLICABLE FOR THIS PROJECT

B.3 Describe any underlying additional software or system dependencies necessary to run the software you intend to create.

NOT APPLICABLE FOR THIS PROJECT

B.4 Describe the processes you will use for development, documentation, and for maintaining and updating documentation for users of the software.

NOT APPLICABLE FOR THIS PROJECT

B.5 Provide the name(s), URL(s), and/or code repository locations for examples of any previous software your organization has created.

NOT APPLICABLE FOR THIS PROJECT

Access and Use

C.1 Describe how you will make the software and source code available to the public and/or its intended users.

NOT APPLICABLE FOR THIS PROJECT

C.2 Identify where you will deposit the source code for the software you intend to develop:

NOT APPLICABLE FOR THIS PROJECT

Name of publicly accessible source code repository:

NOT APPLICABLE FOR THIS PROJECT

URL:

NOT APPLICABLE FOR THIS PROJECT

SECTION IV: RESEARCH DATA

As part of the federal government's commitment to increase access to federally funded research data, Section IV represents the Data Management Plan (DMP) for research proposals and should reflect data management, dissemination, and preservation best practices in the applicant's area of research appropriate to the data that the project will generate.

A.1 Identify the type(s) of data you plan to collect or generate, and the purpose or intended use(s) to which you expect them to be put. Describe the method(s) you will use, the proposed scope and scale, and the approximate dates or intervals at which you will collect or generate data.

In *Stage 1* (September 2020-February 2021), the project will collect individual interview data from SC LGBTQIA+ community leaders about how they, their communities, and individuals within those communities create, seek, share, and use health information. These data will be collected via semi-structured individual interviews that include audio recordings; transcripts

from these recordings; participant information worlds maps; the reflexivity journals of the PI, RAs, and co-I; and comments from participant member-checking. This information will be used to create the specialized CHW training curriculum, inform the design of subsequent interviews and focus groups, and inform the initial meeting between leaders and librarians in *Stage 2*. The project will also collect leader feedback from theatre testing the sample specialized curriculum. These data will be collected via detailed notes taken during the testing. This feedback will guide subsequent revision and creation of the specialized training curriculum.

In *Stage 2* (March 2021-August 2021), the project will collect data from observations and projective brainstorming techniques between leaders and librarians to identify areas for medical librarian informational interventions to promote the health of leaders' communities. These data will be collected via leader elicitation using information worlds maps from *Stage 1* and projective drawing techniques between the leader and librarian that include audio recordings; transcripts from these recordings; brainstorming drawings; the reflexivity journals of the PI, RAs, and co-I; and comments from participant member-checking. The information will be used to inform the design of the diary data collection protocol and focus groups in *Stage 3*.

In *Stage 3* (September 2021-August 2022), the project will collect data from audio diaries recorded by leaders and librarians, observing meetings between leaders and librarians, observing a final half-day community forum where leaders and librarians present final products, and focus groups with leaders and librarians. Data collected will assess how the leaders' health information practices changed during and after CHW training and barriers and facilitators to leader and medical librarian partnerships. These data will be collected via audio diaries maintained by participants, unstructured observations of leader-librarian meetings and the community forum, and semi-structured focus groups among leaders and librarians separately. Data include audio recordings; transcripts from these recordings; observational notes; and the reflexivity journals of the PI, RAs, and co-I; and comments from participant member-checking.

All data will contribute to scholarly publications and presentations, as well as to the creation of the toolkit and project website.

A.2 Does the proposed data collection or research activity require approval by any internal review panel or institutional review board (IRB)? If so, has the proposed research activity been approved? If not, what is your plan for securing approval?

Prior to the project being awarded the project team will secure IRB approval from the University of South Carolina (approval anticipated in Summer 2020). The PI will reapply for approval as directed by USC's IRB.

A.3 Will you collect any sensitive information? This may include personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information. If so, detail the specific steps you will take to protect the information while you prepare it for public release (e.g., anonymizing individual identifiers, data aggregation). If the data will not be released publicly, explain why the data cannot be shared due to the protection of privacy, confidentiality, security, intellectual property, and other rights or requirements.

All project participants will be assigned chosen pseudonyms. Any identifying information will be redacted from collected data such as interview transcripts. Final datasets made available for outside of the research team will be anonymized, with the verbal assent of participants. The PI will limit access to data products (along with following University of South Carolina IRB access protocols) and require a confidentiality agreement from re-users. The PI will share more widely aggregate data and project codebooks that contain no sensitive information. All data collected and analyzed during the project will be stored on secure, password-protected machines, to which only the project staff will have access.

A.4 What technical (hardware and/or software) requirements or dependencies would be necessary for understanding retrieving, displaying, processing, or otherwise reusing the data?

All data will be shared in PDF format and is qualitative data. While those looking to reuse the data may choose to use computer-supported qualitative analysis software to analyze it, this software is not required for qualitative analysis.

A.5 What documentation (e.g., consent agreements, data documentation, codebooks, metadata, and analytical and procedural information) will you capture or create along with the data? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the data it describes to enable future reuse?

Project staff who have passed USC Human Subjects training will administer informed consent to all research participants and collect signed, paper consent forms. For any data collection conducted remotely (e.g., recording of audio diaries), participants will be required to sign, scan, and send (via email, mail, or fax), which must be received by the PI prior to the data collection being conducted. A random three-digit numerical code preceded by a two-letter data type prefix, will be assigned to each participant (e.g., FG002, CF076). The PI will create a spreadsheet matching each code to the participant's name and project pseudonym. This file will be kept in a password protected folder only accessible to project staff. Consent agreements will be scanned and stored in this same folder. Print copies of agreements will be kept in a locked file cabinet for at least three years after the study's end (pursuant to USC IRB requirements). Once interviews have been transcribed, their corresponding audio files will be deleted to avoid identifiable voice information. All research data maintenance will follow a 3-2-1 backup plan: three copies of the data, two which are local but on different mediums, and one stored offsite. Each of the data sources will be in password protected (if digital) or locked (if physical) storage.

Codebooks, coding reports, and project memos will be created and stored on local, secure machines as .docx and .pdf formats. The naming convention of a randomly assigned three-digit number preceded by a two-letter prefix indicating the data collection type will be used to label these documents as necessary.

A.6 What is your plan for managing, disseminating, and preserving data after the completion of the award-funded project?

All shareable datasets will be deposited into ICPSR.

A.7 Identify where you will deposit the data:

Name of repository: ICPSR

URL: https://www.icpsr.umich.edu/

A.8 When and how frequently will you review this data management plan? How will the implementation be monitored?

The data management plan will be evaluated on a quarterly basis by the PIs and RAs, and annually in meetings with the project team and advisory board. The PI will monitor compliance with the plan as well as new institutional and technological developments that might warrant modification of the plan. She will perform this evaluation and monitoring with assistance from the Digital Records Management Librarian at the University of South Carolina, Stacy Winchester. Datasets will be curated and preserved in accordance with ICPSR standards.