

Designing and Implementing a Community-Engaged Research e-Library: A Case Study for Adapting Academic Library Information Infrastructure to Respond to Stakeholder Needs

Lea Efird-Green, Eve Marion, Diane Willis, Jennifer M. Gierisch, and Leonor Corsino

The Duke University Clinical and Translational Science Institute Community Engaged Research Initiative (CERI) created an e-Library in 2018. This e-Library was developed in response to requests from academic researchers and the community for reliable, easily accessible information about community-engaged research approaches and concepts. It was vetted by internal and external partners. The e-Library's goal is to compile and organize nationally relevant community-engaged research resources to build bi-directional capacity between diverse community collaborators and the academic research community. Key elements of the e-Library's development included a selection of LibGuides as the platform; iterative community input; adaptation during the COVID-19 pandemic; and modification of this resource as needs grow and change.

Introduction

An e-Library, an electronic or digital library, is a collection of topical or reference materials, including resources that can only be accessed digitally (i.e., through subscriptions, hyperlinks, or e-books), and those scanned from hard copies.¹ An e-Library is designed to be accessed electronically either online, over the internet (e.g., website), or through other non-networked technologies (e.g., information kiosks).² They are often more easily accessible to a wider array of remote or community users and can be utilized with minimal or no support from librarians or other service providers.³ An e-Library can be updated and organized frequently and by multiple contributors, reduce the cost of maintaining physical resources, and allow institutions and communities to collaborate from anywhere in the world.⁴

In the context of community-engaged research, an e-Library is a novel and innovative tool to disseminate research information and to build capacity.⁵ Community-engaged re-

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search (CEnR) is defined as a process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting their well-being.⁶ It empowers community members to be involved in setting research priorities, as well as building relationships among researchers and community members to better achieve research aims and improve real-world implementation.⁷ The CEnR approach expedites new innovations in health equity, population health, and other research by prioritizing multi-stakeholder cooperation, especially among historically underrepresented groups.⁸

CEnR requires intentionality in the dissemination of information that is easily accessible by the community to promote these innovations.⁹ Information is a valuable resource and can increase researcher and community knowledge and capacity, including their understanding of and ability to engage in CEnR.¹⁰ Dissemination of information easily accessible by many individuals makes e-libraries such an attractive option for sharing information regarding community-engaged research. Libraries play a special role in the creation of CEnR resources, as well as facilitating researcher-community relationships; they are institutions that are by their nature interdisciplinary and stakeholder-engaged.

An e-Library can be created using a variety of software or database programs. LibGuides, proprietary software produced by Springshare and marketed to Duke and public libraries since 2008, has traditionally been used within educational settings, serving as topic and course guides for Duke students.¹¹ Because LibGuides is easy to use and widely available,¹² the format can also be adapted to organize electronic resources,¹³ for community-oriented training and education,¹⁴ and has even been used as part of social justice movements¹⁵ and emergency response strategies.¹⁶ Although alternative platforms exist, such as Weebly, LibGuides is the overwhelming choice of academic and community libraries in the United States and beyond.¹⁷ Given its adaptability for use within both academic and community settings, LibGuides can: organize and present information to a variety of audiences¹⁸ and be updated frequently; be created collaboratively; and can include both academic- and community-related content.¹⁹ The creation of e-libraries to address the need to share content related to community-engaged research that is developed collaboratively and that includes the voices of academic and community voices is not the norm, to our knowledge.

In this article, we share key elements of the development of an e-Library used to facilitate community-engaged research capacity building. We address the following: the rationale, selection, and use of LibGuides software; iterative community input regarding content and structure; adaptation during the COVID-19 pandemic; and modification of this living resource as organizational and client needs grow and change. We also address the implications of this case study for other institutions and future directions for research.

Rationale for an e-Library Focused on Community-Engaged Research

Duke CTSI's Community Engaged Research Initiative (CERI) was established in 2016. CERI's purpose is to: provide programs and tools to enable community-engaged research (CEnR) and spur collaborations and innovations; enhance local, regional, and national capacity for community-engaged research; and improve knowledge and information sharing to foster trust and transparency in research.

CERI staff and faculty conduct CEnR consultations with researchers and work closely with community-based organizations and coalitions with the overall goal of facilitating bi-

directional capacity building with academic and community partners. During consultations, staff wanted to be able to find and share CEnR resources quickly with stakeholders. This need increased after receiving feedback from clients and collaborators, including community members, stating that they did not know where to look for, nor did they have access to, the information needed to be able to work effectively with academic research partners. Barriers for community members included being unable to access materials and having little awareness of free resources (e.g., PubMed Central). At the same time, academic researchers from within the institution also sought a single site to obtain trusted, high-level CEnR information to enhance their skills and knowledge of best practices in participatory approaches. Barriers for academic researchers included a lack of expertise regarding community engagement practice and methods, and limited knowledge of trusted resources. Therefore, CERI was motivated to identify and organize available resources to serve both client populations, and to support staff and faculty working with researchers and community members.

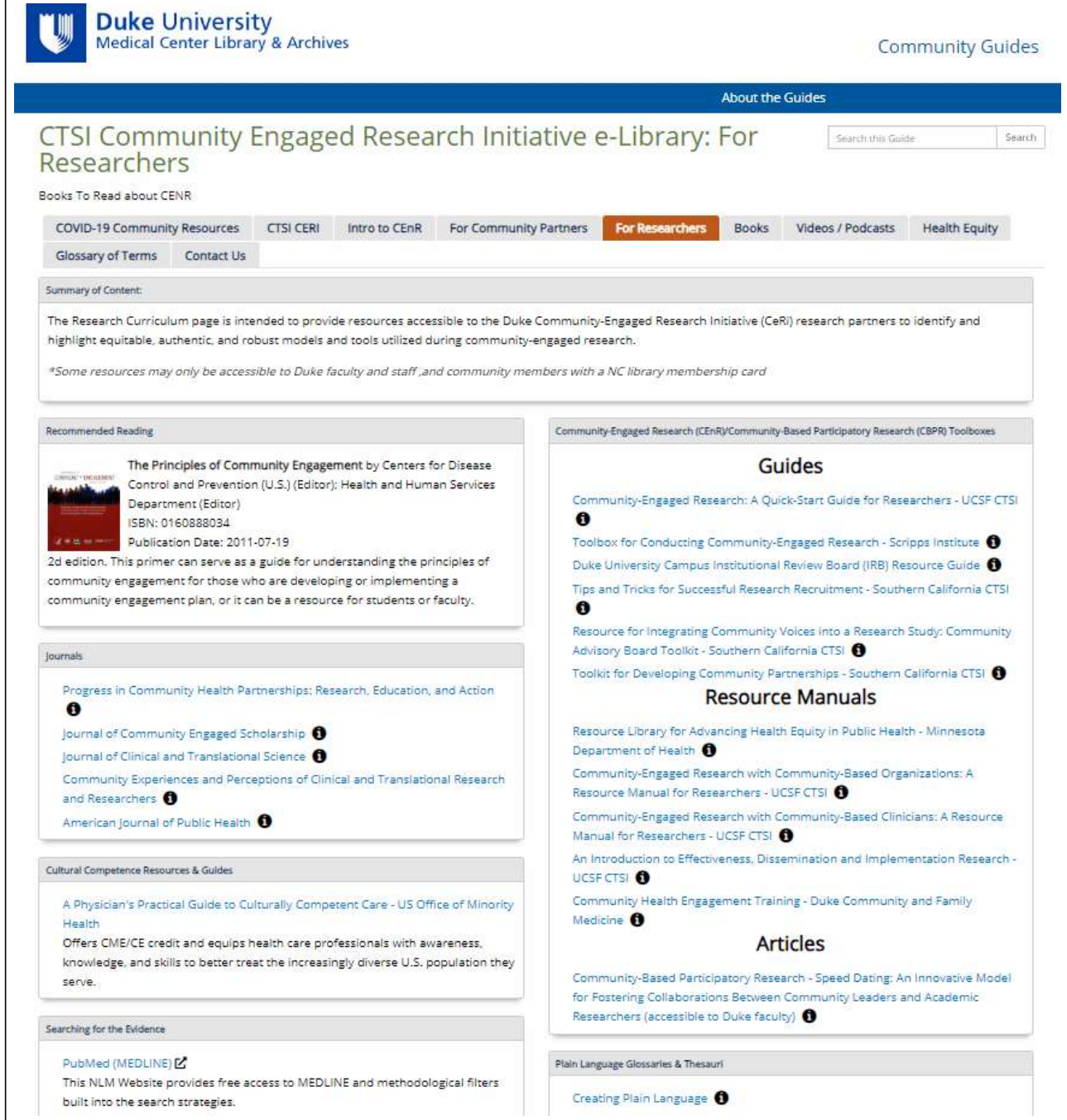
Initial e-Library Development

Before the e-Library's development in 2018, the team had compiled and stored a list of forty trusted sources of CEnR information in an Excel spreadsheet. While brainstorming ways to share this vetted information with academic and community partners, the team envisioned transitioning the spreadsheet to a website format. During planning for this transition, the team sought the advice of a Duke Medical Center librarian to discuss possible solutions and to identify the best platform for the transition from an Excel spreadsheet to a site that would easily be accessible by both community members and academic researchers. This initial consultation resulted in the team choosing LibGuides as the online platform.

There is precedent both within Duke and in the literature of using LibGuides to serve community audiences, in addition to academic institution affiliates.²⁰ Duke LibGuides policy also emphasizes the importance of external utility, which matched CERI's goal of making a resource repository that would serve academic researchers and lay community members. The Duke Medical Center Library hosts each guide, and CERI's staff update and maintain the guides through an online account. Guides can be drafted and vetted internally before launch and may be updated in real-time without the need for constant librarian support and oversight. Managing online resources without librarian oversight made a LibGuides-based e-Library ideal as resources could be added and modified promptly in response to community needs.

After determining that resources could be housed in a LibGuide and made available for community members without an institutional affiliation, input was solicited from CERI's community advisory council and other partner organizations, community leaders, and academic researchers regarding specific resources to include, as well as content, layout, and usability concerns. A preliminary prototype was then presented to CERI's community advisory council which offered verbal and written feedback during a live feedback session and through an electronic survey. This process informed the architecture of the guide. Including a recommended reading from staff and community partners tab, a "frequently asked questions" section, and a "suggest a resource" form linked on the homepage were among the changes that were suggested and later implemented. The community advisory council also recommended dissemination methods such as linking the e-Library on CERI website and promoting it in CERI's newsletters and staff email signatures. They also—presciently—warned that too much information is just as "painful" to navigate as too little information.

FIGURE 1
A Partial Screenshot of One of the Pages from Ceri's Original E-Library. As is evident here, many researcher resources are only accessible via institutional login. Each tab in the top of the image leads to a similar page of resources



Resources were organized into tabs that included a landing page about CERi, an introduction to CEnR, and separate tabs for researchers and community members. In response to suggestions from community partners regarding usability, new sections were incorporated: a glossary of terms and acronyms; separate tabs for books, videos, podcasts; and funding opportunities. The intent of this architecture was to segment content for the intended audience to increase the usability and overall utility of the resources. A “Contact Us” tab was also

included to encourage users to submit questions about the e-Library content or to participate in any programs or services offered by CERI. Most e-Library resources were developed by other organizations, and as such, they were appropriately hyperlinked and credited.

Adapting to the COVID-19 Pandemic:

Given CERI's mission and connection to the community, the e-Library was not meant to be a static resource once it was created. Before 2020, the e-Library developed organically with CERI staff and community collaborators frequently making recommendations to incorporate new materials. This process changed rapidly in response to the COVID-19 pandemic. In April 2020, in response to the dearth of information, CERI's community advisory council urged CERI to quickly adapt the e-Library to share trusted and reliable information about the COVID-19 pandemic, as well as relevant community resources. This resulted in a new resource section that included: links to clinical research studies; the most current and reliable epidemiological data on COVID-19 spread; COVID-19 vaccination data; information on COVID-19 prevention; volunteer opportunities to provide food and other essentials to those most severely impacted by the pandemic; and COVID-19 testing and vaccination sites within the county in which Duke is located. The e-Library also listed organizations aiding community members during the pandemic, including housing, food, and employment assistance. The content was organized according to its geographic relevance (national, state, or local), and much of it was available in English and Spanish.

As COVID-19 evolved, CERI sought to once again adapt to the "new normal." During the pandemic, the number of resources available in the e-Library had grown considerably, from about seventy-five to over 170. Though the resources were separated by topic using tabs, they had outgrown the single LibGuide that comprised the e-Library. Additionally, the necessary focus on the COVID-19-related resource page had hindered the maintenance of community engagement and CEnR resources, leading to many proposed resources and other changes waiting to be internally approved by CERI staff. This was also complicated by the speed at which COVID-related information was changing, leading to a huge burden on staff to maintain and include the most up-to-date and accurate information about the pandemic. Although the guide was used—having 3,067 visits in 2020 and 2,873 in 2021—viewership declined month after the summer of 2021. Additionally, many of its resources were no longer the most up-to-date sources for COVID-19 information locally or nationally.

To make the e-Library more accessible and usable, CERI staff and faculty again consulted with a Medical Center librarian about how best to modify the existing content. The librarian recommended that the e-Library be split into a series of related topical LibGuides. The resulting three LibGuides' subjects are: What Is Community Engagement; Community-Engaged Research for Researchers; and Community-Engaged Research for Community Members. All three guides, and any future ones, are linked to a simple directory guide that includes the "Suggest a Resource" form. These guides received a combined 1,323 views from January to October 2022, which is impressive given that most views for the old guide came from the COVID-19 resources page. Therefore, it can be assumed that although the views are lower, more people encounter information about CEnR in the revised guides.

Resources displayed in the original e-Library and new resources were reviewed and, if still relevant and suitable, added to the appropriate guide. COVID-19-related resources were relocated to a preexisting Duke Medical Center Library guide of clinical and com-

FIGURE 2
A Partial Screenshot of CERi's e-Library's COVID Information Page. Resources in Spanish are available further down. During the subsequent redesign, community COVID resources were relocated to a preexisting Duke Medical Center Library guide


Community Guides

About the Guides

CTSI Community Engaged Research Initiative e-Library: COVID-19 Community Resources

COVID-19 Community Resources
CTSI CERi
Intro to CERi
For Community Partners
For Researchers
Funding Opportunities
Books

Videos / Podcasts
Health Equity
Glossary of Terms
Contact Us

Community Resources

To assist our community, health workers and researchers working under challenging conditions while we navigate our way through this time of crisis, we have created a [COVID 19 Resources](#) page. This resource page will bring together content from both our local and national communities as we pilot through our "new normal".

Duke and the Duke CTSI CERi do not necessarily endorse any of the registries, search engines, or the facts presented on these sites. Further, Duke does not endorse any commercial products that may be advertised or represented on these sites. Links are for informational purposes only.

COVID-19 Health and Safety Guidance

Durham

- Durham County Coronavirus Data Hub
- This hub site provides data and resources for Durham County.
- COVID-19 Testing Sites in Durham
- Durham Partnership for Seniors and More Covid Response Resources
- Durham County Department of Public Health COVID-19 Resource Page 1
- Partnership for a Healthy Durham COVID-19 Resources
- DCoDPH COVID-19 Information Graphics and Print Materials 1
- Durham Network of Care
- COVID-19 Resource Spreadsheet - Durham 1
- Durham Food Resources Phone App
- Duke Children's Primary Care COVID-19 Resources for Families
- Duke Community and Regional Affairs COVID-19 Resources
- Duke University Central COVID-19 Page 1
- Together Duke: Giving Back
- A Healthcare and Health Insurance Options - Job Loss (Partnership for a Healthy Durham)
- A Duke Tips to Help Reduce the Spread of COVID-19
- A Duke Guidelines for Healthcare Workers upon Returning Home from Work
- A Duke Keeping Yourself & Your Team Members Safe
- A Duke CTSI CERi Digest of Trusted COVID-19 Resources - Staying Safe, Finding Help, Providing Help 1

North Carolina

- NC Prevent and Protect - Social

Vaccine Information - You Have a Spot / Take Your Shot

How to get vaccinated in Durham County

At this time, vaccines are not publicly available, and you should not arrive at the health department without an appointment scheduled through health department communication with your employer. Vaccines are safe and will be available for free! Getting vaccinated will be critical for stopping the spread of COVID-19, so use this page to learn more, and make a plan to be vaccinated when it's your turn!

How to get vaccinated in Wake County

Vaccine hotline and waitlist details for Wake County

How to get vaccinated in Orange County

Orange County vaccination details

[NCDHHS COVID-19 Vaccine Information Portal](#)

[North Carolina Department of Health and Human Services COVID-19 vaccine information](#)

Participate in Testing, Treatment, Vaccine Research at Duke

Help End or Slow COVID-19: Join a clinical study, trial, or registry. Participate in testing, treatment, vaccine research.



COVIDENTIFY

Our team of doctors and scientists are investigating whether the data from your smartphone and smart watch can help determine whether or not you have a COVID-19 infection, and how severe the infection is expected to get. [Click here](https://covidentify.org/) to learn more about the COVIDENTIFY Study or visit: <https://covidentify.org/>




Research Opportunities through HERO

The Healthcare Worker Exposure Response & Outcomes ([HERO](#)) Registry is a large, national clinical research community. It invites healthcare workers across America to share clinical and life experiences to understand the perspectives and problems they face on the COVID-19 pandemic front lines.

HERO Registry participants could have the opportunity to participate in future research studies to improve our understanding of COVID-19 and beyond, generating evidence to help keep healthcare workers safe and healthy.

COVID-19 Vaccine Rollout

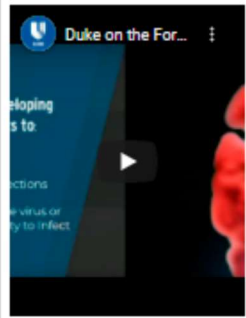
Answering Your Questions About the COVID-19 Vaccine Rollout 1

Addressing Racial Equity in Vaccine Distribution (Kaiser Family Foundation) (KFF)

Volunteer Opportunities & Information

- Volunteer at a COVID-19 vaccine clinic (from WRAL News)
- Hands on Triangle - COVID-19 Volunteer Needs 1
- North Carolina COVID-19 Volunteer Page
- COVID-19: How to Help Triangle Area Causes

DukeHealth



Submit a Resource to the e-Library

Duke

DukeHe

Suggest a Resource for the CERi e-Library


Thank you for suggesting a resource!

This suggestion will be vetted by CERi staff and faculty to determine if it is a good fit for our e-Library. Unfortunately, there is no guarantee that every

munity COVID-19 resources, which is regularly maintained and directly links to reliable sources of up-to-date information (e.g., Centers for Disease Control and Prevention). Once this process was complete, fifty-five unique resources remained in the e-Library, along with helpful charts and diagrams and a glossary of CEnR terms. Although a natural drift of scope and purpose occurred over time, these revisions to the e-Library represent a pivot back to the original guidance that CERI's community partners offered when it was initially developed.

FIGURE 3

A Screenshot of the Directory Homepage for the New CERI e-Library. Each hyperlinked box leads to a topic-focused guide with vetted, fully publicly accessible resources.



Duke University
Medical Center Library & Archives

Community Guides

About the Guides

CTSI CERI e-Library Directory: Home


This guide helps users navigate resources from the Clinical and Translational Science Institute's Community Engaged Research Initiative.

[Home](#) [Suggest a Resource](#)

CTSI Community Engaged Research Initiative (CERI)

The Duke *Clinical and Translational Science Institute* (CTSI) *Community Engaged Research Initiative* (CERI) e-Library leverages existing local, regional, and national resources around community engagement and community-engaged research (CEnR). The following guides equip both community-based organizations (CBOs) and researchers with training, videos, and other capacity-building tools for researchers and community partners to equitably and fully engage in CEnR. Through CEnR, CBOs, and universities can form mutually beneficial, equitable, robust, and collaborative partnerships to change and improve community and population health.


Community Engagement



What is Community Engagement?

This guide focuses on the concept of community engagement, and includes definitions and principles, how-to-guides and other resources, as well as frequently asked questions.


CENR for Researchers



A Researcher's Guide to Community Engaged Research

This guide is meant to be a first stop for researchers who are trying to learn about and implement community engagement in their work, and includes how-to-guides and other resources, as well as key concepts and a useful glossary of terms.

CENR for Community Members



A Community Member's Guide to Community Engaged Research

This guide is an introduction to CEnR for community members and organizations and includes definitions, how-to guides, funding sources, as well as recommended reading and a useful glossary of terms.

Contact Us

For More Information

The CTSI *Community Engaged Research Initiative* (CERI) facilitates equitable, authentic, and robust community-engaged research to improve health. Contact CERI if you are a Duke researcher or community member who wants more information about community engagement, community engaged research, or to [access CERI's services](#), which include: consultation services and community studios; community partnerships and coalitions; and education and training.

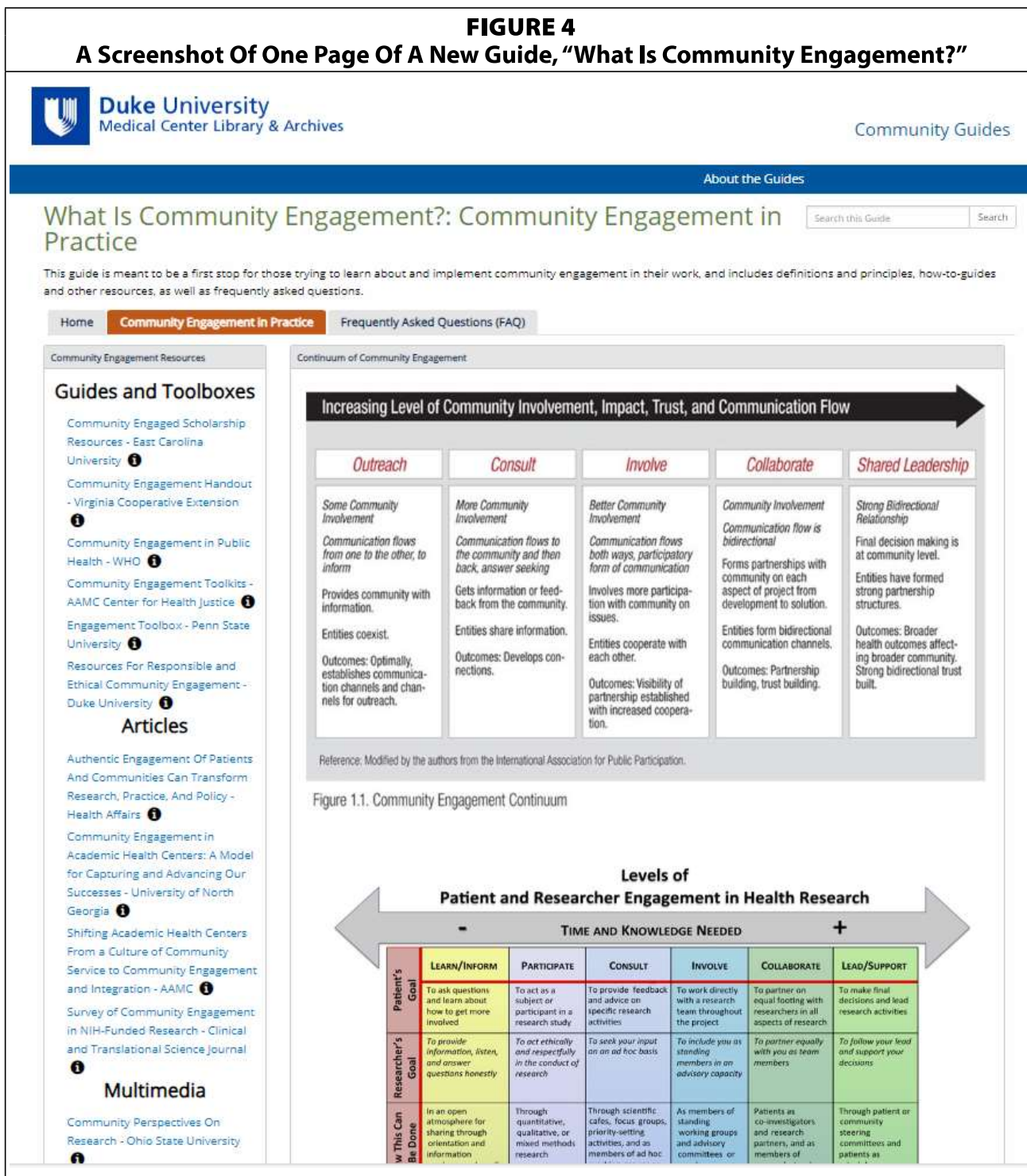
For more information about the resources in these guides, contact Leatrice Martin at leatrice.martin@duke.edu.

Last Updated: Jul 15, 2024 11:23 AM | URL: <https://guides.mclibrary.duke.edu/CENRdirectory> | [Print Page](#) | [Login to LibApps](#)

Subjects: [Researchers](#) Tags: [community engaged research](#)

To ensure that the e-Library remains a user-friendly and accessible resource for all, a new vetting process was implemented in December 2021, as the revised e-Library was launched. This vetting process included a two-stage review of suggested materials conducted by CERI staff and faculty, as well as the development of guidelines for the inclusion of new materials. Existing materials are now reviewed quarterly by CERI staff and yearly by library staff. All current and future materials must be:

- Different from previously posted content



- Directly related to the topic of the guide
- Free and publicly accessible without institutional access
- Layperson-friendly
- Housed on a stable, trustworthy website
- Ideally five or fewer years old
- Credited appropriately in the hyperlinked resource title

These criteria will help ensure that CERI's e-Library stays true to its mission of providing trusted resources about community engagement and community-engaged research, while emphasizing equity and ensuring public access for both academic and community partners nationwide.

Discussion

Lessons Learned

The e-Library's success depends, in many ways, on the software used to develop and maintain it. The LibGuides platform helps the e-Library accomplish its goals by:

- Increasing access to resources for internal and external users
- Having a simple and straightforward layout, so that the software is easy for staff to learn and content can be regularly updated
- Allowing content and templates to be reused in multiple tabs or guides
- Including the capacity to embed video clips, gallery boxes, book covers, diagrams, or other media to make content stand out
- Having the ability to obtain real-time insight into system usage, including hits on guides and individual assets
- Being supported by institutional technical support and guidance

Additionally, the LibGuides platform augments CERI's ability to be responsive to stakeholder and community requests and concerns, and to broaden the impact of these resources regionally and nationally. Without the existence of the e-Library and the quick changes made possible by the LibGuides format, CERI could not have responded as efficiently to stakeholder needs during the pandemic. Moreover, the inclusion of resources developed by other institutions' Clinical and Translational Science Awards Centers and community-based organizations breaks down the silos between academia and community and among institutions.

Implications for the Field

Through compiling and publicizing the important work being done in community engagement and CEnR across the country, CERI endeavors to lift up the voices of those at the forefront of community engagement implementation and innovation. This has implications for other academic institutions that may want to implement an e-Library to bolster their community engagement efforts. Primarily, developing this resource would mean:

- Identifying stakeholders: Does the academic library have a research team, department, or center at the institution that is interested in or conducting CEnR? Is there a relationship, or could there be, among community members and organizations and the institution's research infrastructure? How can the potential audience be consulted while creating and maintaining the e-Library?
- Identifying resource aims: What are the goals of the e-Library (for example, informing, disseminating, making connections among stakeholders)?

- Identifying institutional capacity: Are there other resources on campus that could augment a CenR e-Library (for example, a funding program, a community advisory board)? If so, can collaboration among these parties be established?

Libraries establishing a CEnR-related resource should also consider how the traditional values and norms of academic librarianship would be implicated in its creation. For example: Academic centers and libraries collaborating directly to create resources – Traditionally, LibGuides are primarily used in academic libraries as course or subject guides and aimed at students and other institutional members. These guides are usually created and maintained by librarians, who are responsible for managing their content. However, CERI's e-Library is an example of a resource created collaboratively between an academic center and a Duke library. Maintained by CERI staff, it does not create additional burden for librarians, while also sharing institutional resources interdepartmentally to create a wider variety of content for an expanded user base.

- Expanding the definition of a library "user" – Academic libraries are, understandably, most focused on serving the students, faculty, staff, and visitors of their institutions. However, as many universities expand their definition of "community" to include the geographic communities in which they are located, libraries get the opportunity to do the same. This allows them to adapt and expand their resources for new users in the broader community, rather than solely focusing on members of the institution.
- Emphasizing free and equitable access to information – Libraries are, at their core, devoted to access to information. However, this information, particularly in academic spaces, is often inaccessible to those without Duke affiliations. Although institutions must be mindful of their capacity to provide expensive resources to non-institutional community members, they can still act as information brokers through e-libraries and other tools. Librarians and academicians can work together to present freely accessible, evidence-based information to users who may not have formal research training and experience. In this way, academic libraries can help further the democratization of information to a wider audience—those who do not have the privilege of being a member of an academic institution.

Limitations

As with any software, LibGuides has limitations that can impact their usability,²¹ especially for a resource as large as CERI's e-Library. Additionally, LibGuides' ease of use can tempt creators into creating more resources than they can realistically maintain, negatively impacting their effectiveness.²² Some such limitations include:

- A simple, relatively inflexible layout that has limited capacity for visual appeal
- The risk of the e-Library becoming a "dumping ground" if resources are not consistently evaluated, updated, and/or culled
- Accessibility concerns, e.g., lack of hyperlink underlining, color contrast, and other tools used by those with visual impairments and other disabilities.²³ These must be resolved either with customized code on the part of the host institution, or by Springshare as a back-end solution.²⁴

CERI will address these limitations through continuing to interface with our academic and community stakeholders to improve the e-Library's visual elements and content. In addition, the implementation of the new resource vetting policy and review schedule will ensure

that the e-Library's content remains publicly accessible, relevant, and easy to navigate for all users. At this time, LibGuide accessibility concerns are in the hands of the Duke Medical Center Library and are not controlled directly by CERI.

Implications for Future Research

Although outreach and engagement are primary missions of libraries and librarians, there is a lack of knowledge regarding how and when academic researcher teams and librarians collaborate to mediate and facilitate community engaged research. More research is needed on how academic libraries can work with other institutional centers, as well as on how departments can not only collaboratively create resources, but also directly facilitate CEnR and other community engagement strategies.

E-libraries, including ones built using LibGuides, are promising but underutilized tools in the community engagement literature, representing an opportunity to prioritize user-friendliness and information accessibility. Such resources could bridge gaps in knowledge between community members and academic partners through a transparent interface, if community members are able to substantively involve themselves in their creation. More research is needed on the effectiveness of e-libraries for community-oriented projects, and how they can best be adapted for community use.

Conclusion

As CERI continues to adapt and respond to the continued need for credible public health research information and increase community engagement—particularly in historically marginalized communities—the e-Library will continue to be a vital first stop for those interested in learning about CEnR. E-libraries and LibGuides both thrive when they are cared for; like relationship between communities and researchers, they need collaboration, coordination, and consistent upkeep in order to remain useful.²⁵ CERI's e-Library is able to adapt with the times—evolving from a simple spreadsheet, to a trusted way to get local information about the pandemic, to a series of topical guides with the potential to expand to other CERIs across the Duke's Clinical and Translational Science Awards Center.

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