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Medical Institutional Repositories in a Changing Scholarly Communication Landscape

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content. I use it regularly to find content and have made it part of the library's link resolver option to our users. Recently, I learned about **Unpaywall** from **Impactstory** which works as a Chrome extension to locate freely available papers. These small changes to finding content on the web have proven effective for both librarian and user, and are quick to incorporate as part of the workflow in locating available content.

Resource Sharing in the 21st Century

I believe we need to increase the library's ability to market resource sharing to our users as another quick and efficient option. As I recently heard at the **Great Lakes Resource Sharing** conference, held June 7-8, 2018, interlibrary loan is the world's largest full-text database. There continue to be barriers to how this service is used due to a lack of knowledge of how the service works and the perception of turnaround time. With the advances being made in resource sharing systems to include cloud-based solutions, such as **OCLC's** Tipasa, articles can deliver with little mediation, making it easier for borrowers to get a hold of material quicker. Another answer I heard was from a librarian who increased the speed of her book delivery by instead purchasing the title on Kindle as it was more cost-effective and quicker to gift a digital copy to her borrower than to obtain the print material on loan. Thinking beyond traditional methods of providing content

not owned, and instead focusing on delivering seamless and fast service with applications users already know, leverages the library's ability to make itself part of a user's workflow.

With Google Analytics data, I have been analyzing with our library's digital strategist, both the pages as a whole and rankings of pages by those that users visit the most. For us, it is our online test preparatory collection to prepare medical students, residents, and clinicians to sit for their Step and Board exams. These materials can be expensive to purchase, so as a goodwill gesture, I buy as much study aid and test preparatory material that I can license for an institution. Students have reported they use library resources in conjunction with favorite third-party test bank sites to prepare for their exams. Using Google Analytics has helped us determine where attention should be placed to increase interaction with users on our web pages.

Skills Needed

I have always found it odd for the library and information schools not to partner with developers who work for library vendors to teach aspiring librarians about the technology behind library solutions available on the market. All practicing librarians very much need these skills if the profession is going to progress toward building and implementing agile platforms. I find current library solutions complicated to learn, but it is part of lifelong learning keeping up with new advances by attending vendor webinars, conference seminars and maintaining membership on over a

dozen discussion lists and blogs. The more I know about how online systems function and the role publishers and vendors play to supply content, the better I am connected to our users in understanding their frustrations when they find it particularly hard to access content.

Do I miss not having a print textbook collection? Yes. I have found students generally prefer print study aids to refer alongside their digital books and lecture notes. I think a small print collection is worthwhile to keep, but access to most of the world's recorded knowledge could best be maintained online. 🐾

Endnotes

1. **Lorbeer, Elizabeth R.** (2014) "Where to Start? Opening Day Collections and Services for a Newly Founded Medical School," *Against the Grain*: Vol. 26: Iss. 2, Article 13. DOI: *https://doi.org/10.7771/2380-176X.6698*

2. **Green, Anne-Marie** (2014) "Adapt, reinvent, evolve: a conversation with librarian Elizabeth Lorbeer," The Wiley Network. DOI: *https://hub.wiley.com/community/exchanges/discover/blog/2014/08/26/adapt-reinvent-evolve-a-conversation-with-librarian-elizabeth-lorbeer?referrer=exchanges*

3. **Hawkins, Donald T.** (2016) "Don's Conference Notes," *Against the Grain*: Vol.28: Iss. 3. DOI: *https://www.against-the-grain.com/wp-content/uploads/2016/07/ATG_v28-3.pdf*

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Introduction

An institutional repository (IR) is an online digital archive that organizes, preserves, and provides access to the educational, scholarly, and research output of an institution. Medical libraries began establishing IRs more than a decade ago and these repositories have become an important component of scholarly communication outreach. In an article in the 2014 *Against the Grain* health and biomedical sciences special issue, **Palmer** (Palmer 2014) described institutional repository services provided by health sciences libraries, and the barriers and challenges to providing those services. What has changed since 2014? What is the current landscape for repositories in medical and health sciences libraries?

By the Numbers

*Open*DOAR, the Directory of Open Access Repositories, is an authoritative list of open access repositories around the world that was launched in 2005 and is maintained by the **University of Nottingham**. In December 2013, *Open*DOAR indicated that there were approximately 2,100 institutional repositories worldwide (Palmer 2014). As of May 2018, the number of institutional repositories

has grown to just over 3,000, with 338 of these repositories focused on health and medicine (University of Nottingham 2018).

In 2014, the **Association of Academic Health Sciences Libraries (AAHSL)** compiled statistics on services provided by their 129 members in the U.S. and Canada. Of these 129 libraries, 55.81% (72) reported offering institutional repository services, with 13.96% (18) adding or evaluating institutional repositories (Association of Academic Health Sciences Libraries 2014). This was a large increase as compared to **AAHSL's** 2010 survey, when 35.9% of libraries reported offering IR services and 34.2% were planning or considering (Palmer 2014).

More recently, in early 2018 the authors and a co-investigator surveyed the 151 libraries that are currently members of **AAHSL** about their institutional repositories. Of the 50 respondents, 68% had a live repository, 2% were implementing, 14% were evaluating, and 16% were not considering an IR (Kipnis, Palmer and Kubilius 2018). This data along with the official **AAHSL** statistics indicate an upward trend in the growth of institutional repositories in academic health sciences libraries in recent years.

Possible explanations for this trend include the introduction of the **NIH** Open Access Policy in 2008 and other funder mandates to share publications and data, and growing interest by research institutions in showcasing and measuring their research productivity.

Changes in the Institutional Repository Landscape

The scholarly communication environment has changed significantly in the past few years. Commercial publishers are systematically acquiring or investing in infrastructure and tools utilized in all phases of the research dissemination workflow (Posada and Chen 2017). In an August 2017 move that shocked many librarians and open access advocates, **Elsevier** acquired **bepress**, the company that built the Digital Commons institutional repository platform (Schonfeld 2017). Digital Commons is one of the top three platforms in use worldwide for health sciences IRs, and *Open*DOAR statistics show that Digital Commons is used by 43.9% of medical IRs in North America (University of Nottingham 2018). **Bepress** joined other acquisitions **Mendeley**, **SSRN**, and **Plum Analytics** to become part of the portfolio of services offered by **Elsevier**.

Companies such as **Elsevier**, **Digital Science**, **Clarivate** and **ResearchGate** are trying to create platforms where all scholarly content is created, discovered, accessed, and used (Schonfeld 2018). This all-in-one platform might be called the "Amazon" of scholarly communication, where researchers come to one place to handle their scholarly communication needs. **Digital Science**, for example, is owned by the company that also owns **Springer Nature** and currently includes in its large and growing portfolio the **figshare** repository platform, the **Symplectic** research management service, and the **Altmetric** bibliometrics service.

Researchers and institutions have more choices than ever for platforms to archive their scholarship. In addition to institutional, disciplinary, and funder repositories, there are: preprint servers for various subjects including physics (arXiv), biology (bioRxiv), medicine (MedRxiv), chemistry (ChemRxiv) and biomedical and computer science (PeerJ Preprints); research information management systems (RIMs) such as Pure, Converis, and **Symplectic** Elements; general use repositories such as **figshare**, which now also offers an institutional version; and academic networks such as **ResearchGate**, **Academia.edu**, **Mendeley** and **Papers**, each offering researchers new venues for archiving and sharing their research (Dempsey 2014). Institutional repositories are also competing with individual faculty profile systems such as Profiles RNS, VIVO, Opus and **bepress** SelectedWorks/Expert Gallery (Dempsey 2014). In response to the growing interest in showcasing research productivity, some of the focus is shifting from institutional repositories to more researcher-focused profiles which emphasize the individual and not the academic institution. For example, this emphasis can be seen in how bepress is placing an increased effort in improving their SelectedWorks product, now called the Expert Gallery Suite. It is clear that the scholarly communication landscape has many new options — a large number of which are controlled by commercial entities — which seem to be a threat to the continued existence of institutional repositories. Another recent development with the emergence and popularity of preprint servers is the loss of journal citations, which are skewing impact factors. The citing of preprint server citations is taking away from the traditional journal citations further diluting the idea of allocating credit in a final publisher source (Davis 2018).

These developments are taking place as self-archiving of "green" scholarly literature has fizzled and most faculty have expressed concerns regarding depositing a postprint and not a final PDF version of their work. What makes the most sense for many authors is to have the final version of their scholarly works be made available via the publisher/venue where they were published (Lynch 2017). Studies about the attitudes of health sciences researchers suggest that faculty are often uncertain or unenthusiastic about self-archiving (Odell, Palmer, and Dill 2017). Because much of the content they produce is already covered

TABLE 1
Resource Types Deposited in Medical Institutional Repositories
(n=35)

Resource Type	Frequency and Response Rate
Blog posts	(9, 22.0%)
Book chapters	(24, 58.5%)
Books (full text)	(18, 43.9%)
Conference proceedings	(21, 51.2%)
Data sets	(20, 48.8%)
Dissertations and theses (full-text)	(32, 78.0%)
Grand rounds presentations	(5, 12.2%)
Historical materials	(23, 56.1%)
Journal articles	(30, 73.2%)
Journal article preprints	(25, 61.0%)
Journal article postprints	(26, 63.4%)
Lab notebooks	(2, 4.9%)
Newsletters	(23, 56.1%)
Open Educational Resources	(16, 39.0%)
Oral histories	(12, 29.3%)
Patient education materials	(5, 12.2%)
Peer reviewed journals	(21, 51.2%)
Photographs or photo gallery	(25, 61.0%)
Presentation slides/posters	(25, 61.0%)
Student capstones (presentations or papers)	(21, 51.2%)
Technical or other reports	(23, 56.1%)
White Papers	(18, 43.9%)
Other	(11, 26.8%)

TABLE 2
Staffing in Medical Institutional Repositories
(n=35)

Staffing Type	Frequency and Response Rate
Repository manager	(29, 67.4%)
Library liaisons	(15, 34.9%)
Technical staff	(15, 34.9%)
Library assistants	(14, 32.6%)
Metadata staff	(13, 30.2%)
Student workers	(11, 25.6%)
Other	(7, 16.3%)
Collections staff	(6, 14.0%)
Library interns	(5, 11.6%)
Volunteers	(2, 4.7%)
No staffing	(1, 2.3%)

by the **NIH** Open Access Policy and must be archived in the PMC repository, the self-archiving of journal articles in a campus repository is often perceived as redundant. And unfortunately, what has remained unchanged is the difficulty in time and resources in researching rights and permissions for loading content into institutional repositories.

How Medical Libraries are Responding

Clifford Lynch believes that the purpose of IRs "must be disconnected from the OA agenda for journal articles, and re-positioned in the broader context of managing and preserving institutional community assets" (Lynch 2017). Institutional repositories are and will continue to fill this need to archive "grey literature" and support future scholarship models. The authors' recent survey of **AAHSL** institutional repositories revealed that 80% archive theses and dissertations, and more than 65% archive presentations and posters. Other assets include many types of grey literature, as seen in Table 1 (Kipnis, Palmer and Kubilius 2018).

Many libraries, including health sciences libraries, are employing fresh strategies and leveraging the repository to provide new and valuable services. In the past few years, offerings such as research data management and sharing, research impact and altmetrics, campus publishing, integration with campus productivity reporting systems, and archiving of publications resulting from grant funding in order to demonstrate public engagement have become more robust and widespread. As disseminating preprints becomes more popular across medicine and other academic disciplines, institutional repositories can fill the gap for those researchers working in an area without a specific preprint archive.

These developments necessitate creative staffing approaches, especially since most libraries utilize library staff to make deposits into the repository on behalf of researchers. In 2018, over 90% of **AAHSL** libraries reported that repository staff make deposits on behalf of users, and 61% reported mediating the process when users submit their own materials. Yet the majority of these libraries have just 0-1 full time staff devoted to managing the institutional repository. The staffing in medical IRs takes many forms, with many institutions hiring a repository manager, as shown in Table 2 (Kipnis, Palmer and Kubilius 2018).

What Does the Future Look Like?

Institutional repositories are moving towards the next steps in their development. The **Confederation of Open Access Repositories (COAR)** is an international association of 100 members and partners that is looking at a globally distributed network of Next Generation Repositories (NGR). These NGRs should incorporate 11 new behaviors and 19 technologies, standards and protocols for repositories, to fulfill this vision: "to position repositories as the foundation for a distributed, globally networked infrastructure for scholarly communication, on top of which layers of value added services will be deployed, thereby transforming the system, making it more research-centric, open to and supportive of innovation, while also collectively managed by the scholarly community" (Rodrigues and Shearer 2017). After the rush to create repositories, the time has come to focus on interoperability and to assist researchers with the scholarly communication process.

This future includes integration with other research platforms such as **ORCID**, campus research information management systems, other research productivity reporting systems, and perhaps even journal publishing platforms. **Bepress** is currently piloting an integration of **Digital Commons** with **SSRN** with two law schools (Bepress 2018). Expanding institutional repositories to integrate with "scientist facing services" appears to be the next step in the development of institutional repositories (Schonfeld 2017). These integrations will not only lessen the administrative burden for researchers but also better leverage the data already available in institutional repositories.

The scholarly communication environment is confusing and fragmented right now, with acquisitions by commercial publishers on the one hand, and a large number of new open source projects on the other. As a result, many repository administrators, including those in medical libraries, are exploring their options for repository platforms and engaging in discussions about possible collaborations with both institutional and community partners. The repository community is beginning to work together to achieve **COAR's** vision. These emerging platforms and collaborations will drive innovative uses of institutional repositories that benefit researchers, libraries, academic institutions, and the scholarly communication system.

The current landscape for institutional repositories in medical and health sciences libraries presents both challenges and opportunities. The authors look forward to publishing a full and detailed analysis of their 2018 survey of **AAHSL** libraries that will provide a snapshot of the roles, characteristics and future plans of institutional repositories in the academic health sciences environment. 🌲

Endnotes

1. **Association of Academic Health Sciences Libraries**. 2014. "Annual Statistics of Medical School Libraries in the United States and Canada, Services 2014." 2014. *https://www.aahsl.org/annual-statistics*.

2. **Bepress**. 2018. "Bepress and SSRN Announce Integration Pilot with Columbia and University of Georgia Law Schools." 2018. *https://www.bepress.com/news/bepress-ssrn-announce-integration-pilot-columbia-university-georgia-law-schools/*.

3. **Davis, Phil**. 2018. "Journals Lose Citations to Preprint Servers." The Scholarly Kitchen. 2018. *https://scholarlykitchen.sspnet.org/2018/05/21/journals-lose-citations-preprint-servers-repositories/?informz=1*.

4. **Dempsey, Lorcan**. 2014. "Research Information Management Systems-A New Service Category?" Dempsey's Weblog. 2014. *http://orweblog.oclc.org/research-information-management-systems-a-new-service-category/*.

5. **Kipnis, Daniel G.**; **Palmer, Lisa A.**; **Kubilius Ramune**. 2018. "Taking the Temperature of Health Sciences IRs: An Environmental Scan of Medical Schools' Institutional Repositories." *Southern Miss Institutional Repository Conference*. Hattiesburg: Aquila. *https://aquila.usm.edu/smirc/2018/1/8/*.

6. **Lynch, Clifford**. 2017. "Updating the Agenda for Academic Libraries and Scholarly Communications." *College & Research Libraries* 78 (2): 126–30. *https://doi.org/10.5860/crl.78.2.16577*.

7. **Odell, Jere**, **Kristi Palmer**, and **Emily Dill**. 2017. "Faculty Attitudes toward Open Access and Scholarly Communications: Disciplinary Differences on an Urban and Health Science Campus." *Journal of Librarianship and Scholarly Communication* 5 (General Issue): eP2177. *https://doi.org/10.7710/2162-3309.2169*.

8. **Palmer, Lisa A.** 2014. "Cultivating Scholarship: The Role of Institutional Repositories in Health Sciences Libraries." *Against the Grain* 26 (2). *https://doi.org/10.7771/2380-176X.6695*.

9. **Posada, Alejandro**; **Chen, George**. 2017. "Preliminary Findings: Rent Seeking by Elsevier Publishers Are Increasingly in Control of Scholarly Infrastructure and Why We Should Care." The Knowledge Gap: Geopolitics of Academic Production. September 20, 2017. *http://knowledgegap.org/index.php/sub-projects/rent-seeking-and-financialization-of-the-academic-publishing-industry/preliminary-findings/*.

10. **Rodrigues, Eloy**; **Shearer, Kathleen**. 2017. "Next Gen Repositories: Behaviours and Technical Recommendations for the COAR Next Generation Repositories Working Group." *https://www.coar-repositories.org/files/NGR-Final-Formatted-Report-cc.pdf*.

11. **Schonfeld, Roger C.** 2017. "Elsevier Acquires Bepress." The Scholarly Kitchen. 2017. *https://scholarlykitchen.sspnet.org/2017/08/02/elsevier-acquires-bepress/*.

12. **Schonfeld, Roger C.** 2018. "The Supercontinent of Scholary Publishing." The Scholarly Kitchen. 2018. *https://scholarlykitchen.sspnet.org/2018/05/03/supercontinent-scholarly-publishing/*.

13. **University of Nottingham**, UK. 2018. "Directory of Open Access Repositories." 2018. *http://www.opendoar.org/find.php?format=charts*.