

Abstract

The Medical Library Association (MLA) seeks funding from the Laura Bush 21st Century Librarians Continuing Education Program (\$244,697) to create immersive learning opportunities and a support system for health librarians to acquire research skills and increase the quantity and quality of the research output produced by health sciences librarians.

Health sciences librarians benefit from using, creating, and applying research-based evidence in library practice and in supporting quality health care. Despite the benefits of research for health sciences libraries, too few health sciences librarians conduct high quality research linked to practice and disseminate the results of their research. Health sciences librarians face numerous obstacles to conducting research. The Institute will fill these knowledge and support gaps and address the issues and challenges facing health sciences librarians who are motivated and enthusiastic about conducting research that affects their practice decisions, but who require training and support to achieve the capacity necessary to do so.

This project is geared to practicing health sciences librarians who provide *health* information, support and services to healthcare providers/practitioners, researchers, educators, students, patients, and consumers. We believe that the Institute will draw a large and diverse number of applicants. Our institute builds on several successful programs but is different from them and focuses on the professional competencies needed by health sciences librarians.

The Institute will offer a combination of instruction in research design, individual mentoring, a full year of post-Institute support for participants to complete research projects, membership in an ongoing research community of practice, and scholarship support. IMLS funding support will enable MLA to test and refine the Institute model at a reduced cost for participants and provide the capacity to develop an infrastructure that MLA will sustain after the grant period ends. IMLS funding will also allow MLA to develop a plan to offer online research education options, extending the Institute training model to the wider librarianship community.

The Institute's assessment team will collect and assess extensive evidence of effectiveness of all aspects of the Institute model. Partnerships were developed to strengthen the Institute program. Program information will be communicated throughout the country. Institute graduates will be encouraged to publish their research results. Institute assessments, materials, and tools will be shared over the Internet, at conferences, and archived in PubMed Central. Four scholarships funded by IMLS will support health sciences librarians working in small libraries.

The Institute will leverage MLA's existing educational services, web and communication tools, scholarship programs, annual conference services, and strong organizational alliances to maximize long-term impact and sustainability.

The Institute will serve as a research anchor to the health sciences librarian community nationwide. The Institute will help health sciences librarians become more effective health information providers to health care providers, patients, and consumers throughout the country. This project will strengthen the knowledge base of health sciences librarianship, fill research gaps, and build upon previously conducted research to advance evidence-based practice in health sciences librarianship. The Institute will serve as a cornerstone in helping health sciences librarians change from informed consumers of research to producers of quality research.

Research Training Institute for Health Sciences Librarians: Building Research Capacity and Community Engagement in Health Librarianship

The Medical Library Association (MLA) seeks funding from the Laura Bush 21st Century Librarians Continuing Education Program (\$244,697) to create immersive learning opportunities and a support system for health sciences librarians to acquire research skills and increase the quantity and quality of the research output produced by health sciences librarians. The Institute will offer a combination of instruction in research design, individual mentoring, a full year of post-Institute support for participants to complete research projects, membership in an ongoing research community of practice, and scholarship support. IMLS funding support will enable MLA to test and refine the Institute model at a reduced cost for participants and provide the capacity to develop an infrastructure that MLA will sustain after the grant period ends. It will also allow MLA to develop a plan to offer online research education options, extending the Institute training model to the wider librarianship community. The Institute will leverage MLA's existing educational services, web and communication tools, scholarship programs, annual conference services, and strong organizational alliances to maximize long-term impact and sustainability.

1. Statement of Need

1.1 Benefits of research in health science librarianship

Health sciences librarians benefit from using, creating, and applying research-based evidence in library practice and in supporting quality health care. Health sciences librarians have played a key role in initiating, nurturing, and spreading evidence-based practice (EBP) in the health professions (Marshall, 2014), and health sciences librarian research has shown a link between the role of health sciences librarians in EBP processes and improved health outcomes (Sollenberger, 2013; Marshall, 2014).

Inspired by EBP developments in the health professions and MLA's heightened focus on advancing research in the profession dating back to the late 1980s, including MLA's highly influential research policy statements (Dalrymple, 1995; Grefsheim, 2008) and educational policy that emphasizes research competencies (Medical Library Association, 2007), there has been a marked increase in attention to evidence-based practice in health sciences librarianship (Funk, 2013) and in the number of published research studies produced by health sciences librarians over the last twenty years (Plutchak, 2005; Gore, 2009). In a recent survey of the research-related activities and attitudes of health sciences librarians, both academic and hospital librarians ranked demonstration of the value of libraries and provision of guidance as primary motivating factors for conducting research, and almost two-thirds of those who were able to engage in research reported that their research had resulted in improving or initiating new health library services (Lessick, 2016).

1.2. Need to strengthen the research base in health sciences librarianship

Despite the benefits of research for health sciences libraries and the increase in research activities by health sciences librarians, too few health sciences librarians conduct high quality research linked to practice and disseminate the results of their research. Journal editors and scholars have noted various issues with published health sciences librarian research, which severely limit the development of a research base in health sciences librarianship: dearth of research and evidence in many vital areas of library practice (Plutchak, 2005; Koufogiannakis, 2006); quantity and quality of research varies for different subject areas (Plutchak, 2005; Koufogiannakis, 2006); quality of surveys are uneven, e.g., surveys frequently relate exclusively to local problems, have sample bias, and use ambiguous survey questions (Starr, 2012); level of complexity of research is insufficient (Koufogiannakis, 2006; Cooper 2016); over-emphasis on applied studies and descriptive techniques (Gore, 2009); and pervasive lack of replicating studies and verification of existing research results

(Plutchak, 2005; Koufogiannakis, 2006). Strengthening the body of knowledge in health sciences librarianship with additional quality research that is directly relevant to the decision-making needs of practitioners and builds upon previous foundations is essential in moving the health sciences library profession forward.

1.3. Obstacles to Conducting Research

Health sciences librarians face numerous obstacles to conducting research. Barriers to academic librarian research have been widely reported in the library and information sciences (LIS) literature, including lack of time to complete a research project, unfamiliarity with the research process, lack of support for research (both social and monetary), lack of confidence, discouraging jargon, inadequate education in research methods, lack of motivation, and uneven training in research design at the Master's level (Kennedy, 2012). Health sciences librarians struggle with many of the same barriers, but most often cite lack of time allotted to research at work, training, and institutional support, with hospital librarians consistently reporting the greatest difficulties conducting research (Lessick, 2016). Top-ranked research learning needs identified by health sciences librarians include knowledge of and ability to use common statistical techniques, ability to obtain funding and resources for research projects, ability to understand and assess validity of statistical research results, and ability to select appropriate methodologies for a given research question (Lessick, 2016). Large majorities of both academic and hospital health sciences librarians report they would welcome opportunities to do research with other experienced researchers and participate in extra training to acquire research skills (Lessick, 2016).

Health sciences librarians have few research-related continuing education opportunities and limited support and resources to assist them in gaining skills to conduct and disseminate research in health information science. Our intent is for the Institute to fill these knowledge and support gaps by providing intensive training in research methods, opportunities to work with experienced researchers, personalized assistance, encouragement, peer support, and resources to librarians unfamiliar with and hesitant about the research process. The proposed Institute seeks to address the issues and challenges facing health sciences librarians who are motivated and enthusiastic about conducting research that affects their practice decisions, but who require training and support to achieve the capacity necessary to do so. It provides a comprehensive solution for overcoming these obstacles by offering the integration of research learning, combining the elements of instruction, mentorship, ongoing support to complete projects and disseminate research results, modest financial support, and the opportunity to become part of a research community of practice.

1.4. Intended Audience

This project is geared to practicing health sciences librarians who provide *health* information, support and services to healthcare providers/practitioners, researchers, educators, students, patients, and consumers. The target audience is, specifically, health sciences librarians with novice and intermediate skill levels who work in a wide variety of work settings, including health sciences professional schools, universities, community colleges, hospitals, academic health centers and clinics, consumer health libraries, public libraries, research centers, biotechnology centers, pharmaceutical companies, and federal, state, and local government agencies.

We believe that the Institute will draw a large and diverse number of applicants. Research shows that there is a heightened interest in research by health sciences librarians (Funk, 2013). Large majorities of both academic and hospital librarians reported in a recent survey that they would appreciate the opportunities to work with experienced researchers and take additional research classes (Lessick, 2016). MLA webinars on research topics were the most popular webinars in 2015 and 2016 (e.g., number of participants: complex reviews, 151+; systematic reviews, 297+; R statistical programming language, 150+; beginning statistics, 223+; qualitative research, 98+; quality initiative research, 200+). The project has already received very positive feedback from a number of librarians who are aware of the initiative from word of mouth.

1.5. Related Research and Similar Projects

The planning team for this proposal did a scan of models of librarian-related training programs. Several models of training institutes were found that offer similar intensive educational workshops, including the ACRL Information Literacy Immersion Program (<http://www.ala.org/acrl/immersion>), the Research Institute for Public Libraries (RIPL) (<https://ripl.lrs.org>), the Canadian Association of Research Libraries (CARL) Librarians' Research Institute (<http://www.carl-abrc.ca/strengthening-capacity/workshops-and-training/librarians-research-institute/>), and the Institute for Research Design in Librarianship (IRDL) (<http://irdlonline.org>). Our institute draws and builds on several of these successful programs; one member of our project planning team was a member of the initial IRDL Advisory Board and two members were "Peer Mentors" in the CARL program. The difference between our program and the others is that our training program specifically focuses on the professional competencies needed by health sciences librarians, the unique domains of knowledge and complex health information landscape of health sciences librarians, and projects that address important health information research questions that will strengthen the evidence base of health information research. Our program will be of greater relevance to the health sciences institutions and communities served by health sciences librarians.

For the purpose of this project, we are defining health information research broadly to include research that underpins the health information sciences knowledge base and informs best practices in health sciences librarianship. The curriculum will be geared to building health sciences librarians' research competencies and increasing their output of quality health information research. Research topics of importance to health sciences librarianship have been articulated in MLA's research agenda (Eldredge, 2012). Example topics of research projects of importance to health sciences librarians include: impact of information skills training on patient care quality; evaluating clinical librarian services; mapping the literatures of the health professions; impact of low health literacy on patient safety; and evaluating the value and impact of library and information services on patient care.

The Institute will not duplicate any existing training programs, including the training programs of the National Library of Medicine (NLM). Please see the attached supporting letter from the NLM.

2. Project Design

2.1. Project Goals

The goals of the Institute are to develop the research competencies of health sciences librarians and to increase the quantity, quality, and communication of health sciences librarian research. To achieve this we have established the following program elements, performance goals, and outcomes:

1. Plan and offer two five-day Institutes over the three-year grant period. The Institutes will take place in July at University of Illinois-Chicago (UIC) in 2018 and 2019.
2. Increase research skills and knowledge of health sciences librarians (two cohorts of 20 participants each for duration of grant).
3. Increase the research output of health sciences librarians, ensuring that participants show substantial progress in completing research projects within 12 months (potentially adding 40 new research studies to the health information research knowledge base).
4. Increase the overall number of high quality health information research studies.
5. Build research capacity and a strong community of health sciences librarian researchers by building and sustaining a vibrant ongoing support network that maximizes participants' learning, productivity, and collaboration.

6. Assess the effectiveness of all aspects of the Institute (overall program, learning outcomes, research outputs, quality of research produced using new quality of research rubrics we will develop, online research community of practice, and community impacts).
7. Offer four scholarships to health sciences librarians working in small libraries and four scholarships to assist other health sciences librarians to obtain Institute training.
8. Communicate Institute research, curriculum, tools, and outcomes to a broad range of audiences.
9. Develop a plan to offer online research education options, extending Institute training, outreach and penetration to the wider health sciences librarianship community.

2.2. Schedule

Listed below are key milestones during the grant period. Please see the attached Schedule of Completion.

Year 1 (7/2017-6/2018): Develop plans, curriculum, and assessments; promote the Institute; offer scholarships for 1st Institute; establish an online research community of practice.

Year 2 (7/2018-6/2019): Offer 1st Institute at UIC (July 2018) and online community of practice where model, curriculum, and support system will be tested and assessed; promote the Institute; offer scholarships for 2nd Institute; amend model, curriculum, and support system as needed for 2nd Institute.

Year 3 (7/2019-6/2020): Offer 2nd Institute at UIC (July 2019) and online community of practice with modifications; assess/measure project outcomes and impacts; develop plan for integrating online modules.

2.3. Project Activities

The following work plan was developed by a Research Training Institute planning team of the MLA Research Imperative Task Force, composed of experts in the area of health sciences librarian research instruction, as part of MLA's strategic initiative to advance research and evidence-based practices in health sciences libraries (Medical Library Association, 2016). The proposed training model consists of pre-Institute learning activities, an intensive on-site training event, a year of focused post-Institute support, and participants' ongoing engagement in a research community of practice.

Instruction: The faculty will consist of a team of five instructors/mentors who work in the area of health information research. Instructors for the 1st Institute have been carefully selected based on their research expertise and teaching abilities. In subsequent years instructors will be identified through an annual "Call for New Instructors" and graduates of the Institute will also be given opportunities to serve as future peer mentors and instructors at the Institute. Two primary instructors, specializing in teaching research methods and evidence-based librarianship will lead the Institute training for all five days of instruction, providing didactic lectures and facilitating active learning activities and group discussions. Three additional instructors with expertise in specialized research areas (survey design, data analysis and presentation, and complex reviews) will provide teaching support for three of the five days.

The five-member teaching staff will provide effective small group sessions and individualized consultations, so each participant can receive focused and individualized coaching in refining their research project (please see attached supporting document for List of Key Project Staff). A first curriculum draft was drawn up by the planning team based on project goals, MLA's research competencies standards, and existing curricula from similar training programs (please see attached supporting document for Course and Curriculum Details (Draft)). Institute training is designed to build participants' research competencies, increase the quantity and quality of participants' research output, and guide and mentor participants' in taking a single health information research project from conceptualization to completion and dissemination. This draft will be discussed, revised, and

completed collaboratively by the leadership team and instructors and will be piloted for the 1st Institute. Subsequent revisions will be informed by assessment results and student experience.

Mentoring: A key component of Institute training is individual mentoring of students. Each instructor will be matched with four-five participants to provide individual mentoring throughout the Institute process. During the Institute, designated time will be set-aside for each participant to consult with an instructor/mentor about their specific research project to get feedback, guidance, and encouragement. Instructors/mentors will also follow-up with their mentees after the Institute on a regular, required basis to provide support as mentees conduct their research projects and prepare their reports for dissemination.

Application process: A standing jury for the Research Training Institute will be established and appointed to review, rank, and select applicants. The application process will consist of an annual Call for Proposals with applicants submitting an application form, CV, a project proposal, and a support letter from their supervisor. The application process, supporting documentation, and evaluative criteria will be developed by the project leadership team. We will solicit applicants via MLA, MLA/Chapter, NIH/NLM, AAHSL, SLA, ACRL and other email forums to attract health sciences librarians with a wide range of backgrounds and experience.

Scholarships: IMLS support will fund two all-inclusive scholarships (tuition, room and board, and travel) per Institute to increase accessibility to Institute training for library professionals working in small libraries with limited budgets. IMLS support will also provide at least two more scholarships or partial scholarships per Institute to other health sciences librarians who need financial assistance to attend the Institute. To augment the grant funding we will encourage MLA Sections (MLA/Hospital Libraries Section (HLS), MLA/Research Section (RS), MLA/Consumer and Patient Health Information (CAPHIS), MLA/Health Association and Corporate Libraries (HALS), and MLA/Nursing and Allied Health Resources Section (NAHRS)) to offer at least one scholarship to their members to attend the Institute. Institute applicants can also apply for other existing MLA scholarship opportunities, such as the MLA Continuing Education Grant (<http://www.mlanet.org/p/cm/ld/fid=298>) and HLS/MLA Professional Development Grant (<http://www.mlanet.org/p/cm/ld/fid=300>), as well as the professional development grants offered by many MLA/Chapters. These grants range from \$65-\$500. Professional development awards up to \$1500 are also available from several Regional Medical Libraries (PNR, MCR, and GMR), which could be applied to support expenses for the Institute. Many state libraries also offer grant funding to support the professional development of health sciences librarians. All of the available scholarship opportunities will be highlighted on the new Research Training Institute website and communicated to potential applicants in sufficient time to apply for this funding.

Venue: The summer Institute will be held at the Library of the Health Sciences, University of Illinois at Chicago (UIC), which is a public research university located in the central United States, providing ease of access by US health sciences librarians. UIC has agreed to host the Institute, providing facilities, audiovisual, and Internet services at no cost (please see attached support letter from UIC). This venue also provides reasonably priced summer food service and lodging on the UIC campus for participants (e.g., approximate rates for summer housing range from \$52-\$63 per night, depending on the room type). MLA Headquarters is conveniently located near UIC. Please see the attached supporting letter from UIC.

Fees: Participants will pay a registration fee of \$1000. Registration fees will be applied back to the Institute program. Registration fees are needed to offset some of the costs of the Institute during the grant period and will be the primary source of funding for the Institute after the grant period ends. Establishing a registration fee during the grant creates the expectation of paying a fee when the Institute becomes self-supporting after the grant is concluded. The fee level is consistent with, and somewhat lower than, fees of other similar multi-day workshops for librarians.

MLA infrastructure support: IMLS funding support will enable MLA to test and refine the Institute training model at a reduced cost for participants and will increase MLA's capacity to develop an infrastructure for the Institute that MLA will sustain after the grant period ends. The Institute will leverage MLA's existing educational services and new Learning Management System (LMS) (MEDLIB-ED, draft site: [//mla.staging.learnercommunity.com](http://mla.staging.learnercommunity.com)) to enhance and support Institute classroom training. MEDLIB-ED will offer access to course materials, manage student assessments, and automate record-keeping and registration tracking. MLA's association management systems, MLANET (mlanet.org) will facilitate communication between students and instructors and help students engage with each other. It will also provide the platform for a growing ongoing research community of practice for health sciences librarians that maximizes their learning, productivity, and collaboration. The leadership team and instructors will facilitate a designated Research Training Institute session annually at the MLA national conference for participants to present their research findings. This will allow participants to practice presentation skills, receive feedback from colleagues that will be helpful as they write up their findings, and establish contacts with researchers with similar interests. It will serve to recruit participant for ensuing institutes.

Online learning: In the third year of the grant, Institute project staff will create a plan to identify the Institute curriculum components that can be converted to an online format. Staff will examine the curriculum, identify components that will work as independent, self-standing synchronous and asynchronous modules, and plan to create modules according to current instructional design principles. These online offerings will extend the Institute training model to a wider health sciences librarian community.

2.4. Evaluation Plan

The Institute's assessment team will collect and assess extensive evidence of effectiveness of all aspects of the Institute model. The team is comprised of the Project Director, MLA Director of Education, and Dr. Carol Perryman, who will collect and analyze evidence on all aspects of the project, including student learning outcomes, student research output, teaching and mentoring effectiveness, and the overall effectiveness of the program. Evaluation of the project will be ongoing and include formative and summative evaluations. Specific evaluation plans will be formulated by the assessment team in Year 1 of the project. These plans will address the following:

Assessment of student learning outcomes:

- Pre-Institute data provided by participants will identify initial levels of competence, which will be used as a comparative baseline for measures of improvement.
- Instructors will create appropriate and measurable learning outcomes that align with the newly revised MLA research competency standards and overall Institute objectives. These will be the basis of the post-Institute assessment of participant research competencies following each Institute.
- Informal formative evaluation will be used during instructional sessions to gauge participants' level of understanding and enable instructors to adjust instructional strategies accordingly. Methods may include observation, questioning, and peer- and self- review processes.
- Evaluation information will aid in the identification of best practices, content, pacing, and support and allow Institute planners to set goals for improvement between annual Institutes.

Assessment of research project completion and quality, and subsequent research engagement of participants:

- For each student, research activities will be documented for one year following the Institute training; data will be gathered from participants regarding the progress of their research projects via a quarterly online questionnaire.
- Quality of research will be assessed using rubrics that we will develop and test to measure the quality of research conducted by Institute graduates.
- Other types of evidence of student research activities will be collected via ongoing self-reports from participants and an annual survey, such as the dissemination of research results through presentations and papers, participation in research collaborations, participation in research education activities, and impact or value of research training to students' home institutions.

Assessment of teaching and mentoring effectiveness:

- Participant feedback will be gathered and assessed to evaluate teaching effectiveness, instructional content, and mentoring support after each Institute workshop.
- Instructors will meet at the conclusion of the 1st Institute to discuss and assess their instructional practices, student outcomes, and lessons learned.
- Participant and instructor feedback will be used to amend and improve the 2nd Institute.

Assessment of overall program effectiveness:

- At the end of Year 2, we will collect evaluative data on key aspects of the program, including the application and scholarship processes, mentoring support, the MEDLIB-ED platform, and community of practice. Results will inform planning and improvements in Year 3.
- Because our project aligns with the IMLS Agency-level goal of *Learning*, we will gather data and report on the specific measurable outcomes outlined in the performance measure statements for this IMLS Agency-level goal.

We will conduct a summative evaluation at the end of Year 3 focused on the overall success of the project. Our evaluation processes and results will provide accountability to funding agencies and stakeholders. Results will be shared to inform other programs similar to our model. Our assessment tools and reports will be posted on the project website and archived in the NIH/NLM institutional repository, PubMed Central (<https://www.ncbi.nlm.nih.gov/pmc/>).

2.5. Partners

A partnership was developed with the UIC Library of the Health Sciences, which has agreed to host the Institute at the Library at no charge, because the goals of the Institute fit well with its own organizational goals and initiatives (please see attached letter of support from UIC). The Association of Academic Health Sciences Libraries (AAHSL), a long-established MLA partner, has agreed to provide support and \$10,000 toward scholarships for librarian participants from AAHSL member libraries (please see attached letter of support from AAHSL). We also reached out to the Library Research Service at the Colorado State Library, sponsor of the RIPL program, and we agreed to work together to strengthen both programs by sharing information, lessons learned, and project materials (please see attached letter of support from LRS/RIPL). We will also leverage our existing connections to allied organizations via our allied representatives to these organizations, such as ACRL/Health Sciences Interest Group and Special Library Association (SLA)/Biomedical and Life Sciences Division, to promote our program and share Institute activities, materials, and outcomes. The Institute staff will

continue to explore new opportunities for collaboration with other professional associations, universities, library schools, industries, and government agencies as the project progresses.

2.6 Communications Plan

The Institute leadership team will promote Institute activities throughout the country to attract health sciences librarians and other librarians who provide information on health and medical topics, such as community college librarians serving associated health professions. We will share information on the national health sciences library electronic discussion list, MEDLIB-L, MLA social media, NN/LM social media, AAHSL Directors listserv, and with SLA Connect (SLA-DBIO and Medical Section Communities), ASCLA Consumer Health Information Librarians Interest Group, ACRL Health Sciences Interest Group, and library schools; submit press releases to library journal, news, and social media outlets; and will leverage our partner organizations to promote these events. We will create an Institute website as its primary communication vehicle for posting Institute, course, application, and scholarship information.

We will encourage Institute graduates to reflect and discuss their research experience and results with one another in the online research community of practice on MLANET.ORG and through other social media outlets. They will also be encouraged to return to their home institutions and communities to share their knowledge and enthusiasm about research and assist other peers and colleagues with the research process. The Project Director and instructors will facilitate a designated Research Training Institute session annually at the MLA national conference for participants to present their research findings (<http://www.mlanet.org/p/cm/ld/fid=996>). These conference activities will publicize the Institute and build an audience for future Institutes. Institute graduates will also be encouraged to publish their research, as indicated in our curriculum objectives. The Project Director and instructors will share Institute activities, experiences, and outcomes with the wider library community through a presentation at an American Library Association (ALA) annual conference.

The Institute assessment team will analyze the assessment data and publish the project results in the library literature. Institute successes and lessons learned, curriculum processes and products, and assessment tools and reports will be shared to inform other continuing education programs in the library field. This information will be posted on the Institute website and archived in the NIH/NLM institutional repository, PubMed Central (<https://www.ncbi.nlm.nih.gov/pmc/>).

2.7 Sustainability

MLA is committed to continuing to offer training and support for health information research after the grant period ends. Institute planning will address issues of sustainability through the following components:

- Creating a culture of research, improving the evidence base of health information research, and building the research skills of health sciences librarians are central to MLA's core values, mission and strategic goals (mlanet.org/p/cm/ld/fid=21). The Medical Library Association (MLA) has long recognized the importance and benefits of research in health sciences information practice through a wide variety of initiatives (Marshall, 2014). MLA's current research initiative involves the appointment of the Research Imperative Task Force (RITF) in 2015 to develop an action plan to support and advance health information research and evidence-based practice. Central to its work was the development of a plan to establish a Research Training Institute for Health Sciences Librarians, which was unanimously endorsed by MLA Board of Directors in May 2016; this plan formed the basis of this proposal.
- During the grant period, the leadership team will explore several business models to continue the Institute and its attendant support activities on a cost-recovery basis once grant funding has ended.

- Grant funding in the third year supports the development of a plan to create online modules from the face-to-face curriculum to integrate online modules with a shorter face-to-face component, which will expand our reach to more health sciences librarians.
- MLA will continue to maintain the research community of practice on MLANET where health sciences librarians can seek and obtain research guidance from experts and share experience and knowledge with others.
- Core materials created with grant funding will be made freely available on MLANET. These materials include: reports, curriculum guides, our evaluation plan and materials, including the quality of research rubrics.
- All projects or links to published projects will be available on MLANET.

The IMLS grant funds will provide the capacity for MLA to develop an infrastructure to sustain the Institute after the grant period ends. MLA's existing educational services, web and communication tools, scholarship programs, annual conference services, and strong organizational alliances will maximize the long-term impact and sustainability of the Institute program. We believe that an effective and successful Research Training Institute with reasonable costs will continue to be attractive to participants and their institutions after the grant ends.

3. Diversity Plan

The project will reach health sciences librarians working in a wide range of organizations throughout the country. Our intent is to have each cohort reflect the diversity seen in health sciences libraries, such as geographic distribution, ethnicity, age, work experience, and type and size of library.

Four all-inclusive scholarships funded by IMLS (two per Institute) will support health sciences librarians working in small libraries (libraries with fewer than four paid staff), in small hospitals (hospitals with 100 beds or fewer), or in one-person libraries. Increasing the research engagement of this group of health sciences librarians, which includes many hospital librarians, is a critical professional issue. A recent study shows that hospital librarians are significantly less likely than those in academic settings to have designed and conducted research, written research grants, presented research findings, or authored research publications (Lessick, 2016). Health sciences librarians from small libraries face challenging budget circumstances and need additional support and resources to obtain leave for training and funding to attend training in research and work on research projects. We believe our training program and community of practice will help them build lifelong relationships with other colleagues with similar research interests. Networking with other colleagues is especially challenging for these isolated librarians. Acquiring new research skills also has the potential to increase their confidence and awareness of how they can partner with clinicians, educators, and researchers in their institutions, and their visibility in their institutions.

We will also work with several MLA Sections and Chapters, the National Network of Libraries of Medicine (NN/LM), and the Regional Medical Library (RML) network to promote the Institute to their members and develop strategies to reach these disadvantaged health sciences librarians.

4. National Impact

4.1. Impact on Skills in the Library Workforce

The Institute will serve as a research anchor to the health sciences librarian community nationwide in continuing to ensure that increasing numbers of health sciences librarians across the country have the research skills required to do their work in the 21st century. Research competencies are key competencies that are needed

for all health sciences librarians throughout their careers (Medical Library Association, 2007). The Institute will provide the training program, support, and a community of practice to meet these life-long learning needs. The Research Training Institute for Health Sciences Librarians proposal is a multifaceted training plan for health sciences librarians to achieve success and operate at a high professional level in any health care, academic health center, or biomedical research environment.

4.2. Benefits to Multiple Institutions

Creating quality health information research that is widely accessible and being able to apply evidence to daily practice are key to improving the quality of health sciences library services in this country. Institute training and support and a community of practice will equip health sciences librarians with a mastery of research skills to effectively assess end-user needs for health information and enhance library services to meet those needs in their home institutions and communities. The Institute will help health sciences librarians become more effective health information providers to health care providers, patients, and consumers throughout the country.

Health sciences librarians with proficiency in the area of research and evidence based practice and access to an expanded evidence base of quality health information research will benefit the wide array of health, research, and educational institutions health sciences librarians serve. The Institute will enable health sciences librarians to better assist their users with their research and bolster their role among their user communities, providing new opportunities and status to become full members of the health care team, research/evidence educators, and collaborators with other researchers on multidisciplinary teams to improve health outcomes.

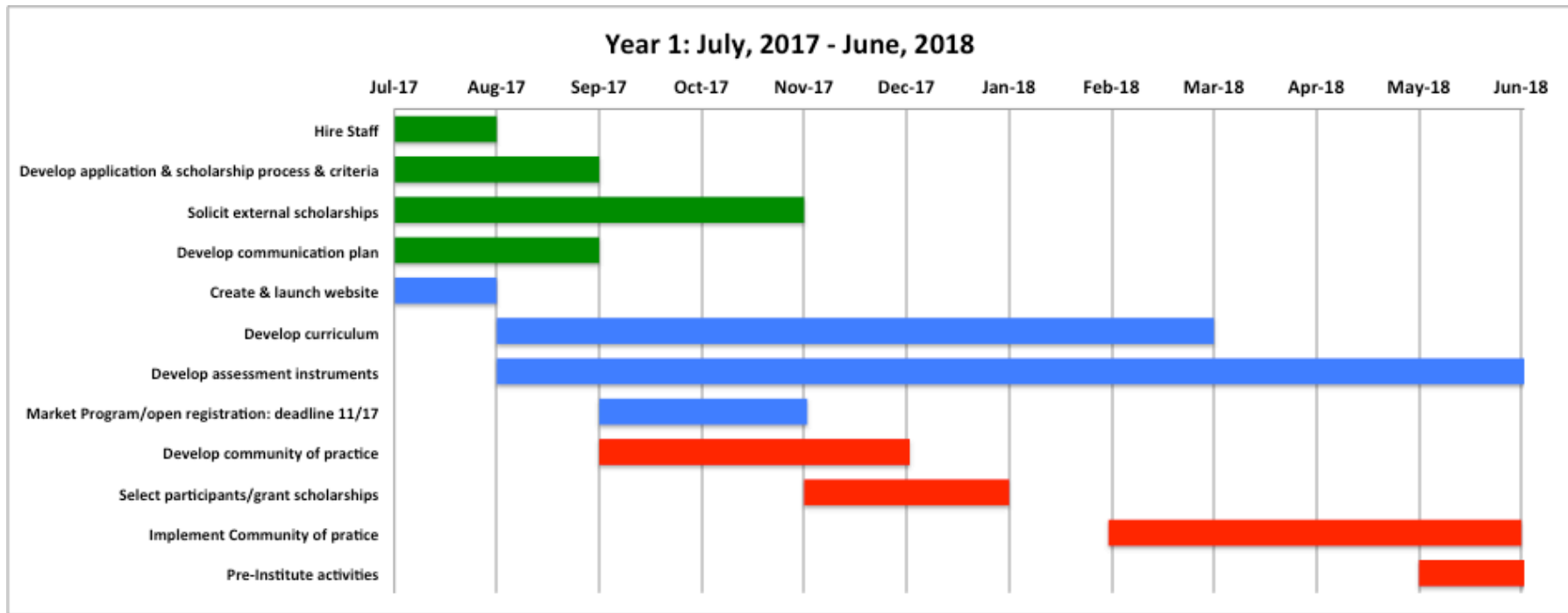
4.3. Benefits to Field of Health Science Librarianship

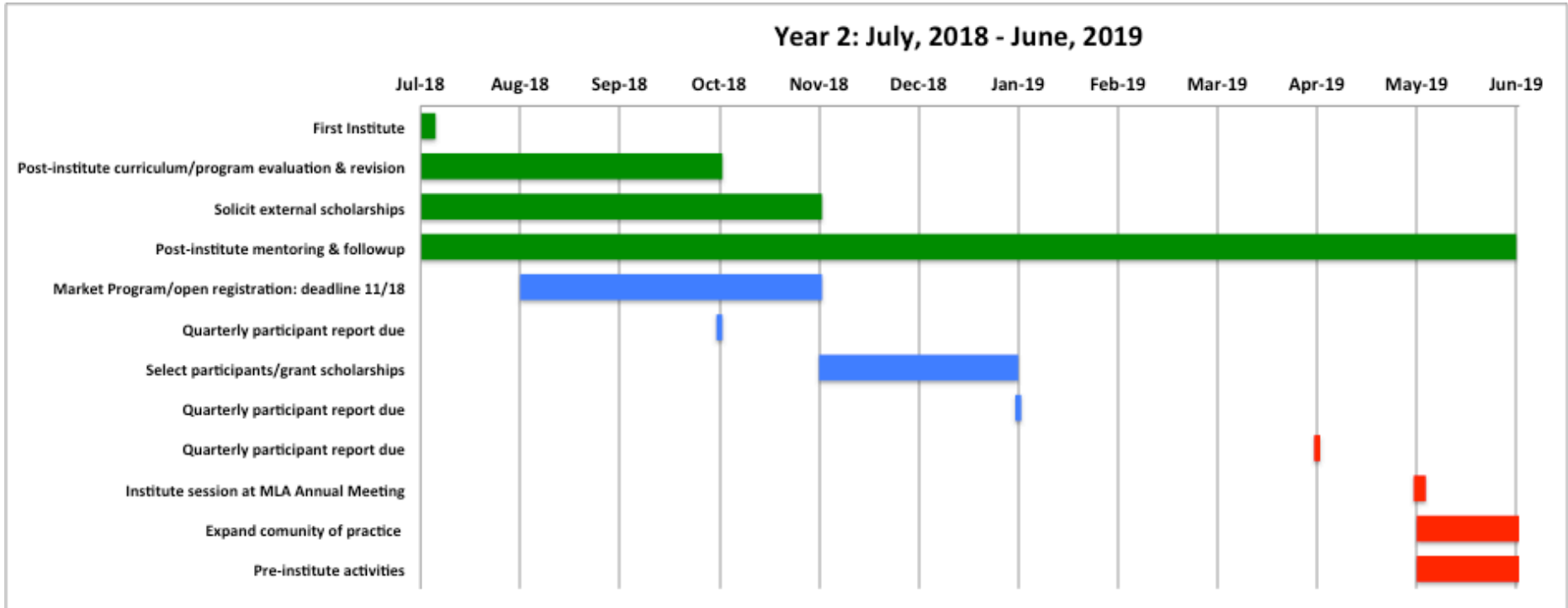
The Institute will be a powerful driver of new, better, and important health information research, generating vital knowledge and data in the field of health sciences librarianship that practitioners can use for decision-making, to enhance health sciences library services, and to improve health outcomes of patients and consumers. This project will strengthen the knowledge base of health sciences librarianship over time, not only by adding new knowledge, but by producing quality research, filling research gaps, and building upon previously conducted research that researchers and theorists will find valuable, all of which is necessary to advance evidence-based practice in health sciences librarianship.

4.4. Transformative Practice

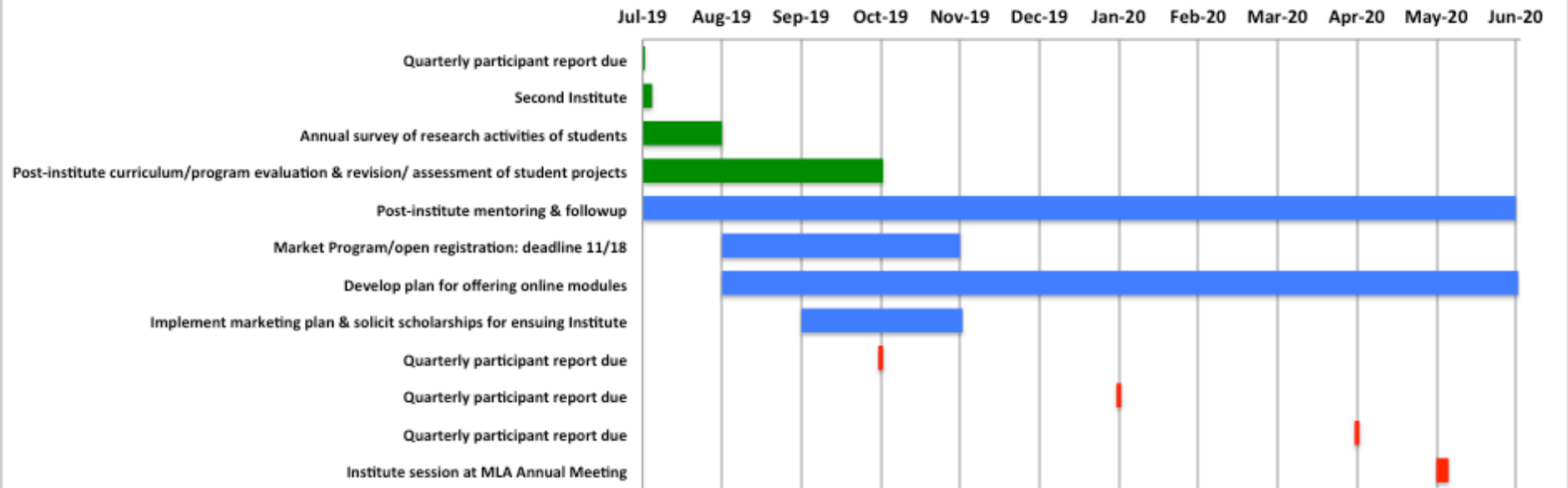
The planning framework for the Institute realizes the vision set forth in MLA's research policy statement "to nurture a professional environment in which conducting and using research becomes an accepted and expected part of practice"(Grefsheim, 2008) in a tangible way and transforms it into reality. The Institute develops research skills and confidence, increases the quantity and quality of health information research, cultivates learning, productivity, and collaboration through a research community of practice, facilitates the dissemination of research results, measures progress, invests in infrastructure, and builds elements of sustainability and continuity. The Institute will serve as a cornerstone in helping health sciences librarians change from informed consumers of research to producers of quality research.

Schedule of Completion





Year 3: July, 2019 - June, 2020



DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (i.e., digital content, resources, assets, software, and datasets). The products you create with IMLS funding require careful stewardship to protect and enhance their value, and they should be freely and readily available for use and re-use by libraries, archives, museums, and the public. However, applying these principles to the development and management of digital products can be challenging. 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

You must provide answers to the questions in Part I. In addition, you must also complete at least one of the subsequent sections. If you intend to create or collect digital content, resources, or assets, complete Part II. If you intend to develop software, complete Part III. If you intend to create a dataset, complete Part IV.

PART I: Intellectual Property Rights and Permissions

A.1 What will be the intellectual property status of the digital products (content, resources, assets, software, or datasets) you intend to create? Who will hold the copyright(s)? How will you explain property rights and permissions to potential users (for example, by assigning a non-restrictive license such as BSD, GNU, MIT, or Creative Commons to the product)? Explain and justify your licensing selections.

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.

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.

Part II: Projects Creating or Collecting Digital Content, Resources, or Assets

A. Creating or Collecting New 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 format you will use.

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

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG) you plan to use, along with the relevant information about the appropriate quality standards (e.g., resolution, sampling rate, or pixel dimensions).

B. Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan (i.e., how you will monitor and evaluate your workflow and products).

B.2 Describe your plan for preserving and maintaining digital assets during and after the award period of performance. Your plan may 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).

C. Metadata

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

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

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).

D. 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).

D.2 Provide the name(s) and URL(s) (Uniform Resource Locator) for any examples of previous digital content, resources, or assets your organization has created.

Part III. Projects Developing Software

A. 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.

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

B. Technical Information

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

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

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

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

B.5 Provide the name(s) and URL(s) for examples of any previous software your organization has created.

C. Access and Use

C.1 We expect applicants seeking federal funds for software to develop and release these products under open-source licenses to maximize access and promote reuse. What ownership rights will your organization assert over the software you intend to create, and what conditions will you impose on its access and use? Identify and explain the license under which you will release source code for the software you develop (e.g., BSD, GNU, or MIT software licenses). 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.

C.2 Describe how you will make the software and source code available to the public and/or its intended users.

C.3 Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository:

URL:

Part IV: Projects Creating Datasets

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

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?

A.3 Will you collect any personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information? If so, detail the specific steps you will take to protect such information while you prepare the data files for public release (e.g., data anonymization, data suppression PII, or synthetic data).

A.4 If you will collect additional documentation, such as consent agreements, along with the data, describe plans for preserving the documentation and ensuring that its relationship to the collected data is maintained.

A.5 What methods will you use to collect or generate the data? Provide details about any technical requirements or dependencies that would be necessary for understanding, retrieving, displaying, or processing the dataset(s).

A.6 What documentation (e.g., data documentation, codebooks) will you capture or create along with the dataset(s)? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the dataset(s) it describes?

A.7 What is your plan for archiving, managing, and disseminating data after the completion of the award-funded project?

A.8 Identify where you will deposit the dataset(s):

Name of repository:

URL:

A.9 When and how frequently will you review this data management plan? How will the implementation be monitored?