Dave S. Ghamandi. Academic Health Sciences Reference Librarians' Involvement with the NIH Public Access Policy. A Master's Paper for the M.S. in L.S. degree. April, 2012. 57 pages. Advisor: Joanne Gard Marshall

Reference librarians are in a unique position to act as change agents by influencing library users' and researchers' knowledge, attitudes, and behaviors related to open access. The purpose of this study was to explore academic health sciences reference librarians' knowledge of, attitudes, and behaviors in relation to the NIH Public Access Policy. Attitudes towards the Research Works Act (H.R. 3699) were also investigated. This bill, proposed in 2011, would prohibit federal open access mandates, thus eliminating the NIH Public Access Policy. The Internet survey yielded 66 responses. Academic health sciences reference librarians appeared to be generally knowledgeable and positive about the NIH Public Access Policy. New librarians were less knowledgeable than their more experienced colleagues and were less able to provide instruction and support. This finding suggests a need for better training of new librarians. Librarians were overwhelmingly opposed to the Research Works Act.

Headings:

Reference librarians

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ACADEMIC HEALTH SCIENCES REFERENCE LIBRARIANS' INVOLVEMENT
WITH THE NIH PUBLIC ACCESS POLICY

by
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Approved by

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Table of Contents

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> The country is in deep trouble. We've forgotten that a rich life consists fundamentally of serving others, trying to leave the world a little better than you found it. We need the courage to question the powers that be, the courage to be impatient with evil and patient with people, the courage to fight for social justice. In many instances we will be stepping out on nothing, and just hoping to land on something. But that's the struggle. To live is to wrestle with despair, yet never allow despair to have the last word.

Introduction

Academic health sciences reference librarians[1] have an important role within the scholarly communication system, which is in a state of flux. Librarians who work in public services, particularly in health sciences libraries, are forced to deal with new developments in this system including open access publishing and the National Institutes of Health (NIH) Public Access Policy. Academic health sciences reference librarians' involvement with the NIH Public Access Policy, a federal open access mandate, has not been previously studied. An understanding of this involvement could better inform their practice.

Academic references librarians are the public faces of their institutions and have tremendous ability to influence the knowledge, attitudes, and behaviors of those they help. Reference librarians support the teaching and research needs of faculty, staff, and students by providing answers to questions, teaching various information literacy skills, and offering advice and direction. Scholars often need guidance throughout their research projects and in navigating the scholarly communication system, which may include economic, legal, and ethical issues.

Scholarly communication refers to the ways that scholarly research is created, evaluated, shared, and preserved (Association of College and Research Libraries, 2012). Academic libraries are currently afflicted by a crisis in scholarly communication, specifically the serials crisis. It is both a price and permissions crisis.

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[1] For simplicity, the use of the terms "reference librarian" and "reference" encompasses instruction and liaison librarians and their work as well.

Traditionally, the scholarly literature has been published in journals, whose prices have skyrocketed during the past twenty years (Association of Research Libraries, 2004). This limits the ability of libraries to subscribe to all of the relevant scholarly literature. The permissions crisis refers to the legal restraints that may abridge users' rights to read, download, reproduce, distribute, and display scholarly work. Open access publishing has the ability to change this. Literature that is open access is freely available on the Internet with little or no copyright and licensing restrictions. Therefore, open access removes both the price and permissions barriers. The two ways to make scholarly writing open access are to: (1) publish in an open access journal or (2) self-archive a copy of an article originally published in a toll-access journal in a digital repository. Despite being around for some years, the open access movement has failed to make a significant impact as a publishing model. However, increased support for open access, evidenced by a rising number of university open access policies and a federal mandate, has required many researchers to make their work open access.

The NIH Public Access Policy, passed in April 2008, is a milestone in the open access movement. It mandates that peer-reviewed manuscripts of articles resulting from NIH funded research are deposited into PubMed Central, the National Library of Medicine's (NLM) digital repository. The manuscripts become freely and publicly available within twelve months of publication. The NIH policy is the only federal access mandate to become law. The Federal Research Public Access Act, a bill that sought to create an open access mandate to the research funded by eleven other federal agencies, has failed to pass in Congress. Instead of extending the federal open access mandate, a House bill that would effectively reverse the NIH Public Access Policy has

been proposed. On December 16, 2011 co-sponsors House Representatives Darrell Issa and Carolyn Mahoney introduced H.R. 3699, the Research Works Act, which prohibits any federal agency, including the NIH, from requiring open access to research articles. Opposition to the bill by librarians, researchers, and related non-profit seeking stakeholders has been forthright.

Academic librarians, especially those in the health sciences, have a long history of supporting open access. Academic reference librarians, especially those who work with researchers, have had to explain open access, debunk myths, and provide information about open access journals and digital archiving to researchers and readers. The passage of the NIH Public Access Policy has further cemented the role of academic health sciences reference librarians within scholarly communication. There has not been any systematic research that investigated academic health sciences reference librarians' involvement with the NIH Public Access Policy. Therefore this study sought to determine academic health sciences reference librarians' knowledge of, attitudes toward, and behaviors related to the NIH Public Access Policy. Their reaction to the Research Works Act was also documented.

Literature Review

The literature has described various ways that librarians have been involved with open access and can be used to create a framework for investigating how academic health sciences reference librarians are engaged with the NIH Public Access Policy. The NIH Policy mandates the archiving of manuscripts in a federal digital repository. The literature is full of examples of reference librarians participating in institutional repositories and self-archiving practices. Authors' experiences with open access have been characterized as full of confusion and misconceptions. This provides an opening for reference librarians to provide instruction to researchers about open access, which has been documented as well. This study inquired about reference librarians' efforts to instruct researchers about the NIH Policy and compliance. Finally, responses by librarians and related stakeholders to the Research Works Act are recounted here as well.

Open Access

Open access, along with its associated topics, has many definitions. Generally speaking, open access literature is freely available on the Internet with little to no copyright and licensing restrictions. Therefore open access removes both price and permissions barriers for readers. According to the Budapest Open Access Initiative (Budapest Open Access Initiative, 2002):

By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search,

or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

There exist two different mechanisms for providing open access to research. The first is referred by some as "gold OA" and applies to publishing in open access journals, which conduct peer review and provide immediate open access. The second vehicle is "green OA," or self-archiving in open access repositories. Authors who retain their copyright after signing publishing agreements are free to deposit copies of their articles, usually peer-reviewed, in a digital repository.

A number of authors have written about the implications of open access on medical librarians and their institutions. Morrison and Waller (2006) state that medical librarians should support open access for many reasons. Chief among them is that open access increases user access to information, which traditionally has been locked behind toll-access journals, thus limiting dissemination. Open access also removes inequities that result when taxpayers are not allowed access to articles that are the result of publicly-funded research. It facilitates evidence-based medicine, establishes author control, and lowers costs to libraries (Morrison & Waller, 2006).

There are exigent issues regarding open access that currently impede its progress. The economic models for open access are still being formed, and their long-term sustainability is in question. Filling institutional repositories with articles is a

difficult task, especially in the absence of a university open access policy. The impact on libraries' budgets, as money shifts from subscriptions to author submission fees, may not work for every library. There is also a fear that in an all-open access world administrators would use lower expenditures on serials as an excuse to further slash library funding (Morrison & Waller, 2006).

There are a number of policies that have influenced the open access movement. Most notably, the NIH Public Access Policy became law in April, 2008 and requires NIH-funded research to be available in PubMed Central (PMC) within twelve months of an article being published. A bill to make other federally funded research open access within six months of publication failed to become law. The Wellcome trust, the UK medical research funder, requires that their grantees deposit articles in PMC within six months. A number of universities such as Princeton and Duke have passed open access policies requiring faculty to archive their articles in their respective institutional repositories. These open access policies will lead to the growth of open access in medicine and present opportunities for medical librarians to be leaders (Morrison & Waller, 2006).

Karen Albert (2006) also concluded that librarians can play a major role in the open access movement in her article discussing the implications of open access and scholarly publishing for medical librarians. Librarians have been credited with bringing attention to the excessive costs of serials and the research impact problem (which results from limiting access to research). They also remain in a position to promote open access journal publishing and self-archiving. Librarians have a vested interest in supporting alternatives to traditional publishing (Albert, 2006). Access to information is a central tenet of the library profession, which has caused many

librarians to be open access advocates (Irivwieri, 2009). Many library associations have signed or created declarations in support of open access. Some libraries publish their own open access journals as well (Irivwieri, 2009).

NIH Public Access Policy

A major development in open access occurred in 2008 when the NIH Public Access Policy was signed into law. It mandates that the peer-reviewed manuscripts of articles resulting from NIH funded research are deposited into PubMed Central, the National Library of Medicine's digital repository, and made publicly available within twelve months of publication. Most of the literature published since the NIH Policy's passage that focuses on libraries has been single case studies, and no comprehensive investigation of academic reference librarians' involvement has been found. A study at the University of California, San Francisco (UCSF) states that their library has assisted in policy compliance by creating a website and by offering training and workshops (Banks & Persily, 2010). They also created a unique e-mail address for researchers to submit questions about policy. The authors said that other libraries have also created websites about the policy. Banks and Persily note that publishers opposed the NIH Policy; characterizing it as unnecessary government interference.

Librarians at University of Michigan (UM) support their institution's researchers in many of the same ways that UCSF librarians do, but also assist researchers with depositing manuscripts (Rosenzweig, Schnitzer, Song, Martin, & Ottaviani, 2011). The University of Michigan is one of the few institutions to have its librarians actually deposit manuscripts in PubMed Central on behalf of researchers. The UM Libraries contacted the NIH to create an account that allows them to act like a publisher and deposit articles en masse.

Stimson (2009) enumerates the challenges to policy compliance and elucidates the reasons why librarians need to help researchers. Librarians have a role in helping researchers determine if a journal's publishing agreement allows for NIH policy compliance. Authors need to make sure that the copyright transfer agreement (CTA) allows for policy compliance and, if necessary, make the proper amendments. They can retain their right to deposit their manuscripts in PubMed Central by signing an addendum to the CTA. The NIH Policy also requires researchers to include PubMed Central identification numbers (PMCID) in all prospective NIH grant applications, renewals, and progress reports (Stimson, 2009). When librarians help researchers with these matters they are performing core library services, argues Stimson. Librarians should not turn researchers away for help nor rely on the NIH Public Access Policy website to help them.

Some authors have been forthright in their belief that librarians need to advocate for greater public access and lobby legislators (Stimson, 2009; Joseph, 2008). Joseph (2008) states that librarians need to engage in advocacy at institution, local, and national levels. Perhaps with foresight, Joseph said that passage of the NIH Public Access Policy does not ensure its permanence and that support for the policy is needed in order to thwart efforts by opponents to repeal it. Thomas (2010) offers a contrarian viewpoint. Thomas believes that librarians have failed to participate in legislative advocacy and that they should focus on helping researchers deposit NIH manuscripts in their institutional repositories, not PubMed Central.

Reference Librarians and Institutional Repositories

Reference librarians have many roles in open access, including assisting authors to self-archive articles in digital repositories. An institutional repository is a web-

based database involved with the long-term preservation and dissemination of digital materials (Bailey, 2005). It plays a relatively new and important role in scholarly communication and open access. Reference librarians can be involved in institutional repository development and operation by facilitating a cultural change on campus and embedding the institutional repository in the fabric of the university (Bailey, 2005).

Much has been written about the roles of reference librarians in institutional repositories. Ilene Rockman (2005) advocated for reference librarians to have expanded roles in institutional repositories including: development, management, dissemination, and sustainability. Rockman encouraged reference librarians to support faculty and students in sharing their research, including through use of an institutional repository (Rockman, 2005). The author believes that reference librarians' service orientation, communication skills, and knowledge management experience make them natural partners for the institutional repository.

While reference librarians can, and should, play an important role in developing institutional repositories, the literature has focused on their role in recruiting content for these digital archives (Buehler & Boateng, 2005; Phillips, Carr, & Teal, 2005). Reference librarians are expanding their traditional roles to employ strategies to recruit institutional repository content including scanning websites, seeking out grey literature, theses and dissertations, and documents found in university archives (Chan, Kwok, & Yip, 2005). Reference librarians are also assisting faculty with interpreting publishers' policies as they pertain to granting authors permission to self-archive (Chan et al., 2005). These actions encourage faculty to deposit articles in institutional repositories. Bell, Foster, and Gibbons (2005) examined faculty work practices to determine ways that reference librarians could make institutional

repositories more successful. The authors found that librarians need special training as institutional repository liaisons and instructors as they educate faculty and users in a jargon-free manner (Bell, Foster, & Gibbons, 2005). These authors also state that librarians should pay attention to the grey literature. Echoing previous findings, Bell et al. (2005) said that librarians need to help faculty understand their rights under publishing agreements and demonstrate to them how the collections in institutional repositories are used.

A content analysis of the literature on institutional repositories led Allard et al. (2005) to identify six roles for librarians. The authors see user education for using institutional repositories as an extension of the training that reference librarians have traditionally provided to users (Allard, Mack, & Feltner-Reichert, 2005). Librarians can also assist authors in creating documents with appropriate formatting and metadata to ensure their long-term preservation and accessibility (Allard et al., 2005). Based on their observations of the University of Oregon's institutional repository development, Jenkins et al. (2005) said that reference librarians have a role not only in recruiting authors to provide content for institutional repositories, but also in educating users in retrieving the content. Reference librarians often have subject expertise and those with liaison responsibilities can have intimate knowledge of the needs and behaviors of specific disciplines (Jenkins, Breakstone, & Hixson, 2005). Reference librarians can leverage this understanding to grow the institutional repository. Making patrons aware of the content within institutional repositories is a significant task (Jenkins et al., 2005). Only those librarians who are very familiar with the institutional repository can successfully integrate it into users' search strategies (Jenkins et al., 2005).

Open Access and Authors

Open access publishing has been examined from the authors' perspective as well. Gaining insight into their perspective can inform reference librarians' practice. Unfortunately for librarians, the research has found that authors are largely unaware of their open access options. A study by Coonin and Younce (2010) on researchers who have publishing in open access journals produced several results. They found that open access journal authors do not automatically self-archive (Coonin & Younce, 2010). Authors showed confusion over differences between print and electronic journals, often conflating the latter with open access itself. Over 80% of authors learned of open access publishing from Google or a colleague and only 7% learned of it from a librarian. This shows opportunities for librarians to educate authors on many open access elements. This study also reaffirmed the need to understand specific disciplines and the need for cultural change to occur from within (Coonin & Younce, 2010).

Nicholas and Rowlands (2005) gathered evidence from authors on open access publishing in their study. They noted that authors who have self-archived before were more likely to publish in open access journals, but this group constitutes a minority of all authors. Authors were found to be ignorant of open access in general, especially older authors. Nicholas and Rowlands (2005) also found that certain disciplines, mainly those in the natural and physical sciences, embraced open access earlier than others and exhibited more open access activity. Scholars showed a gap in their knowledge of the publishing process. Providing an international perspective, the researchers found writers in South America and Asia, areas of the world that have limited access to traditional publishing, to be more positive about the open access

model. These findings present opportunities for reference librarians to educate authors and advocate for their rights in interactions with publishers.

Brown and Swan (2004) conducted a study of authors who published in open access journals and those who did not, matching as much as possible for subject area. They found that nearly two-thirds of non-open access authors were familiar with the option, but not nearly as many were familiar with self-archiving. Nearly 80% of all authors said they would self-archive if it were required and 40% already have. Open access authors published in that venue because of the free access it provided to readers. Authors who did not chose open access publishing options did so because they were worried about impact. This is a notion that reference librarians could easily refute by citing evidence of increased access and research impact of open access works (Harnad et al., 2008).

Xia's (2010) longitudinal study described some of the prevailing open access misconceptions found in authors. The study found that since the early 1990s authors became more aware of publishing in open access journals, but they were still mistaken about certain aspects of this new publishing model. The scholars held wrong ideas about the prestige of open access journals and the existence of peer review (Xia, 2010). These findings can inform open access advocacy, particularly by reference librarians.

Open Access Instruction Efforts

The literature is filled with examples of librarians providing instruction to various groups on their open access options. These findings can be used to develop or strengthen future open access education, especially in response to the NIH Public Access Policy and the rising number of university open access policies. Kirchner (2009) described the University of British Columbia (UBC) library's scholarly

communication project to give liaison librarians a major role in the area, particularly in supporting and developing open access journals and their institutional repository. At UBC a cross-campus collaboration project led by health sciences librarians to promote compliance with NIH Public Access Policy and other policies was started (Kirchner, 2009). New York University's Ehrman Medical Library created a formal open access class to engage the medical school faculty in open access issues (Spivey & Wrynn, 2005). The authors believed that the class might need to be integrated with the existing set of programs offered by the library.

Some librarians chose to engage open access stakeholders via the Internet. Librarians at the University of Colorado created an online tutorial on publishing strategies that targeted junior faculty and graduate students (Knievel, 2008). Librarians saw an opportunity to influence the next generation of authors before they followed the example set by their peers and publish in traditional, commercial journals. Presenting open access as an alternative among other publishing models was thought to be attractive to faculty. Researchers are less inclined to support open access for the same reasons as librarians. Faculty need to be convinced of open access's benefits other than its impact on the pricing crisis hurting academic libraries (Knievel, 2008).

At the Ohio State University librarians found online modules to be a successful format for open access instruction as well (Dotson & Wilson, 2008). They used the web to educate students on how to submit their theses to Knowledge Bank, the university's digital repository. This was a more effective way of reaching users than face-to-face instruction, which had low turnout despite persistent efforts by librarians. The web modules need further evaluation (Dotson & Wilson, 2008).

Sometimes librarians miss opportunities to provide open access education. Chapman et al. (2002) described the task of providing instruction about serials to undergraduate students, who often lack information literacy skills. This would have been a suitable moment to explain open access, but there was no mention of it happening. Open access works would continue to be available to students after graduation and their liberal permissions on use may be of convenience for students (Chapman, Pettway, & Scheuler, 2002).

A library may choose to make the bold move of integrating scholarly communication reform into the job responsibilities of librarians as the University of Minnesota did with their liaison librarians (Malenfant, 2010). Malenfant (2010) stated that liaison librarians' baseline understanding of open access was low and described their reluctance to become open access advocates. With widespread emphasis being placed on assessment, librarians were measured by the number of faculty who retained their copyright when publishing. Malenfant expressed interest in exploring the perspectives that new librarians have regarding scholarly communication and if they view it as a core professional function (Malenfant, 2010).

Finally, Brower (2010) discussed open access and information literacy in relation to medical education (Brower, 2010). Open access plays an important role among medical educators because it increases the availability of new information and materials for instruction; in some institutions adjunct faculty have limited access to these items. Faculty would be able to do their jobs easier and improve their scholarship with more open access (Brower, 2010). Librarians can use open access and NIH Public Access Policy compliance, which stood at 55%, as real-world examples of information literacy skills in practice. New roles for librarians include

providing the Open Journal System for faculty to create and host their own open access journal and providing funds to pay for open access author fees (Brower, 2010).

Research Works Act and Response

On December 11, 2011 US House Representative Darrell Issa (R) and Carolyn Maloney (D) co-sponsored House Resolution 3699, the Research Works Act. It was referred to the House Committee on Oversight and Government Reform. The bill's stated purpose is to ensure the continual publication and integrity of private sector peer-reviewed research works. The bill's second section lists limitations on federal agencies' actions, including a prohibition of federal open access mandates. This would effectively reverse the NIH Public Access Policy and prevent guaranteed public access to federally-funded research findings. Public access would only be permissible with the explicit prior consent of publishers, not by legislative mandate. Notably absent from the bill is any section addressing the continued publication of peer-reviewed works. Nor is there any section that addresses the ensured integrity of such works, unless Issa and Maloney are implying that free, public access to manuscripts that have already been peer-reviewed and accepted for publication compromises their soundness.

Libraries, advocacy groups, and some publishers have been unequivocal in their opposition to the Research Works Act. In an open letter addressed to the House Committee on Oversight and Government reform, the Association of Academic Health Sciences Libraries, Association of Research Libraries, Association of College & Research Libraries, and seven other organizations articulated the benefits of public access to NIH funded research (American Association of Law Libraries et al., 2012). The ten groups stated that widespread dissemination of scientific findings makes it easier for researchers to build on previous work and spurs innovation. They also said

that the NIH Public Access Policy allows the NIH's $29 billion expenditure on research to reach its maximum audience, including researchers who could not afford it otherwise.

The open letter also accentuates the discrepancy between the Research Works Act's stated purpose and the actual contents of the bill (American Association of Law Libraries et al., 2012). The authors said that the interests of all relevant stakeholders are not balanced fairly in the bill—a small portion of the publishing industry is favored. By restricting access to government funded research, the Research Works Act benefits a few at the expense of the many. The bill unfairly restricts authors' use of their copyrights by requiring them to obtain a publisher's permission before distributing their work through a government program like the NIH Public Access Policy, a program that does not violate copyright law. The letter's authors note that the NIH Public Access Policy has not caused any verifiable harm to the publishing industry.

The Medical Library Association and Association of Academic Health Sciences Libraries (2012) co-wrote a letter to the House committee expressing their dismay with the Research Works Act as well. The organizations emphasized their role in supporting the passage of the NIH Public Access Policy. They also pointed out the health benefits stemming from the NIH policy, namely that health care providers can practice evidence-based medicine more easily with free access to scientific research. Improved clinical decision-making, speedier translational research, and increased health literacy were a few of the noted benefits of the NIH Public Access Policy. The letter also said that the availability of articles in PubMed Central does not translate to journal cancellations, refuting claims of the NIH policy's harm to publishers.

Kevin Smith, Duke University's Scholarly Communication Officer, weighed in on the Research Works Act on his widely-read blog. He took offense at the Association of American Publisher's assertion that publishers "produce" research articles (Smith, 2012). Smith stated that researchers spread across the nation are the producers of scholarly work and their reward is the granting of copyrights. Kevin Smith's blog post and similar sentiments were circulated among librarians through several listservs (electronic mailing lists), including those belonging to the Medical Library Association, Association of Academic Health Sciences Libraries, and the Scholarly Publishing and Academic Resources Coalition (SPARC).

Discussion of the Research Works Act found its way into popular news sources and reached an audience that does not regularly engage in the scholarly communication system. Michael Eisen, founder of a leading open access journal publisher, the Public Library of Science, highlighted the harm that the Research Works Act represents to taxpayers in a *New York Times* editorial (Eisen, 2012). In the *Atlantic*, Rebecca Rosen (2012) wrote about Darrell Issa's incongruous positions on open access and open Internet. Issa's support for the Research Works Act does not mesh with his action—opposing the Stop Online Piracy Act—to keep the Internet free and open. Furthermore, Issa has an initiative called OPEN that is based on the premise that taxpayers are entitled to results of their funding.

The Research Works Act lost the support of its sponsors and one of its potential beneficiaries on February 27, 2012, effectively killing the bill's chance of passage during this Congressional session. Amidst pressure raised by a boycott of 7486 academics who pledged not to publish, referee, or do editorial work for Elsevier journals, the publishing giant announced it was no longer supporting the Research

Works Act (Schwartz, 2012). British mathematician Timothy Gowers issued a scathing critique of Elsevier with regard to its business practices and support for the Research Works Act. (Gowers, 2012). The blog post resulted in an online petition, which has 8,906 signatories as of March 31, 2012 (thecostofknowledge.com). Hours after Elsevier publicly dropped its support for their bill, Darrell Issa and Carolyn Maloney issued a statement that they would not take any further actions on the bill (Schwartz, 2012). The Reed Elsevier Political Action Committee had donated thousands of dollars to Issa's reëlection campaigns between 2008-2011 (Federal Election Commission, 2012).

Methods

An online survey was used to collect qualitative and quantitative data through the use of closed and open-ended questions. Using the Internet to conduct survey research was an efficient way of reaching research participants, collecting both quantitative and qualitative data simultaneously, preserving anonymity, and storing the data.

The survey consisted of four sections. The first section contained questions about participants' background and included a screening question to make sure that they were members of the targeted population. The remaining three sections measured the three variables of concern in the study: academic health sciences reference librarians' (1) knowledge of, (2) attitudes toward, and (3) behaviors related to the NIH Public Access Policy. An attitudinal question related to the Research Works Act was incorporated. An open-ended comments section was included at the end of the survey to allow participants to elaborate on anything concerning their role as it relates to the NIH Public Access Policy or the Research Works Act.

The three major sections of the survey each had unique characteristics. Participants were asked not to consult any sources when answering questions that measured their knowledge of the NIH policy. The ten questions about librarians' attitudes to the NIH policy used a Likert scale that included five answer choices ranging from "strongly disagree" to "strongly agree." Questions on librarians' activities related to the NIH policy were modeled on Gu's (2010) survey on librarians'

role in evidence-based dentistry education. Participants were offered the opportunity to give a free-text response to several of the behavioral questions as well.

This research study was approved by the University of North Carolina at Chapel Hill (UNC) Institutional Review Board (IRB). The survey was created using Qualtrics, a secure and free software available to UNC affiliates. Participants were recruited though three listservs (electronic mailing lists) that academic health sciences librarians working in public services may subscribe to, including: the Association of North Carolina Health and Science Libraries, Mid-Atlantic Chapter of the Medical Library Association, and the Medical Library Association's Public Services Section. The survey was not sent to listservs belonging to scholarly communication groups because targeting that population may have biased the results. Subscribers to those listservs may be more likely to know about the NIH Public Access Policy and think positively about it. The recruiting e-mail contained information about the study's purpose, informed consent information, and a notice of the IRB's approval (Appendix B). Participants consented to partake in the study by clicking on the link at the end of the e-mail, which led them to the survey. A final, reminder e-mail was sent to the three listservs thirteen days after the initial e-mail (Appendix C).

Results

The online survey was distributed electronically through three listservs that reach academic health sciences reference librarians: the Association of North Carolina Health and Science Libraries, Mid-Atlantic Chapter of the Medical Library Association, and the Medical Library Association's Public Services Section. The number of librarians who were contacted through these listservs is unknown and therefore a response rate cannot be determined. Seventy-six surveys were completed. Ten of those surveys were excluded from analysis because the participant was not a member of the study's target population. This was determined by asking participants if they were academic health sciences reference librarians in the first question.

Background

Three questions were asked about the respondents' background. Sixty-six respondents answered that they were academic health sciences librarians whose job responsibilities include reference, instruction, or liaison duties. Respondents had an array of experience working as health sciences librarians. An equal amount of participants (14%, n=9/66) had 0-2 years or 3-5 years of experience. Twelve respondents (18%) have been health sciences librarians for 6-10 years. Over half of the participants (55%, n=36) had eleven or more years of experience. The majority of participants worked in an academic health sciences library (86%, n=56/65). Seven participants (11%) worked in a general university library. Two (3%) respondents worked in an academic non-library setting.

Knowledge of the NIH Public Access Policy

Six multiple choice questions were used to assess participants' knowledge of the NIH Public Access Policy. Question #5 was removed because it was determined to be ambiguous. The majority of respondents (77%, n=51/66) correctly identified the NIH Public Access Policy as not being a voluntary manuscript submission program. Librarians with 0-2 years of experience (n=9) answered the question correctly 44% of the time. Over half of new librarians (56%) responded that they did not know the answer. Librarians with three of more years of experience (n=57) answered the question correctly 82% of the time. More experienced librarians were able to recognize that the NIH Public Access Policy is not voluntary, whereas newer librarians were not able to make that distinction as well.

Participants were asked to describe the types of manuscripts that are required to be submitted to PubMed Central from a list of choices (Question 6, Appendix A). The majority of respondents described those manuscripts as peer-reviewed (61%, n=40/66) and accepted for publication (88%). However, most participants believed that manuscripts could be in either print or electronic format (59%). Only 18% of respondents knew that manuscripts must be in an electronic format only. Newer librarians (those with less than three years of experience) fared less well than more experienced librarians in answering this question. Out of the nine newer librarians, 33% knew that the manuscripts need to be peer-reviewed and 67% responded that manuscripts have to be accepted for publication. The more experienced librarians (three or more years of experience, n=57) fared better, with 65% choosing "peer-reviewed" and 91% selecting "accepted for publication."

Participants were not overwhelming sure how far the NIH Public Access Policy extends. When asked if the policy applies to dissertations, book chapters, conference proceedings, and letters to the editors, 66% (n=43/65) of all respondents correctly responded that it does not. Almost a quarter of respondents (23%, n=15) stated that they did not know the answer. A majority of new librarians did not provide the correct answer: 56% (n=5/9) did not know the answer and 22% selected a false answer. Eighteen per cent of librarians with more experience (n=56) did not know the answer and 9% chose the false answer.

Respondents were able to make the proper distinction between PubMed and PubMed Central as they relate to the NIH Public Access Policy. The policy requires that manuscripts are submitted to PubMed Central even if they are indexed in MEDLINE and found through PubMed. Nearly all of respondents (96%, n=54/56) knew this.

Study participants were asked to select the correct time period before which articles become freely and publicly available in PubMed Central. Seventy-two per cent of respondents (N=64) selected the correct time period (twelve months). Nearly a quarter of respondents (24%, n=15/64) chose either three or six months.

Overall, librarians, as a group, appear to be generally knowledgeable about the NIH Public Access Policy. They understand most of the important elements of the policy—that is, manuscripts resulting from NIH funding are required to be deposited into PubMed Central, where they will become publicly available within twelve months of publication. The majority of librarians are aware of how far the policy extends, but a sizeable number do not. Almost a third of librarians believe that the policy extends

to dissertations, book chapters, conference proceedings, or letters to the editor. Librarians were not aware of the required manuscript format (electronic only).

There was a noticeable division between new health sciences librarians (0-2 years of experience) and more experienced librarians (3 or more years of experience) in their answers to the knowledge questions. New health sciences librarians were less likely to know that the NIH Public Access Policy is not a voluntary program. They were also less likely to know that manuscripts need to be peer-reviewed and accepted for publication before submission to PubMed Central. Finally, less than a quarter of new librarians knew what publication types are included in the NIH policy. The sample size for most of the knowledge questions included nine new librarians, which provides some context for drawing conclusions. However, the data indicates that new librarians need to become far more educated on the NIH Public Access Policy in order to better serve their users.

Attitudes toward the NIH Public Access Policy

Participants' attitudes toward the NIH Public Access Policy were assessed in the study by asking them to respond to statements. Ten statements about the NIH Public Access Policy were listed and participants were asked to respond using a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Five of these statements were phrased negatively (Table 1) and the other five were phrased positively or neutrally (Table 2).

Table 1

Responses to Attitudinal Statements about the NIH Public Access Policy Phrased

Negatively

Question	n	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The NIH Public Access Policy provides little benefit to researchers or the scientific community.	65	66%	25%	5%	2%	3%
Complying with the policy is burdensome to researchers.	64	11%	37%	33%	17%	2%
Researchers become confused about policy compliance when publishers offer them the option of paying to make their articles open access.	65	0%	5%	31%	55%	9%
Librarians are too busy to help researchers comply with the policy. This is the researcher's responsibility.	65	18%	52%	14%	14%	2%
The Research Works Act is a bill in the House of Representatives (H.R. 3699) with the stated goal "to ensure the continued publication and integrity of peer-reviewed research works by the private sector." The bill's provision that would prohibit open access mandates like the NIH Public Access Policy will help fulfill that goal and should become law.	64	73%	14%	6%	6%	0%

Table 2

Responses to Attitudinal Statements about the NIH Public Access Policy Phrased

Positively or Neutrally

Question	n	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The public has a right to access the findings of NIH-funded research because it is taxpayer supported.	65	77%	20%	0%	0%	3%
Librarians have a duty to help researchers comply with the policy.	65	17%	55%	20%	8%	0%
The free availability of manuscripts in PubMed Central has benefitted people that are not affiliated with organizations that subscribe to scholarly journals.	65	68%	32%	0%	0%	0%
Publishers should be responsible for submitting all manuscripts to PubMed Central, not researchers.	64	9%	28%	39%	20%	3%
The period of time after publication before manuscripts must become available (12 months) is appropriate and should not be reduced.	65	3%	26%	28%	37%	6%

Respondents generally held favorable views about the NIH Public Access Policy

as indicated by expressing disagreement to the negative statements (Table 1) or

agreeing with the positive statements (Table 2). Study participants had mixed feelings

about the level of burden placed on researchers to comply with the NIH policy (Table 1). Nearly half of the respondents did not feel that it was burdensome, but a third of them chose to neither agree nor disagree. If most librarians do not find that compliance is burdensome to researchers, it may explain why most libraries do not offer to perform the PubMed Central manuscript submissions on behalf of authors.

A majority of participants felt that researchers become confused about policy compliance when presented by publishers with the opportunity to pay for their articles to become open access (Table 1). For example, a researcher may choose to publish in a Springer journal. This journal could be a traditional, subscription-based journal that costs the author nothing (or nearly nothing) to submit their article. As long as the copyright agreement with the publisher allows the author the right to submit a copy of the final manuscript in PubMed Central, the publisher is still allowed to charge for access to the article. The author is not required to make any payment to comply with the NIH Public Access Policy. Springer offers authors the opportunity to make articles published in subscription-based journals freely available through their Springer Open Choice program. For a $3000 fee, authors can make their articles freely available in journals that still charge libraries and others a yearly subscription. The survey responses (Table 1) indicate that participants found that authors become confused when presented with such fee-based open choice programs and think that it is part of the NIH Public Access Policy requirements. NIH policy compliance costs authors nothing, but compliance is being conflated with optional charges presented by publishers.

Most respondents seem to believe that librarians should play a role in helping researchers comply with the NIH policy (Tables 1 & 2). The results seem to indicate

that respondents do not believe that librarians are too busy to assist researchers in compliance, implying a shared responsibility between researcher and librarian (Table 1). In fact, over two-thirds of respondents agree with the statement that it is a librarian's duty to assist in compliance (Table 2). This could reflect the embodiment of a service-orientation among health sciences librarians. Respondents may believe that librarians' familiarity with the NIH policy and manuscript submission will save the time of researchers and ensure that more articles are deposited in PubMed Central– thereby maximizing the policy's potential impact.

Respondents seem to believe in the taxpayer argument for public access to the results of federally-funded research and that the NIH Public Access Policy is benefitting the public (Table 2). Survey participants overwhelming agree with the public's right to articles resulting from NIH-funding (Table 2). All respondents either agree or strongly agree that the NIH Public Access Policy has benefitted people not affiliated with organizations that subscribe to scholarly journals (mainly universities) (Table 2). It would be interesting to know why respondents hold that belief and to learn of specific examples of people using PubMed Central to access free articles. Librarians can potentially strengthen the argument for maintaining the NIH Public Access Policy and extending it to other government agencies by providing evidence of public use of NIH-funded articles. Presumably the availability of articles in PubMed Central has helped clinicians in practice, private researchers, and consumers who seek the latest health-related research.

Responses to the NIH Public Access Policy embargo period were balanced (Table 2). Respondents were split between agreeing, disagreeing, and being neutral towards the current twelve month post-publication period that exists before articles

become publicly available. There were more participants (43%) who disagreed or strongly disagreed with the current embargo period than those who agreed or strongly agreed with the status quo (29%). The statement posed in the survey included a phrase that the embargo period should not be reduced; so the 43% of respondents who disagreed with the statement may desire a shorter embargo period.

Behaviors related to the NIH Public Access Policy

Participants were asked several questions to assess their behaviors related to the NIH Public Access Policy. The survey included questions to determine how librarians learned about the NIH policy, the different roles they have related to the policy, and about their involvement in helping researchers comply with requirements. When asked, 63% of participants (N=63) responded that they have taught library users and researchers about the NIH Public Access Policy. Of all librarians surveyed, 40% (n=26/65) said that they have assisted NIH-funded researchers with policy compliance. Only two out of the eight new librarians (those with less than three years of experience) who responded to the question reported providing instruction about the policy. More experienced librarians were more likely to provide instruction (69%, n=38/55). The more experienced librarians were more likely to assist researchers in compliance (45%, n=25/56) than newer librarians (11%, n=1/9) as well.

Table 3

Librarians' Roles Involving the NIH Public Access Policy

Role	Response rate, n=65
Teach researchers about the policy's requirements	37%
Teach researchers about specific ways to comply with the policy	29%
Design or help design print materials	14%
Develop/maintain webpages or online guides with policy information	40%
Offer researchers individual or group consultations upon request	54%
Offer classes that include information about the policy	32%
I do not offer any services related to the Policy	28%
Other	11%

Respondents identified being involved in several types of roles related to the

NIH Public Access Policy (Table 3). These include offers to meet with researchers

individually or in groups upon request. Developing or maintaining library webpages

and guides about the policy was the second most identified with role (40%). Some

roles that participants described that were not presented as options in the survey

included doing submissions for researchers (n=2) and gathering PMCIDS (n=2).

Researchers are required to include PubMed Central reference numbers (PMCID)

when citing applicable papers in their applications, proposals, or reports to the NIH.

Explaining the difference between PMCID and PMID (PubMed ID) and assisting

researchers in identifying them is a service that health sciences librarians should be

capable of performing.

Library users and NIH-researchers are not asking librarians for help regarding

the NIH Public Access Policy very often, according to survey participants. Out of the

65 respondents, 42% said that users never asked for assistance with the policy.

Another 40% provide assistance once or twice a year. Eleven respondents (17%) said

they provide help once or twice a month and the remaining 2% do so at least once or twice a week.

Participants were split in how competent they felt providing NIH Public Access Policy-related services. Overall, 60% (n=39/65) of librarians said they felt competent. However, there was a dichotomy between new and older librarians. Out of the nine new librarians who responded to this question, two (22%) felt competent providing services. In their open-ended responses they expressed a lack of training and knowing nothing about the policy. One participant mentioned referring questions to colleagues. Of the 56 more experienced librarians, 66% felt competent providing services. The open-ended responses from these librarians indicate that those who felt incompetent providing services had at least received training on the policy, but did not have opportunities to keep their skills fresh. The results suggest that, even though more experienced librarians could use more training, newer librarians are severely in need of education on the NIH policy.

Most of the survey participants learned about the NIH Public Access Policy through self-instruction (Table 4). Approximately one-fifth of respondents gained knowledge of the NIH policy through in-service training or conference programs. The low levels of self-reported competence, particularly among new librarians, suggest that self-instruction is not an adequate method to learn about the policy. Perhaps new health sciences librarians should have mandatory in-service training during their first few months in their first positions. The NIH website (n=4) was described as a source to learn about the NIH policy. Three respondents also listed learning from colleagues as a source of information.

Table 4

Methods Used by Librarians to Learn about the NIH Public Access Policy

Method	Response rate, n=62
In-service training	18%
Conference programs	21%
Self-instruction	77%
Workshops	8%
Medical Library Association (MLA) Continuing Education	11%
Other	24%

Table 5

Barriers to Librarians' Desired Level of NIH Public Access Policy Involvement

Barrier	Response rate, n=59
Lack of training on the NIH Public Access Policy	39%
Lack of teaching skills	0%
Lack of subject knowledge	14%
Lack of time	51%
Lack of supporting staff	27%
Lack of interest from the NIH-funded researchers	29%
Lack of support from library administrator in professional development	7%
Other	20%

Participants' desire to become more involved with helping researchers comply with the NIH Public Access Policy was measured. Less than half of librarians (40%, n=26/65) expressed a desire to become more involved. More experienced librarians (n=56) were more likely to say they do not want to be more involved in compliance assistance than new librarians (n=9) (39% vs. 11%). Barriers to librarians' desired level of involvement with the NIH Public Access Policy were explored as well (Table 5). A lack of time and training were the most cited barriers. These responses seem to validate the previous responses showing that only 60% of librarians surveyed feel

competent providing services. Seven out of the eight new librarians who selected barriers to their desired involvement expressed a self-reported lack of training on the policy. This appears to corroborate the groups' lower scores on the knowledge questions earlier in the survey. A need for more training of health sciences librarians, especially those just beginning their careers, on the NIH Public Access Policy is apparent.

Research Works Act and Other Comments

The secondary research question in this project was to explore how academic librarians have been responding to the Research Works Act. Some of their responses have been document in this paper's "Literature Review" section. Librarians have largely opposed the Research Works Act, as indicated in open letters to the House Committee on Oversight and Government Reform and in online discussions. Survey responses show that 87% of participants disagree or strongly disagree with the Research Works Act. Respondents also provided twelve open-ended responses pertaining to the Research Works Act and the NIH Public Access Policy. One librarian wrote to his/her U.S. Representative in opposition to the Research Works Act and encouraged others to do the same. Another librarian commented that librarians recognize the advantages to science and health that result from wide dissemination of research findings and should therefore become open access advocates. One person felt that it was a librarian's duty to inform researchers about federal policies like the NIH mandate, but does not need to help with submissions—or "clerical work."

Two responses referred to a taxpayer's right to federally funded research. Support for public access to research is indicative of librarians' service orientation. Respondents' comments about the NIH Public Access Policy and open access imply

that they are part of a more ethical information sharing model than the traditional,

commercial publishing model and the Research Works Act.

Discussion and Conclusion

Reference librarians have a unique role in libraries. These librarians (along with instruction librarians) are on the front lines. Among all librarians, they have the greatest amount of interaction with patrons and have the opportunity to influence the thoughts and behaviors of those they come in contact with. With this power, reference librarians, if they choose, have the opportunity to become change agents. Buehler and Boateng (2005) enumerated five characteristics of people who instigate change: "creativity, courage, visibility, perseverance, and driving motivation." In order for the open access movement to become stronger, more reference librarians must become change agents. For academic health sciences reference librarians, the NIH Public Access Policy presents an important opportunity to adopt such a role.

The passage of the NIH Public Access Policy in 2008 cemented health sciences librarians' role in the open and public access to information. Nearly four years after the policy's passage, assessing academic health sciences reference librarians' knowledge of, attitudes toward, and behaviors related to the NIH Public Access Policy could produce information that leads to better practice and an understanding of how well these librarians are capable of being change agents. In order for librarians to initiate change in others they must first be aware and knowledgeable.

New librarians (those with 0-2 years of experience) had a noticeably different relationship with the NIH Public Access Policy than more experienced librarians (3 or more years of experience). Out of the 66 surveys analyzed, a majority of respondents

had eleven or more years of experience as health sciences librarians (55%). There were nine new librarians (14%) who responded to the survey. Based on their answers to the five knowledge questions, health sciences librarians as a single group appear to be informed about the NIH Public Access Policy. Some deficiencies appeared in the answers though. Most respondents believed that PubMed Central submissions could be in either print or electronic formats, which is incorrect. New librarians were more likely to answer the knowledge questions incorrectly or chose the "don't know" response than their more experienced colleagues. The responses by new librarians suggest they lack a deep understanding of the NIH Public Access Policy and its requirements.

Librarians' attitudes toward the NIH Public Access Policy and its influence have some variance. Most librarians agree that the policy benefits researchers, the scientific community, and people not affiliated with universities or organizations with journal subscriptions. Librarians did not feel that policy compliance was burdensome to researchers. They did believe that researchers become confused about policy compliance when presented by publishers with the option to pay to make their articles open access. Apparently, researchers are conflating this fee-based option from publishers with NIH policy compliance requirements. This represents an immediate instruction opportunity for reference librarians. Researchers need to know that complying with the NIH Public Access Policy costs nothing and that publishers' offers of open access are completely optional. Publishers use the open access option as an additional revenue stream; an author who pays $3000 to make an article open access does not reduce the price of the library's subscription to the journal containing that article.

There was no consensus among survey participants about publishers' role in submitting manuscripts to PubMed Central on behalf of authors. Librarians did not agree that it should be the publishers' responsibility to handle submissions, even though efficiencies could be manifested through economies of scale. A majority of respondents did agree that librarians should help researchers comply with the policy. There were differences in the interpretation of what constituted help. Some believed that it includes teaching researchers about the PubMed Central submission requirements and others believed that it also includes offers to do the actual submissions for authors.

Surprisingly, less than half of librarians believed that the embargo period (twelve months) should be reduced. Responses suggest that the majority of librarians feel that the twelve month period is an appropriate balance of interests, or they are undecided on the matter. Other funding agencies, particularly the United Kingdom's Wellcome Trust, have a six month embargo period stipulated in their open access policies.

The results of the questions on librarians' NIH Public Access Policy-related activities indicate opportunities for change and growth. Only 63% of health sciences librarians have been involved with teaching users or researchers about the NIH policy, with new librarians doing so much less than more experienced librarians. Perhaps this level of involvement reflects the finding that 60% of respondents feel competent providing NIH Public Access Policy-related services. Less than a quarter of new librarians feel competent in this manner. A majority of librarians learned about the policy through self-instruction. Apparently self-instruction has not enabled enough librarians to have the knowledge and skills to feel competent to provide necessary

services. Health sciences library managers and directors should take a more proactive effort to ensure that reference librarians are knowledgeable and competent regarding the NIH Public Access Policy and its requisite services.

Due to the nature of the relationship between reference librarians and library users and researchers, it is vitally important that librarians' knowledge and competencies are at a level where they can provide outstanding service. Managers can take a two-pronged approach to address this need. Librarians with three or more years of experience appear to have been trained relatively well on the NIH policy, but due to a lack of reinforcement, do not feel comfortable providing policy assistance. These librarians could benefit from a refresher on the policy. New librarians are not getting enough policy education at the beginning of their careers and it is impairing their ability to help patrons. Making NIH policy training a regular part of new librarians' job orientations would give them the foundation for helping patrons; mainly by answering technical questions and compliance issues. The survey responses suggest that relying on self-instruction is insufficient. Health sciences library managers should assume responsibility for their staff's competency and provide more guidance for those librarians who are new to the field.

Health sciences librarians cannot become change agents without first having proper awareness and knowledge of the subject—in this case, the NIH Public Access Policy and open access. Reference librarians are in a unique position to influence the thoughts and behaviors of users, but must have a desire to do so as well. In an era where innovation, collaboration, and openness are touted, librarians should assert themselves in facilitating the sharing and retrieval of research articles and data. The NIH Public Access Policy is an embodiment of the values of intellectual freedom,

sharing, and concern for each other's health. The free public access to the latest

federally-funded health research was a major accomplishment and its impact has not

been fully realized. The benefit of the access to this health information by members of

the public and scientists who would otherwise not have access to it is not insignificant.

Reference librarians can demonstrate their importance and relevance by facilitating

NIH Public Access Policy awareness and compliance, particularly among library users

who would probably remain unaware of its existence. Ideally, more reference

librarians will choose to become change agents as well. By advocating for the NIH

Public Access Policy, opposing measures like the Research Works Act, and supporting

FRPAA (a bill that would create public access policies for other government agencies),

reference librarians can have an impact that extends far beyond the library and the

academy.

Limitations

This study faced some limitations that resulted from the chosen research method and its execution. The data in this study was generated through an Internet survey, and a convenience sample was recruited through three listservs. Therefore all of the elements in the population of interest could not be identified or measured. Without this information, a response rate could not be calculated either. Online surveys have low response rates due to survey fatigue. This survey relied on self-reporting, which carries reliability risks.

In the course of administrating the survey, it was brought to the researcher's attention that question #5 (Appendix A), "Manuscript submissions to PubMed Central are not required by law," was considered ambiguous by several participants and was therefore excluded from analysis. Questions #8 and #9 were missing "Don't know" answer choices as well. The rest of the knowledge questions did include that option.

Finally, much of the data analysis and conclusions are based on comparisons between new librarians (those with 0-2 years of experience) and more experienced librarians (3 or more years of experience). The number of new librarians answering most of the questions was usually nine. Ideally, that sample would have been larger. Future studies that focus on a comparison between these two groups should recruit a larger sample of new librarians to strengthen its conclusions.

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Appendices

Appendix A. Survey of Academic Health Sciences Librarians' Involvement with the

NIH Public Access Policy

About you
Are you academic health sciences librarian whose job responsibilities include reference, instruction, or liaison duties?
___Yes
___No (use skip logic to exit study)

How long have you been a health sciences librarian?
___0–2 years
___3–5 years
___6–10 years
___11 or more years

What type of library do you work in?
___Health sciences
___General (main) campus library
___Other (please specify)_____

Your knowledge of the NIH Public Access Policy
Please do not consult any sources.

The NIH Public Access Policy describes a voluntary manuscript submission program.
___True
___False
___Don't know

Manuscript submissions to PubMed Central are not required by law.
___True
___False
___Don't know

The NIH Public Access Policy requires researchers to submit or have submitted manuscripts that are: (check all that apply)
___Peer-reviewed
___Not peer-reviewed
___Accepted for publication
___Not accepted for publication

___In an electronic format
___In print format
___In either electronic or print format
___Don't know about any of the above

The NIH Public Access Policy applies to dissertations, book chapters, conference proceedings and/or letters to the editor.
___True
___False
___Don't know

If an article is listed in PubMed does the manuscript still needs to be submitted to PubMed Central?
___Yes
___No
___Don't know

Manuscripts will be made publicly available through the National Library of Medicine's PubMed Central no later than how many months after the official date of publication?
___3 months
___6 months
___9 months
___12 months

Your thoughts about the NIH Public Access Policy
To what extent do you agree or disagree with the following statements? (5-point scale, ranging from "strongly agree" to "strongly disagree")
• The NIH Public Access Policy provides little benefit to researchers or the scientific community.
• The public has a right to access the findings of NIH-funded research because it is taxpayer supported.
• Complying with the policy is burdensome to researchers.
• Researchers become confused about policy compliance when publishers offer them the option of paying to make their articles open access.
• Librarians have a duty to help researchers comply with the policy.
• Publishers should be responsible for submitting all manuscripts to PubMed Central, not researchers.
• Librarians are too busy to help researchers comply with the policy. This is the researcher's responsibility.
• The free availability of manuscripts in PubMed Central has benefitted people that are not affiliated with organizations that subscribe to scholarly journals.
• The period of time after publication before manuscripts must become available (12 months) is appropriate and should not be reduced.
• The Research Works Act is a bill in the House of Representatives (H.R. 3699) with the stated goal "to ensure the continued publication and integrity of peer-reviewed research works by the private sector." The bill's provision that would prohibit open

access mandates like the NIH Public Access Policy will help fulfill that goal and should become law.

Your activities related to the Policy
Are you, or have you been, involved with teaching library users and researchers about the NIH Public Access Policy?
___Yes
___No

Are you, or have you been, involved with assisting NIH researchers with policy compliance?
___Yes
___No

What roles do you have that involve the NIH Public Access Policy? Please select all that apply.
___Teach researchers about the policy's requirements
___Teach researchers about specific ways to comply with the policy
___Design or help design print materials
___Develop/maintain webpages or online guides with policy information
___Offer researchers individual or group consultations upon request
___Offer classes that include information about the policy
___I do not offer any services related to the Policy
___Other (please describe)

How often are you asked for assistance from members of your institution with the NIH Public Access Policy?
___Never
___At least once or twice a year
___At least once or twice a month
___At least once or twice a week
___More often than once or twice a week

Do you feel competent in providing NIH Public Access Policy-related services?
___Yes
___No (If no, please provide reasons)

What method have you used to gain knowledge on the NIH Public Access Policy? Please select all that apply.
___In-service training
___Conference programs
___Self-instruction
___Workshops
___Medical Library Association (MLA) Continuing Education
___Other (please specify)

Would you like to have more involvement in supporting researcher's compliance with the Policy?

___Yes
___No
___Not sure (please explain)_____

Please indicate which of the following pose barriers to your desired level of involvement in NIH Public Access Policy education and/or support in your institution. Please select all that apply.
___ Lack of training on the NIH Public Access Policy
___ Lack of teaching skills
___ Lack of subject knowledge
___ Lack of time
___ Lack of supporting staff
___ Lack of interest from the NIH-funded researchers
___ Lack of support from library administrator in professional development
___ Other (please describe)

Please add any general comments regarding the involvement of academic health sciences reference librarians' in supporting the NIH Public Access Policy. Comments are welcomed about awareness, importance, future directions, changes, or the Research Works Act, the bill before Congress that seeks to prohibit federal open access mandates.

Appendix B. First Recruitment E-Mail

Hello,

My name is Dave Ghamandi and I am a master's student in library science at the University of North Carolina at Chapel Hill. I am conducting a research study on academic health sciences reference librarians and the NIH Public Access Policy. The purpose of my research is to determine the librarians' knowledge of, attitudes toward, and behaviors related to the NIH Public Access Policy and to describe if and how they are responding to the Research Works Act.

If you are an academic health sciences librarian whose job responsibilities include reference, instruction, and/or liaison work you may participate in the study by completing a web-based survey. The survey, which will ask you questions related to your job and the NIH Public Access Policy, should take 15-20 minutes of your time and is voluntary. You may stop taking the survey at any time, and you may skip any question for any reason. You will not receive any direct benefit from being in this research study. A possible risk of participating in this study is embarrassment if your identity and responses became public; as with all research, there may be other unknown or uncommon risks. You should report any discomfort to the researcher. All possible measures have been taken to protect the confidentiality of your answers.

Your individual responses will be kept strictly confidential. I will report only summaries of the aggregated data from responses to the multiple-choice questions. This means that your responses will be combined with all of the other responses received and will not be able to be identified as yours. Responses to the open-ended questions will be stripped of any personally identifiable information before being reported. Deductive disclosure which is the discerning of an individual respondent's

identity and responses through the use of known characteristics of that individual is also possible but unlikely.

If you have any questions regarding this survey, you may contact me (Dave Ghamandi, the Principal Investigator) via e-mail at ghamandi@email.unc.edu or by phone (919.966.xxxx). Dr. Joanne Marshall is my faculty advisor for this research project and may be contacted at marshall@ils.unc.edu or by phone (919.843.7883). All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have any questions or concerns regarding your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at (919) 966-3113 or via email at IRB_subjects@unc.edu with study number 104197.

By clicking here [survey link] and completing the survey, you agree to be a participant in this study.

Thank you,

Dave Ghamandi

Appendix C. Second Recruitment E-mail

Hello,

Recently I contacted you to request your participation in a unique research study on academic health sciences reference librarians' roles involvement with the NIH Public Access Policy. I am writing to encourage you to respond as soon as possible.

My name is Dave Ghamandi and I am a master's student in library science at the University of North Carolina at Chapel Hill. The purpose of my research is to determine academic health sciences reference librarians' knowledge of, attitudes toward, and behaviors related to the NIH Public Access Policy and to describe if and how they are responding to the Research Works Act.

If you are an academic health sciences librarian whose job responsibilities include reference, instruction, and/or liaison work you may participate in the study by completing a web-based survey. The survey, which will ask you questions related to your job and the NIH Public Access Policy, should take 15-20 minutes of your time and is voluntary. You may stop taking the survey at any time, and you may skip any question for any reason. You will not receive any direct benefit from being in this research study. A possible risk of participating in this study is embarrassment if your identity and responses became public; as with all research, there may be other unknown or uncommon risks. You should report any discomfort to the researcher. All possible measures have been taken to protect the confidentiality of your answers.

Your individual responses will be kept strictly confidential. I will report only summaries of the aggregated data from responses to the multiple-choice questions. This means that your responses will be combined with all of the other responses received and will not be able to be identified as yours. Responses to the open-ended

questions will be stripped of any personally identifiable information before being reported. Deductive disclosure which is the discerning of an individual respondent's identity and responses through the use of known characteristics of that individual is also possible but unlikely.

If you have any questions regarding this survey, you may contact me (Dave Ghamandi, the Principal Investigator) via e-mail at ghamandi@email.unc.edu or by phone (919.966.xxxx). Dr. Joanne Marshall is my faculty advisor for this research project and may be contacted at marshall@ils.unc.edu or by phone (919.843.7883). All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have any questions or concerns regarding your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at (919) 966-3113 or via email at IRB_subjects@unc.edu with study number 104197.

By clicking here [survey link] and completing the survey, you agree to be a participant in this study.

Thank you,

Dave Ghamandi