

Cultivating Scholarship: The Role of Institutional Repositories in Health Sciences Libraries

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The daily activities of institutional repository administrators are varied and challenging. We help our students, faculty, and researchers submit their scholarly publications into the repository. We track our researchers' new publications. We explain what "open access" means. We consult on copyright issues to determine if a paper, or given version of a paper, can be deposited. We respond to requests from academic departments to create new collections and reconfigure existing collections. We consult our platform vendor or programmers about system problems and functionality questions. We do promotion, outreach, workflow analysis, project management, training, supervision, quality control, metadata management, and customer service. We perfect our "elevator speech" so that we can concisely explain the value of this work when opportunities arise.

Institutional repository administrators do all this to **cultivate** and **disseminate** the scholarship at their institutions. Cultivation, or gardening, is an apt metaphor for the management of an institutional repository. Gardening requires land or a box for planting, just as a repository requires a software platform. A garden benefits from planning and structure, as does an institutional repository. Both gardens and repositories need care and encouragement to grow, and those who work with them must be patient and be prepared to work for a long time without seeing much progress.

The early promise of institutional repositories is beginning to bear fruit. Medical libraries with institutional repositories, like other academic libraries, have found that their repositories support new ways of engaging with researchers and meeting the challenges posed by the transformation in scholarly communication over the past decade exemplified by open access, the **National Institutes of Health Public Access Policy**, campus-based publishing, and the sharing of research data. Institutional repositories can grow and thrive in academic health sciences libraries and be a vital component in the provision of library services to faculty, researchers, staff, and students.

Repository Services in Academic Health Sciences Libraries

The concept of an institutional repository — "a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members"¹ — emerged over a decade ago with the

development of the DSpace and EPrints open source repositories. According to *OpenDOAR*, the Directory of Open Access Repositories, there are now more than 2,100 institutional repositories worldwide.²

In 2010, the **Association of Academic Health Sciences Libraries (AAHSL)** compiled statistics on services provided by their 117 members in the U.S. and Canada. Of these 117 libraries, 35.9% (42) reported offering institutional repository services, with 34.2% (40) planning or considering institutional repositories.³ Some of these institutional repositories are "standalone" repositories managed by the medical library; in other cases, medical libraries are utilizing the repository managed through the main campus library. Examples of medical institutional repositories can be located through a search of *OpenDOAR* (Repository type: Institutional, Subject area: Health & Medicine); additional medical repositories are accessible via the Website of the **bepress Digital Commons** hosted repository system.⁴

In order to be successful, the institutional repository services put into practice by health sciences libraries should be appropriate to and valued by the institution at large. A significant role for a repository manager is to determine, provide, and promote customized repository services that will engage researchers and departments. The services described below are not unique to health sciences libraries but have been successful in the medical environment.

Research Product Dissemination — The primary benefit of institutional repositories is that they raise the visibility and enhance the accessibility of publications by providing free, unrestricted, online access to these

publications. Content is discoverable in Google, Google Scholar, and other search engines, ensuring breadth of dissemination. Like other institutional repositories, medical repository collections contain a range of products: theses and dissertations, journal articles, book chapters, posters, presentations, stu-

dent projects, datasets, and archival and historical materials. Content unique to the health sciences includes patient education materials, anatomy videos, and Grand Rounds lectures.

Open Access Advocacy — The introduction of the **National Institutes of Health (NIH) Public Access Policy** in 2008 provided medical librarians with a new avenue of outreach to researchers, as well as a conversation-starter about the open access movement. This policy requires scientists to submit final peer-reviewed journal manuscripts that arise from **NIH** funds — the leading source of

research funding at many academic health centers — to the digital archive **PubMed Central (PMC)** immediately upon acceptance for publication. The **NIH** policy has proven to be an important driver for researchers to engage with librarians about open access, author rights, and the benefits of allowing their research results to be more easily accessed and used. Having an established repository in place to accept open access materials and for self-archiving journal articles is a significant and useful approach for promoting open access on campus. Authors who have made their publications openly accessible in the institutional repository and departments that are utilizing the repository for open access journal hosting may be willing to champion open access efforts with other researchers and groups.

Measurement of Research Impact — Institutional repositories generate impressive usage metrics that can be a strong incentive for individual researchers and departmental leaders to partner with libraries to deposit publications and remain engaged. Repository downloads are a component of newly emerging "altmetrics" tools that track and measure the scholarly influence and research impact of online publications in real time. Many academic libraries, including those in the health sciences, are beginning to raise awareness and develop outreach services for their researchers about altmetrics. These tools may prove to be particularly useful in the medical environment if they can provide evidence of success or impact in terms of community engagement with clinical research.

Showcase for Individual Researchers, Departments, and the Institution — A major motivation for researchers to participate in an institutional repository is to increase the visibility of their publications, and thus their own prestige. Some institutional repositories are integrated with faculty profile tools that showcase individual researchers, their research interests, and their publications. Academic departments, schools, research centers, and the institution as a whole can benefit from these activities as well. Publication collections serve as showcases to attract prospective graduate students, researchers, and faculty, and can help departments manage and track their publishing output. At the **University of Massachusetts Medical School**, **RSS (Really Simple Syndication)** feeds from some collections in the institutional repository, *eScholarship@UMMS*, have been embedded into department home pages on the university Website to create fresh, dynamic listings that automatically display the latest publications authored by their faculty and students. This creative application effectively leverages the institutional repository, eliminates redundant

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work, and integrates the repository with existing services — a win-win for the department, the library, and the institution.

Campus-based Publishing Support — Medical libraries have joined other academic libraries in exploring campus-based publishing, with institutional repositories being utilized for the hosting and publication of electronic journals. Repository administrators are gaining experience with all aspects of the publishing process, including obtaining ISSNs, assigning digital object identifiers (DOIs), applying for MEDLINE indexing in PubMed, and incorporating altmetrics into journal displays. Content unique to the health sciences includes open access journals that promote “trainee” scholarship and research by medical students, residents, and fellows, and research briefs describing mental health research in a user-friendly way for all readers.

Grant Support — Institutional repositories can be an important tool for securing grants and demonstrating impact for publicly funded projects. Through the dissemination of scientific meeting abstracts and posters, repositories provide exposure to pilot studies and groundbreaking research and supply authors and their institutions with data on the public engagement and impact of research for funding organizations and other stakeholders.

About 60 academic health sciences libraries support institutions that are part of the NIH-sponsored **Clinical and Translational Science Awards (CTSA)** program. The goals of this program are to accelerate the translation of laboratory discoveries into treatments for patients, to engage communities in clinical research efforts, and to train a new generation of clinical and translational researchers. Institutional repositories are being used by some program members to capture community scholarship, disseminate research results, and set up collections of papers resulting from research funded by the grant. The institutional repository helps to increase the visibility of the CTSA work and provides administrators with usage statistics for grant progress and assessment reports.

Data Sharing — Institutional repositories are a strong infrastructure component of a research data management and data sharing strategy, as they are designed to easily store data files that support scholarly publications. Student theses and dissertations present an excellent opportunity for libraries with existing repositories to pilot or introduce services around research data. Theses and dissertations are rich in content that is already flowing into the repository, and students may be receptive to sharing supplemental data files that otherwise might not be accessible to readers of the dissertation.

In February 2013 the **President’s Office of Science and Technology Policy (OSTP)** announced that all federal agencies with research budgets larger than \$100 million would be expected to follow the NIH’s lead by providing public access to publicly-funded research —

against the grain people profile

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BORN AND LIVED: I grew up in Rhode Island and have lived in Massachusetts most of my adult life.

PROFESSIONAL CAREER AND ACTIVITIES: I spent the earlier part of my career as a corporate librarian and cataloger for **Digital Equipment Corporation, Compaq Computer Corporation, and Hewlett-Packard**. I started my position at **UMass Medical School** in 2003 as a cataloger and have been the Institutional Repository Librarian since 2009.

FAMILY: I share my life with my husband **Brad**, two teenage boys, and two cats.

IN MY SPARE TIME: Reading, alternative music, running, hiking, travel, learning to play piano.

HOW/WHERE DO I SEE THE INDUSTRY IN FIVE YEARS: I think open access will be the norm, with at least half of all research articles freely available online immediately. Open research data will become a reality to some extent rather than just a hope. Academic libraries will need to continue to innovate and prioritize services in an increasingly complex environment with tight budgets. Health sciences librarians will work more closely with faculty and researchers as research partners and collaborators. 🌱



both publications and research data — within one year. This development represented years of work by librarians and other advocates, and was overwhelmingly supported by the medical library community. In response to the **OSTP** directive, the **Association of American Universities**, the **Association of Research Libraries**, and the **Association of Public and Land-grant Universities** collaborated to propose a system of cross-institutional digital repositories called the **SHARED Access Research Ecosystem (SHARE)**. SHARE’s working groups are now in place. SHARE is clearly a major opportunity for all institutional repositories.

Partnerships and Collaboration — These examples of repository services demonstrate how an institutional repository serves as a critical tool to help health sciences libraries cultivate new partnerships and roles, enhance existing relationships, and collaborate with departments at their institutions. Traditional library liaison connections can be leveraged to advocate for using the institutional repository for archiving and disseminating faculty research output. In many cases departments are enthusiastic and pleased to be able to piggyback on an existing platform in use at the medical school to save time and money.

A top trend in academic librarianship is the concept of the “embedded librarian” or “informationist,” which is a librarian being physically available or embedded within academic departments or on research teams. Repository administrators, in view of the widespread services they provide on campus, might consider themselves “virtually embedded” across the entire institution!

Barriers and Challenges

There is no shortage of articles in the library literature detailing the many barriers and challenges for populating and growing institutional repositories. Some of these barriers are more critical for medical libraries: content recruitment; redundancy; and staffing, sustainability, and scalability.

Content Recruitment — It is difficult to grow a repository when researchers lack the motivation to deposit, overestimate the time and effort required, are overwhelmed by the complexity of copyright issues, or are not aware of the services available. These obstacles are heightened in the academic health sciences environment where many researchers are also teaching faculty, administrators, and practicing clinicians. A recent report from **Confederation of Open Access Repositories (COAR)** outlines a variety of successful and sustainable practices for populating repositories.⁵ Medical institutional repositories, like those in academic libraries, have reduced barriers by providing services such as mediated deposit, copyright consultation, embargo periods, and systematic harvesting from databases. Other strategies to increase participation include adding value with customized repository services responsive to researcher needs, leveraging existing relationships that the library director and other librarians have with campus departments, offering to do pilot projects that build trust, and focusing on those individuals and groups that are receptive to these services.

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Redundancy — Busy researchers in academic health centers — many of whom are required to submit manuscripts to **PubMed Central** — often perceive self-archiving in institutional repositories to be a redundant activity. Some can be convinced by arguments that the library is building a comprehensive collection of university scholarship, including faculty papers that cannot be made available through **PubMed Central**, and that it is important not to rely on external sources to make these publications accessible. This is an ongoing issue for the administrators of medical institutional repositories to address, and in fact, some have decided not to routinely collect papers from **PubMed Central**. Implementing automated harvesting and direct deposit solutions that reduce researcher effort are critical. A federated network of repositories as envisioned by SHARE may lessen or even eliminate redundancy in the future.

Staffing, Sustainability, and Scalability — Like other academic libraries, health sciences libraries have employed various approaches for staffing and allocating resources for their institutional repositories. Opportunities for medical libraries tend to be more limited, since in general they have smaller staffs and may not have access to undergraduate student labor to perform repository tasks. The staffing dilemma may lead medical libraries to rely on the institutional repositories managed by the main campus library, or make them hesitant to become actively involved.

Some medical libraries have moved forward by repurposing or reprioritizing existing librarians and paraprofessionals from areas

where services have declined, such as cataloging or circulation. Cross-departmental teams are also an option. Permanent staffing and strong leadership clearly help with repository promotion, content recruitment, and building trust and credibility. Departmental administrative staff can be enlisted for assisting with deposits for their departments. Technology and automated solutions should be explored.

Staffing for repository work is certainly a challenge, but investing in this work allows the library to provide a valuable service to the community and builds relationships among library staff and researchers. Support of library administration for institutional repositories is a key factor for successful and creative staffing solutions.

Looking Ahead

Academic libraries are confronting rapid changes in higher education and scholarly communication. As open access and research data sharing gain momentum, institutional repositories have taken root at many academic libraries, including health sciences libraries, and are becoming a critical component of the services that libraries provide to their researchers, faculty, staff, and students. The care, encouragement, and patience of repository administrators are paying off, and the utilization of institutional repositories is growing to include publishing, grant support, and the measurement of research impact. The promise and potential of a federated network of repositories are compelling. Medical libraries should continue to cultivate their institutional repositories, which in turn allow them to cultivate and disseminate scholarship produced at their institutions. By playing a critical leadership role in this area, medical libraries can gain visibility and credibility across the institution, expand the skills

and expertise of library staff, and build new partnerships and collaborations.

Acknowledgment

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Endnotes

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