RESEARCH PRACTICES AND SUPPORT NEEDS OF PUBLIC HEALTH SCHOLARS AT UNIVERSITY OF WASHINGTON

University of Washington Health Sciences Library Report for

Ithaka S+R Research Support Services: Public Health Project

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INTRODUCTION

SUMMARY

This report summarizes findings of a study conducted by the University of Washington Health Sciences Library, for the national project *Research Support Services: Public Health*, initiated by Ithaka S+R. The study explored University of Washington public health scholars' research methods and research support needs, the challenges researchers face in conducting and sharing research output, and researchers' current outlooks on developments, trends and challenges in the field of public health. The goal of the project is to inform the library's decision-making and development of services supportive of public health researchers at University of Washington. In this report, we discuss study methods and findings, describe key trends identified through analysis of the twelve interviews conducted with researchers at the University of Washington, and outline library service recommendations for further exploration.

BACKGROUND

The University of Washington School of Public Health enrolled 1,475 students in 2016, including 535 undergraduates and 940 graduate students. Degrees awarded in 2015-2016 included 265 undergraduate, 286 masters and 52 doctoral. Graduate degrees offered include: Master of Public Health (MPH), Master of Science (MS), Master of Health Administration (MHA), Master of Health Informatics and Health Information Management (MHIHIM), and Doctor of Philosophy (PhD). Undergraduate degrees offered include: BS or BA in Public Health, BS or minor in Environmental Health, BS in Health Informatics and Health Information Management, Minor in Global Health, and Minor in Nutritional Sciences. Other programs include the Executive MHA and MPH programs and certificate programs in Medical Management, Health Policy, Public Health Genetics, and Clinical Research Methods. The departments in the School of Public Health are: Biostatistics, Environmental and Occupational Health Sciences, Epidemiology, Global Health, and Health Services. Interdisciplinary programs include: Health Administration, Maternal and Child Health, Nutritional Sciences, Pathobiology, and Public Health Genetics.

The School of Public Health encompasses more than 40 research centers and institutes, including Northwest Center for Public Health Practice, Center for Public Health Nutrition, Institute for Public Health Genetics, and the International Training and Education Center on HIV. Regional and global research partners include Fred Hutchinson Cancer Research Center,

Bill & Melinda Gates Foundation, Group Health Research Institute, Seattle Children's Hospital, Veteran's Affairs, Public Health–Seattle & King County, Washington State Department of Health, Washington State Labor & Industry, and PATH. The School of Public Health is ranked third in the nation among publicly funded schools of public health, sixth among top public health graduate schools in the United States, and first among departments of biostatistics nationally, by the U.S. News & World Report. The Center for World University Rankings (CWUR) by Subject 2017, global rankings of the world's leading universities based on research productivity, place UW number five globally for public, environmental and occupational health, number six for health policy and services, and number eight for toxicology. The University of Washington is ranked third in the world for Public Health by the Academic Ranking of World Universities Global Ranking of Academic Subjects 2017. The School of Public Health is accredited through the Council on Education for Public Health (CEPH) as well as 5 program-level accrediting bodies. Total budget including grants and contracts as well as university and state funds is around $200 million.

METHODS

Two librarians conducted one-on-one, semi-structured interviews with a total of twelve researchers from the UW School of Public Health. Interview subjects were recruited through several routes: requesting referrals from School of Public Health administration and from other known contacts within departments, and approaching individual faculty who had collaborated recently with librarians on teaching sessions or research projects. Personalized email invitations providing explanation of study goals and process were sent to potential recruits, with follow-up emails to those who didn't initially respond.

With the goal of obtaining a diversity of perspectives, in recruiting we tried to represent most or all departments in the School of Public Health, and were successful in recruiting subjects who had faculty appointments in one or more of four of the five academic departments: Global Health, Health Services, Epidemiology, and Environmental and Occupational Health Sciences. Several faculty also work within the interdisciplinary programs of Health Administration, and Nutritional Sciences. The figure below shows the departmental representation of the 12 UW researchers who participated in the study. Six researchers represent only one department and six others were affiliated with three departments.

Researcher Affiliation
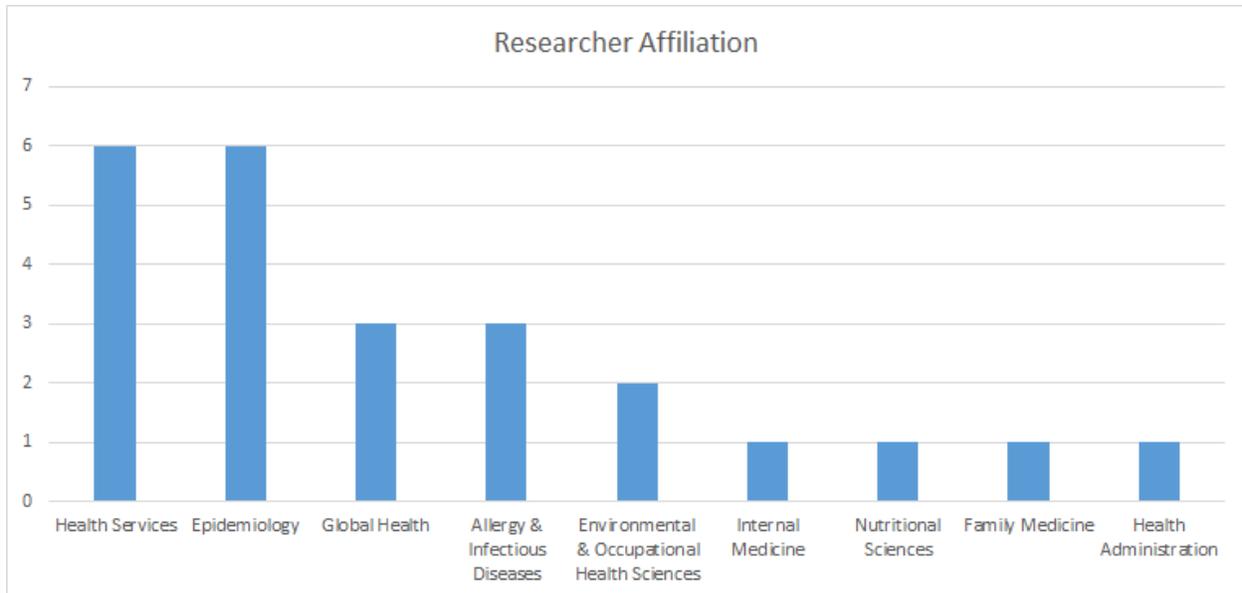
Recorded interviews of between 30 and 60 minutes each were conducted by librarians, then the recordings transcribed and transcripts anonymized. See appendices for consent form and semi-structured interview script. Both librarians on the UW research team coded and analyzed each interview transcript separately following grounded theory methods. Themes were then identified by each librarian.

The Research Support Services: Public Health study was conducted simultaneously at University of Washington and six other institutions: Johns Hopkins University, University of Alabama - Birmingham, University of Arizona, University of Illinois - Chicago, University of Iowa, and University of Minnesota - Twin Cities. Print anonymized interview transcripts were provided to staff at Ithaka S+R who collated interview transcripts and local reports from each participant institution. Ithaka S+R will produce a final report synthesizing the results from all of the participating institutions, analyzing the combined data, and creating a survey of the current state and climate of public health research, focused on public health scholars' needs. This report will be made publicly available on the Ithaka S+R website.

FINDINGS

OVERVIEW

The research conducted by public health scholars at UW is highly interdisciplinary, with collaborations occurring both between the diverse subject areas encompassed within the School of Public Health, and with other research partners in other areas of study. Among the

research areas of the University of Washington School of Public Health faculty interviewees are cancer and chronic disease prevention, cardiovascular disease and psychosocial stress, consumer health informatics, consumer health technology, emergency preparedness, environmental factors in disease, global medical education, technologies for health administration and health services delivery, health communication, HIV/AIDS and STI's, implementation science, nutritional epidemiology, obesity epidemiology, occupational epidemiology, public health disaster policy, public health emergency communications, public health informatics, social epidemiology, telemedicine, toxicology studies, and workplace health promotion.

Researchers partner with colleagues from medicine, nursing, social work, biological sciences, and environmental sciences, but also from business, law, sociology, anthropology, psychology, engineering, computer sciences, urban planning and other areas. Regarding partnering with researchers from other disciplines, one study participant commented: "they have the skills that I lack and need in my research." UW public health researchers conduct national and often global work, with collaborators from within and without UW. They typically work on multiple research projects as well as doing clinical work and teaching, and have additional appointments or affiliations in research centers and government organizations.

UW School of Public Health researchers use both quantitative and qualitative methods. Specific research methods described by interviewees include field epidemiological research, intervention testing, applied health policy research, social epidemiology, toxicology studies, community-based participatory research, randomized controlled trials, health systems research, implementation research, health disparities research, prospective cohort studies, action-research methodology, and qualitative audience research.

The search tools and databases most widely used are PubMed and Google Scholar. Some of the other databases mentioned by researchers were Scopus, Web of Science, UpToDate, Lexis Nexis, and Business Source Complete. The UW Libraries discovery tool, UW Libraries Search, was also used by some of the researchers, several of whom believed that UW Libraries Search was universal and included all UW resources and databases. In fact, UW Libraries Search does not include all databases available at UW, but researcher use of it demonstrates their need for a multidisciplinary database. Some researchers had students help with searching for literature, and a few had staff who could help. Two of the researchers lamented the loss of their departmental or organizational librarian who had helped with literature searching. Searching skills were varied with some researchers using multiple databases and expressing proficiency, but others describing struggles using library databases and expressing preference for Google searching. One researcher commented: "Sometimes, you can just Google things, and believe it or not, they'll pop up with an article." Several expressed that they were unsure of the level of services that Health Sciences librarians could provide to help with literature searching.

Surveys, focus groups and interviewing are commonly used data collection methods of the researchers interviewed. Researchers described a wide variety of collection and data storage solutions including using tablets and other mobile devices for collection, saving on local hard drives, DVDs, or servers using tools such as a UW Catalyst shared site, Sharepoint, BaseCamp, or departmental or organizational servers. One interviewee still has access to and uses the server in a UW department that she no longer belongs to. A few still collect and store paper-based files. Software used for data collection included: SPSS, SAS, STATA, R, Excel, Atlas, Dedoose, Qualtrics, RedCap, Open Data Kit, ArcGIS, QMethod, and EgoWeb. Tools for organizing research and for publishing include: Endnote, RefWorks, Mendeley, Word, Excel, and Adobe Illustrator.

Research output of the public health scholars interviewed includes reports of clinical trials and other studies, literature reviews, book chapters, and also non-traditional outputs such as blogs and websites. The nature of academic publishing demands peer reviewed journal article publishing as a primary research output, and researchers also express that they understand the importance of publishing their work in open access formats in order that their work be more widely disseminated. Publishing with open access journal publishers such as BioMed Central and Public Library of Science is becoming commonplace, but researchers expressed concern about high article processing costs being pushed back on authors. Costs are sometimes shared between article authors, but the substantial author costs for open access publishing are especially hard on graduate students and postdocs, and other new researchers who need to publish to advance their careers. Several researchers expressed knowledge of PubMed Central and had articles deposited there in compliance with NIH policy mandates.

The use of data repositories is still developing and not widespread, but several researchers reported usage of NCBI and other specialized repositories. Most commonly, the researchers mentioned that they were sometimes asked by other researchers to share their data, rather than being asked by journals to provide data. Several study participants expressed concerns about sharing their data with other researchers who may not understand the context well enough to conduct correct analyses, as well as concerns about others taking their research and publishing analyses that they had been planning to do in the future.

Researchers keep up with literature by using saved searches and alerts, attending conferences, reading top journals, browsing tables of contents, reading graduate student research reports, and setting up literature alerts compiled by experts in the field. Several commented that they often read newsletters sent out by professional organizations in their field. Others read blog posts by experts in their field. Several mentioned that preparing courses requires research into

new literature and that the need for an updated perspective in order to teach a subject helps motivate them to keep up.

KEY TRENDS

From our research, we identified three key trends that seemed to occur commonly amongst the researchers and that we could address or mitigate through providing new or improved library services. The trends included a need for tools that search relevant literature more widely, a need for universal access to full text literature, and the need for guides and tools that save time by organizing and synthesizing research. We discuss each trend below in more detail.

Trend 1 – Because of the interdisciplinary and global nature of public health work, researchers need tools that search relevant literature more widely.

While PubMed was mentioned by all interviewees as the top database for their field, several described sometimes having difficulty finding what they needed there, or they wished for databases that included literature from other disciplines so that they would not have to search in more than one place. "Well, I think because I'm an interdisciplinary researcher, the big challenge is I can't do one-stop shopping." Another researcher stated: "...increasingly I've started to use Google Scholar some just because I like the different organization of data particularly in fields that are less familiar to me."

Google Scholar was for several researchers a top database choice, because of perceived quicker access to full text, and because Google search algorithms, including open access full text searching, help uncover sources. One researcher stated that his automated searches were set up in PubMed, "But when I'm looking for articles, 90% of the time I use Google Scholar. I find that I can find what I'm looking for in Google Scholar. Maybe something about the search language it uses -- if I'm looking for a paper, and I put in a few words, the paper I want comes up in Google Scholar, and I can't make it happen with other things quite as well." He noted that some environmental journals are not indexed in PubMed but are included in Scholar.

The cited/citing references feature in Google Scholar is also useful in identifying important articles: "The use of that kind of a Google search to put the things that people cite the most at

the top is really helpful because doing it chronologically, it can be hard to know if you've missed something." Scopus and Web of Science were also mentioned by researchers as valuable for locating highly cited papers, for using a "reverse trace" method of finding articles, and for finding articles in relevant literature outside health sciences, such as in the fields of business, engineering, human-computer interaction, law and more.

One researcher mentioned that a lot of interesting work in her area was being done in other countries, "great work that we can learn from" and at the same time, the burgeoning worldwide literature made it challenging to stay on top of developments in the field, and there was the related problem of predatory/fake open access journals and the challenge of identifying those. So databases that have international scope and are peer-reviewed, vetted journals, become more and more important.

Citation management and other tools that enable deeper searching/screening within sets of articles retrieved from systematic or integrated review search strategies are useful, particularly when researching interdisciplinary topics. One researcher described the difficulty of screening large numbers of articles because the topic required broad search terms and multiple databases:

"I'm summarizing just, you know, the available evidence on the particular topic, so you want to be able to capture it, but at the same time you know it's in twelve different fields' journals…" EndNote was mentioned as a great organizational help, and a tool that allowed deeper searching within gathered research, but that posed the challenge of collecting everything, including pdfs, in one place.

Textbook-type clinical online resources were named as being important in some settings, both for researchers who also do clinical work, and for non-clinician researchers who need background, definitions, or answers to questions outside the main scope of their field. Beyond published journal literature, researchers identified pre-publication sources as important for current research trends, including conference abstracts, and student or trainee manuscript drafts: "So, a lot of the data that I see, it's compiled by other people, as they're writing their review papers, or their original research papers, or I'm working with them on their thesis for example….So, I'm seeing the first version of whatever it might be." Other grey literature sources are also particularly important to certain sub-disciplines: "there's a lot of grey literature in the area of health promotion so we ended up looking at a lot of white papers, reports, websites, things that are not in published articles."

Interviewees were not necessarily aware of the resources and guides already provided by the library. When told about a guide to grey literature sources developed by librarians, the

researcher replied: "OK, well, I mean, that's great to hear. I wouldn't assume that people like me know about those guides."

Trend 2 – Public Health researchers express a need for universal access to full text literature, anywhere, anytime, by all collaborators.

Most of the Public Health researchers who participated in this study mentioned the importance of access to full text journal articles for grant proposals, primary research, report writing, teaching, and keeping up in their field. Interviewees expressed gratefulness for the scope of the library's journals collection, described online access to journals through the library as invaluable, and stated that this access allowed carrying out of global health research, and saved researchers an enormous amount of time keeping up with new research developments.

One commented: "I use the online library resources through UW, particularly PubMed and downloading articles available through UW libraries every week. I mean, not always every day but sometimes. [When] I've been writing it's pretty much practically daily use." Some researchers mentioned having trouble navigating to full text journal articles from the library databases and websites. And full text access to some journals, especially journals focusing on interdisciplinary fields, is sometimes not immediately available online. Grey literature was also mentioned as desirable but hard to find with existing search tools. While a few interviewees were aware of the Interlibrary Loan (ILL) system for requesting scans of full text articles that are not available online, others expressed surprise when told about the service. One mentioned that they had access to a similar service at their previous institution but seemed unaware of the service provided at UW.

Several researchers with a global health focus mentioned the need for access to full text journals when working overseas. Their students and trainees in other countries lack access to full text journals, and interviewees expressed the concern that their students in other countries had poor writing skills because of lack of access to well written journal articles. "We want to work with our Kenyan colleagues and researchers on these questions, and they don't necessarily have the same access that we do to journals and to articles. Right, and that's a huge way limiting step to their capacity and ability to publish and to learn and to progress in research."

Public health researchers at the UW are also concerned about their international students' access to literature. One researcher teaches writing workshops and feels strongly about reading literature, both books and journal articles, in order to be a better writer. This is a big concern, especially in global health when work is being done in countries where access to journals and books may be very limited, and where those who collaborate or are taught by UW researchers are not UW students, so do not have access to the UW Libraries resources online. One researcher was concerned about her students' ability to access appropriate information, learn to evaluate it for quality and to fully understand the research. She commented: "If it's not on their social media or linked to their Facebook, the chances that my students have heard about anything on the news is nil."

Researchers based in Seattle also worried about article availability to collaborators who are not connected to the University of Washington, so who do not have access to the libraries online journals and databases. One researcher commented, "as UW, how we can help is making our academic resources available not just to researchers affiliated with UW but with our colleagues and partners at these institutions."

One of the interviewees described the information needs of a task force focusing on public health challenges of opioid and heroin use. "...there were things that they were doing and gathering in that report, that talked about things like there are over 90 sites around the country that do supervised injecting to help people get into treatment, sort of a harm reduction model, but I don't know if they had the ability to go find out all of the literature or research around those sites across the world." Not only do research partners need access to published literature, researchers expressed a need for a comprehensive way to search grey literature produced by different health departments and organizations.

While online journal and database access is highly valued, simply having access isn't always enough, because of the time required to search and investigate topics, or to learn of developments in a particular field. "I, you know, other than my time and bandwidth to get stuff and get through it, I feel like we've got incredible access through UW." In addition to access, there is a need for more efficient and targeted updating or alerting methods and search systems and services that fit researchers limited time for following developments in the field.

Trend 3 – Public Health researchers need guides to effective searching, and tools that save time by organizing and synthesizing research.

Several of the researchers described a research process of starting from one known article or report and searching for related items, a process that is not well represented in current search tools. One study participant wanted "one-stop shopping in terms of things that I'm looking for. So not having to go in different places." A couple of the researchers talked about either creating or subscribing to blogs or newsletters that are very specific to their field of study where researchers share research findings and links to important research articles in the field are provided.

One researcher commented: "I do rely on the literature quite a lot, both in preparing for new grant proposals and then in staying up to date, although I find that I'm not able to read nearly as much as I would like to." One researcher expressed the struggle felt by all the researchers:

> "Sometimes it can be hard to, when you have limited time and you try to get your head around a new topic...to figure out exactly which of these papers should I be reading. I eventually get to the bottom of it or end up talking with other colleagues if there's really a burning question and I suspect the answer's out there, but I personally don't have the time to try to find it."

Assistance to these busy researchers ideally involves more than providing instruction on setting up automated search alerts in databases. Several researchers mentioned they had automated searches or alerts coming in email, but often didn't have time to read them. One researcher lamented: "You know, sometime about five years ago I went from every once in a while feeling like I got my head above water to just feeling like I'm chronically drowning...and so like taking even 30 minutes to set aside to do that would be more than I have, which leads me to wonder would I read it?"

Researchers expressed a need for expert, subject-specific, research tracking services, both for journal article databases and for grey literature sources:

"You know, I think it would be amazing to have a genie next to me who was scanning, and was able to see what was the latest research findings and studies around public health, and gleam it down into these are the top three things that you should know or read about, because I think there's probably, and not just from the publication world, not the research world, but also grey literature and also just community work going on, cause often times what is deemed evidence-based obviously is limited....And so we lose out on a lot of the work that happens that's promising that is outside of that [published journal literature]."

Comprehensive search strategies for public health topics are sometimes difficult to construct because database indexing terminology is less developed for the field. One researcher noted: "consumer health informatics is a great example: that's not a MeSH term. And, so, it's not a keyword, so that tends to be challenging. It's hard to grab it all. So, it's not necessarily that I'm trying to find a needle in a haystack, but what I'm looking for it's like shattered glass - it's all over the place."

Another researcher described challenges in finding relevant studies: "I do have one area that I'm having a hard time. I'm looking for a certain type of article, overall for my classes, because I teach health promotion, and it's in a health promotion in theory class, so it's both practice and theory. And I have found that it's very difficult to find practice-oriented articles that use theory...and I don't know whether or not it's just that there isn't that much out there or that I'm doing it wrong." One researcher commented: "the challenge that I face continually is just not being sure that I am conducting the search in the most thorough manner possible. I'm always worried that I missed something very critical and all of these things are going to be reviewed by other people doing research in your area who get really ticked off if their research is not cited."

Researchers expressed a need for up to date training using sources that might help them work more efficiently, and for information about using new apps and software for searching or managing information. Several of the UW researchers who primarily work in affiliated research centers, or public health practice locations stated that they were unsure how much librarian time and service was available to them. "I mean for me, personally, I think a weakness for me is being able to find resources like that [grey literature] reliably, and really not knowing how much help I have access to from our library system." In two cases, there had been dedicated departmental or organizational librarians to serve specific research groups, positions that had subsequently ended or been cut, and researchers were unsure how much personal time and support were available from UW librarians. "Our department used to have a librarian who did other things as well, but part of her job was to be our librarian too and she retired. I don't think there are any plans to replace her so this is sort of an interesting time in terms of, you know, I

know that we have health sciences librarians but I'm just like, wow, I feel like I could keep one of them busy maybe half time while you guys have to meet the needs of every researcher."

RECOMMENDATIONS

1. *Provide information and training for researchers on database tools that search the relevant literature more widely.*

During our research, we found that there is a need for librarians to provide more information to researchers about interdisciplinary databases such as Web of Science and Scopus as well as databases that provide access to grey literature. Not only do librarians need to stay aware of the development of new multi-database and grey literature search engines, but they also need to stay abreast of new search modes and features provided by these databases. The challenge is to find ways to disseminate this information to busy researchers We need to better publicize available databases and provide guides to interdisciplinary literature searching that are helpful and easily accessible to public health researchers. Reaching out to departments and research centers and providing links to the library website and relevant databases and guides would be helpful. Some researchers also expressed interest in having a librarian do database training for their department or research group.

Providing more tools and developing additional guidance for searching grey literature in public health is also a pressing need for public health researchers. Existing tools are not easy for researchers to use and they are often unaware of the existence of professional databases which include grey literature. Many of the researchers we interviewed mentioned their use of Google Scholar for searching for specific literature as well as hard to find literature. This finding indicates a need for Public Health Librarians to provide training on using popular, public databases such as Google Scholar to successfully search and retrieve appropriate full text literature using tools such as the Google Scholar Library Links settings. In addition to providing training and support for using existing tools, there is a need for the development of new specialized tools to meet the needs of interdisciplinary public health researchers such as those interviewed in this study.

2. *Work toward providing more universal access to full text literature, anywhere, anytime, by all collaborators.*

Providing broader access to online information resources for public health research partners is a difficult challenge within current publishing and library funding practices, but developing models to increase access is an important goal to pursue. Identifying existing high-quality, open access journal article sources is one step in the right direction. Working towards developing systems for sharing articles with students in educational settings is also an important goal.

Consortium agreements are one way of leveraging existing groups to increase access to literature. State health departments for Alaska and Washington participate in an agreement with the National Public Health Coordination Office to provide access to the Public Health Digital Library (PHDL), which includes e-journals, e-books, and other database resources in support of evidence based practice and research. Funded by the National Library of Medicine, the National Public Health Coordination Office (https://nnlm.gov/nphco) oversees the PHDL, securing information resources to provide the best evidence in public health research and practice. The pilot for this program was supported by the National Network of Libraries of Medicine, Pacific Northwest Region (NNLM PNR), with cooperation by the Alaska Medical Library at the University of Alaska Anchorage and the University of Washington Health Sciences Library.

Providing online web publishing tools to researchers where links to the best sources of research can be shared is another way that libraries can promote shared access to information. Librarians can also create online guides linked from the library's website about search techniques and methods for locating open access resources in their fields. Direct links to these library resources and guides from Public Health departmental and research center websites would be an effective way to provide this information at the point of need.

Although the Interlibrary Loan (ILL) service has been around for many years, several of the researchers we interviewed seemed unaware that they can order the full text of articles that are not available for direct download from databases through the ILL service. This important service should be included in all training sessions and linked from departmental and research group websites. Also, links to the ILL service should be more readily available through library database searches when full-text is not available, without having to leave the database results and navigate to the ILL website. Researchers reported frustration in navigating between sites and receiving bad links when trying to link out to sources of full-text. Librarians can help researchers navigate complex tools for locating full text articles, but due to limited staffing, there is a need to increase the efficacy of search tools in order for researchers to more easily search for and locate the full text of research articles.

3. Create guides to effective and efficient searching methods, and provide tools that save time by organizing and synthesizing research.

Librarians may be able to assist with aggregating non-traditional literature sources through providing online web publishing tools to researchers. Departments and research groups could create web pages where links to the best sources of research can be found, as well as providing links to web resources from the library's website that help researchers refine their search techniques in order to find these hard to find resources in their fields. Training on setting up research alerts from literature searches was also mentioned as being needed, although researchers felt that they had limited time to actually read new research in their fields.

Our research indicates a need for librarians to provide support in keeping up on available databases options, and on learning to use existing and emerging informatics tools that organize and synthesize research. Identifying expert synthesis sources for particular topics, or increased librarian availability to provide customized research help and to answer individual questions within a short turnaround time, could help to mitigate this need. Librarians need to better communicate current services, and to build librarian capacity to serve all constituents.

To help researchers conduct comprehensive literature searches, librarians can provide customized research assistance: identification of appropriate databases, specialized tools and strategies for researching specific topics or subject areas; development of tailored search terminology for topics not conveniently gathered or well-described under existing database subject headings; and development of classes and online guidance for conducting comprehensive literature reviews to support writing manuscripts and grant applications. These services need to be marketed directly to public health researchers who have need of these services. In the past, some School of Public Health departments have hired their own librarians, but due to budgetary constraints, there is an increased need for these services directly from the UW Health Sciences Library. Staffing models for increasing support to public health researchers at the UW such as collaborations between Libraries and among subject specialists should be explored.

CONCLUSION

The public health researchers at the University of Washington who we interviewed are collaborative, multidisciplinary researchers who juggle multiple projects and priorities including research, publication, teaching, clinical work, and governmental reporting as well as mentoring of students, fellows and other researchers. They often wish for more time in a day to read more

and explore the literature to keep up with their fields. They struggle to organize research materials, although they are aware that there are some good tools out there, they just don't have time to learn about them. One researcher expressed what many seemed frustrated about: "We just don't have the time to do everything that we would love to do."

This study demonstrates a pressing need for ongoing and updated communication of the services and resources already offered by the library to UW researchers, which would help mitigate some of these research challenges. It shows the need for new, multidisciplinary research databases, for brief customized training in using these sources, that fit into busy researchers' calendars, and also for librarian collaboration with researchers on complex literature review projects. Our research emphasizes the need for the UW Libraries to continue to find ways to support open access journal publishing models that supply timely access to articles regardless of researcher institutional affiliation and access, as well as to explore methods of support for unaffiliated research partners who do not have easy access to quality resources.

PUBLIC HEALTH PROJECT: SEMI-STRUCTURED INTERVIEW GUIDE

Research focus

1. Describe your current research focus/projects
   a. How is your research situated within the field of Public Health? [Probe for which sub-discipline(s) their work aligns with and whether they engage in inter-disciplinary work within Public Health and/or with other fields]

Research methods

2. What research methods do you currently use to conduct your research? [Probe for whether these methods are typical for Public Health scholars)
   a. Do you collaborate with others as part of your research? [If yes, probe for what these collaborations entail, who typically works on them, what the division of work is and how information pertaining to the project's research is created and stored]
3. Does your research elicit data? If so:
   a. What kinds of data does your research typically elicit?
   b. How do you incorporate this data in your final research outputs? [Prompt for whether they use data visualization tools]
   c. How do you manage and store this data for your ongoing use?
4. Beyond the data your research produces, what kinds of information do you rely on to do your research? [Probe for secondary data, primary and secondary sources]
   a. How do you locate this information? [If not explicitly stated, probe for where they locate the information]
   b. How do you manage and store this information for your ongoing use?
   c. Do you experience any challenges working with this kind of information?
5. Think back to a past or ongoing research project where you faced challenges in the process of conducting the research.
   a. Describe these challenges.
   b. What could have been done to mitigate these challenges?
   c. Are there any other challenges you regularly experience when conducting your research?
6. How do you keep up with trends in your field more broadly?

Dissemination Practices

7. Where do you typically publish your research in terms of the kinds of publications and disciplines?
   a. Do you disseminate your research beyond scholarly publications? [If so, probe for where they publish and why they publish in these venues]

      b.   How do your publishing practices relate to those typical to your discipline?
8.   Have you ever deposited your data or final research products in a repository?
      a.   If so, which repositories and what has been your motivations for depositing? (i.e. required, for sharing, investment in open access principles)
      b.   If no, why not?

Future and State of the Field

9.   What future challenges and opportunities do you see for the broader field of Public Health?
10. If I gave you a magic wand that could help you with your research and publication process – what would you ask it to do?

Follow-up

11. Is there anything else about your experiences as a scholar of Public Health and/or the Public Health discipline that you think it is important for me to know that was not covered in the previous questions?