A Qualitative Examination about Providers' Perceptions and Recommendations Regarding the Role of Public Librarians in Addressing Communities' Health Literacy

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Abstract: We assessed health care
health information and elicited input on how to adequately prepare public librarians to provide health information services. Sample text-based reference transactions were shown to determine whether they think the health inquiries were adequately answered. Results showed that participants had favorable perspectives about public libraries, and

needs. Participants provided recommendations for public librarians to improve health literacy. To enhance the ability of public librarians to meet the health literacy needs of their communities, diverse perspectives such as health care providers should be included in the development of a future training curriculum.

Keywords: health literacy, health care providers, public libraries, library users, reference transactions

1. Introduction

to obtain, process, and understand basic health information and services needed (Nielsen-Bohlman, Panzer et al. 2004). The profound consequences of poor health literacy are extensive. They include decreased and/or inappropriate use of health services, increased risk of hospitalization, reduced access to and use of preventive services, lack of understanding of the causes and treatments of a disease, and the inability to manage chronic illnesses (No authors 1999; Berkman, Dewalt et al. 2004; Nielsen-Bohlman, Panzer et al. 2004; Orban 2005; Hess and Whelan 2009). According to the Institute of Medicine, nearly half of all American adults have

difficulty understanding and using health information (Nielsen-Bohlman, Panzer et al. 2004). The nation's poor health literacy is characterized as public health's "silent epidemic" (Marcus 2006). Poor health literacy is a roadblock that makes it more challenging for patients to receive the information they need to address health concerns, especially at a time when the health care system is increasingly fragmented and complex (Parker 2000). People with low functional health literacy have more difficulty navigating the health care system and obtaining services. They are less likely to comprehend written and oral information given to them by providers, and more likely to incur higher health care costs and disproportionately have poorer health outcomes than those with high levels of

communication, greater adherence to treatment, greater ability to engage in self-care, improved health status, and greater efficiency and cost savings to the (U.S. Department of Health and Human Services 2012). Research has demonstrated that health literacy reduces health disparities (Misra-Hebert and Isaacson 2012) and is linked with an improved ability to address a number of health conditions (Flaskerud 2012; Koay, Schofield et al. 2012; Rosas-Salazar, Apter et al. 2012).

There is a growing recognition of the need to enhance consumer health literacy (Orban 2005; Olney, Warner et al. 2007). Health literacy has been identified as a priority by the Institute of Medicine, the National Library of Medicine, and Healthy People 2020 (Adams, Corrigan et al. 2003; National Library of Medicine 2004; U.S. Department of Health and Human Services 2012). Addressing health literacy by enabling patients to understand and act in their own interest is a critical pathway to improved quality care in our nation (Nielsen-Bohlman, Panzer et al. 2004). Consumers are taking more responsibility for their own health care as the health care system increasingly involves patients and families in treatment decisions (Kouame, Harris et al. 2005). With the March 23, 2010 passage of the Patient Protection and Affordable Care Act, there is an increased emphasis on the public's active participation in issues concerning their health.

An important pathway to improved health literacy is access to high-quality and comprehensible health information, a

uniquely positioned to play a supporting role in this regard (Baker, Sprang et al. 1998; Lyon 2001). They provide a no-cost, convenient way to help consumers navigate health information resources, address health information needs, and ultimately improve their health literacy (Zionts, Apter et al. 2010). The public library is the first resource many people consult when seeking health information (Westermann-Cicio 2003; Zionts, Apter et al. 2010). A significant percentage of consumers seek health information at public libraries (Wood, Lyon et al. 2000; Kouame, Harris et al. 2005), and there are two main reasons for this. First, public libraries offer free computer and Internet services. A

risk for health disparities (Malachowski 2011), and the public library is a resource that contributes to mitigating this risk. Second, services provided by public librarians can help consumers find the health information they seek.

Difficulty locating relevant health information, as well as interpreting and evaluating its quality, are substantial barriers in the health information seeking process (Fallis and Fricke 2002; Kouame, Harris et al. 2005; Zionts, Apter et al. 2010)

three-quarters of online health information seekers check the source and date

million Americans gathering health advice online without consistently examining the quality indicators of the information they find (Fox 2006).

 To overcome these health information seeking barriers, public librarians can help to guide consumers in locating, evaluating, and interpreting high-quality health information, supporting consumers as they make more informed health care decisions and become more health literate (Westermann-Cicio 2003; Harris and Wathen 2007; Malachowski 2011). Health information inquiries account for as many as 60% of the total reference inquiries at public libraries (Wood, Lyon et al. 2000).

Despite the large number of consumers who seek health information at their local libraries, many public librarians are not confident or competent in providing reference service to health information seekers due to concerns such as inadequate understanding of health literacy, provision of misinformation, and possible intrusion on consumer privacy (Wood, Lyon et al. 2000; Borman and McKenzie 2005; Parker and Kreps 2005; Harris and Wathen 2007). As a result, the level of service delivered by public librarians has shown substantial variability. Professional training is indispensable to helping public librarians effectively meet the health literacy needs of their communities (Harris, Wathen et al. 2005; Kouame, Harris et al. 2005; Parker and Kreps 2005). Although public librarians have expressed interest in receiving additional training, their training needs have not been well addressed (Linnan, Wildemuth et al. 2004). Reference librarians in public libraries are often generalists, who study information seeking from a broad perspective while earning their graduate degree, but typically do not take any specialized courses in health information seeking. Health literacy is a complex topic, where issues of culture, language, and learning are interrelated (Hess and Whelan 2009). These topics should be covered in health information training for public librarians, but are not incorporated into existing professional development programs. The training should be grounded in empirical research that examines current service practice and identifies the full scope of challenges encountered by public librarians. It should be also accessible to all public librarians in an affordable manner.

providers regarding health literacy needs, as well as ways public librarians can help to improve consumer health literacy. Input from health care professionals, based on their expertise in health literacy, will inform efforts to identify the most appropriate content for the training program. The involvement of health care providers in this study ensures that diverse perspectives representing multiple disciplines are included in development of the training curriculum, which is the planned intent. In their article about overcoming health literacy challenges, Parker and Kreps (2005),

health literacy effectively, the multiple interdependent dimensions of this complex issue have to be addressed. This means developing sophisticated multidimensional approaches and creating interdisciplinary partnerships to address the many problems associated with health literacy in the modern health (Parker and Kreps 2005).

2. Methods

Study procedures. A convenience sample of ten health care providers was recruited to participate in the study in Santa Clara County, California. According to the 2010 U.S. Census, there are nearly 1.8 million persons residing in Santa Clara County, 47% of whom are White, 32% Asian, 26.9% are Hispanic (of any race), 2.6% are Black, 0.7% American Indian/Alaska Native , and 0.4% are Native Hawaiian/Other Pacific Islander (U.S. Census). Also, 86.5% have a high school education or highe

degree or higher (U.S. Census). Moreover, 9.7% live below the poverty level (U.S. Census).

Recruitment efforts comprised of emails posted on professional/health care listservs, fliers posted in health care offices, and word of mouth. Interviews were conducted in 2013 by the study investigator and graduate research assistant. Interviews were conducted face-to-face in a private room at a university campus

care providers received $100 for their participation. A semi-structured interview

libraries as a source of health information; and, (2) elicit their input on how to adequately prepare public librarians for the provision of health information services. During the interview, each participant was also shown a selected sample of the library texting-based reference transactions and asked to determine whether they think the health inquiries are adequately answered, and if not, what could have been done to make the transaction more successful. A reference transaction is defined as an inquiry that was made by a library user (also kn

public librarian. Table 1 shows the reference transactions that were shown during the interviews.

Table 1- Reference Transactions

No.	Patron's Question	Public Librarian's Response
1.	Will it be bad if I drink beer while taking amoxcicillin?	I'm sorry, but this service cannot provide medical advice. You might want to consult your doctor or the online information provided by the Mayo Clinic (http://www.mayoclinic.com/health/antibiotics-and-alcohol/AN01802).
2.	What is the proper way to take care of a tattoo I just got a new tattoo a couple days ago?	The tattoo artist should have given you specific instructions for your tattoo. General instructions are available at http://tattoo.about.com/cs/beginners/a/blaftercare.htm

3.	What is the fastest and easiest way I can flatten my stomach or at least get rid of excess stomach fat?	Good source of info is webmd.com
4.	What makes an alcoholic?	Alcoholism involves all the symptoms of alcohol abuse, and adds the physical dependence on alcohol. If you rely on alcohol to function or feel physically compel This is according to the mayo clinic webpage.
5.	What are the signs of depression?	Here's a link that talks about the various signs of depression: http://helpguide.org/mental/depression_signs_types_diagnosis_treatment.htm
6.	What is the difference between a bacteria and a virus? And which one is more contagious/destructive?	Both can be destructive but bacteria can often be killed with antibiotics where viruses typically cannot. Bacteria also function in positive ways such as digestion. To read more about it check out this site http://www.diffen.com/difference/Bacteria_vs_Virus

 Libraries provide reference service via multiple venues   at the reference desk,
via telephoies8.27 163(s)3(/d)9(ail)-549(a-6(n)-6(d)-p)-   rk th65(v)6(ir)-50(d)exc a-6(T7)3-9(x)-3(o)-9avivibias

Text reference transactions were selected for this study mainly because they could be anonymously captured in its entirety
automatically masqueraded by the gateway software. In the other forms of digital reference service like chat or email reference, the transactions are

anonymous. Another reason is that mobile health is becoming increasingly popular. Texting has been widely employed by health educators and heath care professionals to promote health literacy and disseminate health information. A growing number of health texting and mobile health programs are being implemented. In 2010, the U.S. Department of Health and Human Services established the Text4Health Task Force to actively explore means to capitalize on the rapid proliferation of mobile phone technology and platforms, such as texting, to develop programs and/or partnerships with the overall aim of improving public health outcomes (U.S. Department of Health and Human Services). Given this trend, health-related transactions in text reference service were selected for examination, and used as a basis to invite input from health care providers.
Participants were also asked to share any useful resources that could help better

background (i.e. demographics; specialty) and practice (i.e. practice setting; patients) will also be administered.
Data analysis. The interview data were transcribed into a Microsoft Word
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analysis software, on which the qualitative data were analyzed. Content analysis was conducted. Both raters compared their analyses to clarify their code definitions. Upon the completion of coding the transcripts, emergent themes and subthemes were pieced together to form a comprehensive understanding of participants. Descriptive statistics were analyzed using Microsoft Excel 2007.
Human Participant Protection.
State University approved the study procedures.

3. Results
Sample Characteristics. All respondents were women, with an average age of 41.9 years (SE=3.5). Sixty percent were Asian American; 30% White and 10% Mixed Race. Seventy percent of the participants were U.S. born, and the remaining participants have lived in the U.S. for 20 or more years. Thirty percent spoke English only, while the others spoke English and Vietnamese, Spanish, Chinese, or Tagalog. The majority (90%) have completed graduate school or a college education (10%). All are employed. When asked how long they have been in their current occupation, responses ranged from 1 to over 20 years, with an average of 9.5 years. Current occupations included a college health counselor, internal medicine physician, mental health therapist, clinical social worker, registered nurse, nurse practitioner, medical assistant and director of college health at a local university. In terms of country of birth, 70% were born in the U.S., 20% in Vietnam, and 10% in the Philippines. Sixty percent

reported that they were married, 10% divorced, 20% as never married, and 10% as a member of unmarried couple.

Qualitative Findings. *Perceptions of public libraries.* Participants stated that they use or have used the public libraries for research and/or school-related activities (50%), computers (40%), and leisure activities such as reading books, listening to music, and watching movies (60%).

Participant: "I think they're a valuable part of the community."

Perceptions of public librarians. The majority of the participants perceived the role of a public librarian as important and beneficial as they provide referrals to resources on various topics including health information (90%).

Participant: "I think the public librarian can be a great resource in terms of directing community to resources that are reliable regarding health."

Ten percent of the participants felt that public librarians are underutilized.

Reference transactions. The reaction to these reference transactions was mixed. For example, most health care providers stressed the need for public librarians to establish boundaries in their responses to the patrons. In other words, public librarians are not medical providers, and thus, should refrain from providing medical advice (90%). Instead, public librarians should restrict their responses to recommending that the patrons seek health information from

Participant: "Health advice and health provision is reserved for healthcare providers. So perhaps they could give definitions and provide resources, but probably never advice because that requires a scope of practice that they don't have."

Participant: "This [public librarian's response] may be a little bit too much information on the part of the librarian."

responses were too brief and that the librarians should offer specific and expanded comments (30%).

> *Participant: "Well, I'd be pretty suspicious about what's going on if someone just asked "What's the fastest and easiest way to flatten their stomach?" So, I'd want to know what the reasons that are making them want to do that. And, if they said, I don't know, my boyfriend doesn't like me, he tells me I'm too fat, then I would want to direct them towards some relationship or counseling or other resources . . . So, I mean, with that question, I would want to get more information."*

Furthermore, for reference transactions # 2 and #6, all of the health care providers have not heard of the websites.

> *Participant: "I don't know too much about the site in terms of reliability but, you know, just saying general instructions may be found, but also just put a disclaimer in saying that it's not something that we're associated with and I can't condone yes or no. I can't say that this information is the correct information or not, but this is a place. So just because, like I said, I don't know [if the] site is accurate."*

From the six reference transactions (Table 1) that the participants reviewed, three (reference transactions #4, #5 and #6) in particular elicited a strong reaction from the majority of the health care providers. Overall, participants felt

and/or incomplete.

> *Participant: "He's asking for signs and symptoms, and you're giving him a help guide; and so it could go either way, but the fact that it has mental and depression in the same line looks like you're making the assumption that he's got something wrong in his head. That's what it sounds like to me."*

For reference

felt that the public librarians provided too much or unnecessary details. From spectives, providing such a detailed factual response may confuse the patrons, especially for patrons without a biological background and/or who have a low socioeconomic status.

> *Participant: "First of all, this is way too technical for somebody who's just asking a question. Her information is correct in a sense that there is a distinction, but the wording is going to scare them. Genome- you know, that's going to say, whoa, what is that? You know, they used to tell us to write in like a fifth- or sixth-grade level; and this is just way above their heads. Prokaryotic, no, they're not going to like [this]. They're going to be turned off by not even wanting to go any further because this is more information than they need. It's nice that they offered a definition . . . but this is way too technical for the general population. I'm assuming the person writing it is a general population individual."*

Also, although these were online reference transactions, a few (20%) of the participants thought that the public librarian could encourage the patrons to visit the libraries to receive additional health information.

 Definition/Description of health literacy. When the participants were asked to provide a definition of health literacy, most participants provided an adequate and/or a good definition. Twenty percent of the participants did not provide an adequate definition, and 10% said that she did not know what health literacy was.

When participants were asked to describe the health literacy level and breadth of their

variable (some poor and some good) while others reported that it was good (20%) or poor (30%).

> *Participant: "We have those where English is their second language, and so they don't understand too complex worlds. Then we have some who are really literate and very good on their computers. . . but I would say that 70 percent of our patients would not be well-versed in health information.."*

In terms of sources of health information, the health care providers stated that they thought that many of their patients/clients (60%) receive their health information from family/friends or online themselves and self-diagnose their condition (50%).

> *Participant: "And we do get patients who do have access to Internet and can navigate technology. People end up looking on the Internet and diagnosing themselves and coming to the clinic to confirm their diagnosis. A lot of times it's way off."*

   Recommendations on how to improve health literacy in the community. All participants stated that public librarians needed to understand the communities that they serve, which include the socio-demographic profile of the communities. In addition, they also recommended that public librarians receive cultural competency training.

> *Participant: "Being familiar with the community that they actually live in, what different languages are spoken."*
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> *Participant: "We have those that -- where English is their second language, and so they don't understand too complex worlds. Then we have some who are really literate and very good on their computers; and almost everybody has a smartphone now, so they can probably look things up that way too as well. But I would say 70 percent of our patients would not be well-versed in health information."*
>
> *Participant: "We should attempt to hire librarians that are local to that community so they're more invested and more aware of what's around them."*
>
> *Participant: "So maybe a little cultural sensitivity too. They might need to know how to interact with the public."*

Participants shared resources that could help better prepare public librarians to

reputable websites such as the Mayo Clinic (90%), WebMD (80%), the Centers for Disease Control and Prevention (80%), the National Institutes of Health

recommended that public librarians include more than one website in their

> *Participant: "We do use WebMD too but in our work when we refer somebody to a website or something, we try to refer . . . three sources. Because if you just give one, you're saying that this is the only one or this is the best. So we want to say, we want to give you a range. . ."*

Other recommended resources included the use of crisis hotlines or information line (60%), medical libraries at hospitals/universities (30%), support groups (20%), and journal articles or Pubmed (20%).

Moreover, 70% of the health care providers recommended that public librarians participate in seminars/training with community organizations and/or universities as well as to utilize available community resources.

> Participant: *"I think a public librarian's job is really to just help people, you know, access information to the best of their ability. So, I think the more training a librarian has on health literacy, the better, and then the more they can pass it on to other folks. Do I think it should be a part of their job description? I mean I think helping people access all sorts of information is important but health is pretty essential. So, I mean, I would support any [training] initiatives."*

> Participant: *"Just being familiar with what other community services are around so that you can refer to other, like, if it's Catholic Charities or legal advocates for children, at least being aware, these are the things that may be available, that are available, that you may be interested in."*

> Participant: *"I think probably what should happen is [the public librarians] could go to a public health school, . . . maybe a three-hour session or something where they could get a certificate for taking it, [and] just talk about what the resources are in terms of online resources, like Web MD, [what the] pluses are and where the minuses are, what to be careful about [like] Wikipedia and things like that. So I think just a general introduction. I think that would be very helpful for them."*

Ten percent of the participants also suggested that incentives be made available to public librarians to receive such training. A few participants (30%) also recommended that a training program or course should be developed and tailored specifically for public librarians and for them to learn about the health information services that are available in their communities.

> Participant: *"If you can find a way for them to learn layman's terminology for the medical side of it, then that would be really helpful. And of course, they would have to be able to go through the Internet, identify reputable sources of information that are not just the top three."*

> Participant: *"So I know like the public health department and the county system, they have a lot of directories and . . . a 1-800 number where people call for specific -- for any health related topic, like I'm pregnant, I need care, can I go to, or my child needs immunizations or I think I got food poisoning, where do I go? The librarian [should] actually be familiar with what the public health department does. They've got a lot of outreach workers that sometimes do visit the library."*

Another participant stressed the importance of public librarians to be involved with their community including schools and other collaborative/initiatives.

> Participant: *"Being at least involved in, like your public health department's community collaborative on anything, a lot of neighborhood initiatives, at least being a part of that or being in contact with either the different schools in the neighborhood. A lot of those children and families end up visiting the library in that area."*

Additionally, a few participants (20%) proposed that public libraries should recruit volunteer social workers/public health workers to assist with the provision/interpretation of health information as well as a method to connect the community to community resources. One participant suggested that a needs assessment of public librarians should be conducted about their health literacy.

Participant: "Well, first of all, you would have to survey what they know. And so you need to do an initial assessment so-to-speak to figure out what they know and then figure out what they need -- what's missing. It could be online courses. It could be medical terminology courses, those kinds of things."

4. Discussion

Summary of findings. Overall, the health care providers perceived the role of a public librarian as significant because they have the ability to provide referrals to resources on various topics including health information. For the majority of health care providers themselves, they were able to describe health literacy well or adequately. However, half of health care providers reported that their

remaining thought that it was good (20%) or poor (30%). Also, many thought that their patients receive their health information from family/friends or online themselves (60%) and self-diagnose their condition (50%).

The qualitative findings show that the reaction to the sample reference transactions was mixed. Most health care providers emphasized the importance for public librarians to establish boundaries (i.e. refrain from offering medical advice) in their responses to the patrons and limit their responses to include recommendations for the patrons to seek health information from reputable

responses were perceived as too factual, judgmental and/or incomplete, and may be problematic for patrons without a biological background and/or who have a low socioeconomic status. However, some of the health care providers thought that the librarians should offer specific and expanded comments, and a few even felt that the public librarians should encourage the patrons to visit the libraries to receive additional health information.

It is important to note that all of the health care providers reported that they have not heard of the websites that public librarians included in their responses in specific reference transactions (#2 and #6). The health care providers shared resources that could help better prepare public librarians to improve the

hotlines or information line, medical libraries at hospitals/universities, support groups, and journal articles or Pubmed.

The health care providers also offered several important recommendations for public librarians to address the health literacy needs of their communities. These recommendations included for public librarians to receive cultural competency training, utilize available community resources, participate in seminars/training with community organizations and/or universities, and recruit social workers/public health workers to assist with their training.

Strengths and limitations. One of the major strengths of the study was that the study sample included diverse health care providers in factors such as race/ethnicity, occupation, languages spoken other than English, and nativity. There were interested potential participants who were male; however, due to unforeseen scheduling conflicts, they could not participate in this study. Although all of the participants were female, it is not certain that the qualitative findings would have differed significantly by having male health care providers in the study. Due to the explorative nature of the study, the study sample size was small. Finally, another strength of the study is by interviewing health care providers who meet with patients (potential public library patrons), the development and/or improvement of existing health literacy training programs and/or tools for public librarians would likely be more comprehensive.

Study implications. All of the health care providers emphasized that public librarians need to understand the communities that they serve, and recommended that they receive cultural competency training. Cultural

recognize other cultural groups but also be able to effectively work with (Sue 1998). The presence of cultural competency is vital to reducing health and health care disparities (Dunn 2002; Horner, Salazar et al. 2004; Taylor and Lurie 2004)

appropriate care (Smith 1998), increases satisfaction with care (Smith 1998; Beach, Price et al. 2005), improves quality of care (Anderson, Scrimshaw et al. 2003; National Mental Health Information Center 2005) and improves health status (Fortier and Bishop 2003). Public librarians may participate in cultural competency trainings that are available by local health departments, community-based organizations, universities and hospitals. Lie and colleagues

of its own and others' cultures, beliefs, practices, jargon, assumptions, and strategies. This form of communication embraces tenets in both cultural competence and health literacy for cross-   (Lie, Carter-Pokras et al. 2012). While public librarians are technically not known as health professionals, they are an alternate resource to health professionals because community members do seek health information from them; thus, they should be held to a similar code of conduct as health professionals and provide culturally competent health information services to patrons.

There were also recommendations by the health care providers in this study that there needs to be a health literacy needs assessment of public librarians and a training program or course developed and tailored for public librarians. Indeed,

the authors conducted a survey of 460 public librarians nationwide to identify the challenges encountered by public librarians when assisting patrons with health information needs and to inquire public librarians about their desired content and delivery options of training on providing consumer health information service (Luo and Ta Park in press). They found that the top two reported challenges by public librarians were the difficulty in interpreting the patrons' questions and the lack of knowledge about available medical/health information sources. Also, public librarians who reported experiencing a higher number of challenges tend to be those without any consumer health information service training and those who encounter health-related questions more frequently. The authors also found that the top two training topics identified by public librarians were knowledge/navigation of up-to-date health information resources and health reference interview, which is defined as the "conversation between a member of the library reference staff and a library user for the

needs" (p.37) (Bopp and Smith 1995). As for the way training should be delivered, the most popular option was self-paced online tutorials.

5. Conclusions

It is widely known that poor health literacy results in poor health and health care outcomes. The public library is the first resource many people consult when seeking health information and librarians can play a vital role in improving the

prepared to address the health literacy needs of their communities (Harris, Wathen et al. 2005; Kouame, Harris et al. 2005; Zionts, Apter et al. 2010). The goals of this study were to better understand the health literacy needs of the

from the health care providers for the public librarians to better address the health literacy needs of their communities. It is hoped that this study will help stimulate further work from professionals in the field given that health literacy (Adams, Corrigan et al. 2003; National Library of Medicine 2004; U.S. Department of Health and Human Services 2012). Furthermore, the study findings raise critical questions for future dialogue and research including the following: *What is the role of the public librarian regarding health literacy in the community? Should public librarians play a role in summarizing and interpreting health information for the patrons, or be limited to referring the patrons to websites? Given that some of the health care providers have never heard of some of the websites that the public librarians provided in some of the reference transactions, should public librarians continue to include such websites in their reference transactions? Should public librarians be provided with a list of reputable health-related websites that are well-known to the medical community?* Such questions require that all stakeholders, such as public librarians, health care providers, researchers and community members, meet and have future in-depth discussions surrounding these issues.

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