

can help librarians provide resources to address health controversies.

## INTRODUCTION

The United States is seeing a growing number of parents refusing or delaying recommended childhood vaccinations, as well as a rise in vaccine-preventable diseases [1]. Some of these parents—intentional non-adherents—avoid vaccination because of concerns about vaccines' safety and a perceived low susceptibility to vaccine-preventable diseases [2, 3]. While their beliefs and attitudes may be strong, most of these parents appear to be earnestly open to both sides of the controversy and express the desire for unbiased information [4]. Other parents—unintentional non-adherents—slip off the vaccination schedule because of a variety of logistical and socio-demographic factors. While these parents are generally aware that childhood vaccination is important, their lack of specific knowledge contributes to low vaccination rates [5]. Both categories of parents could benefit from skilled help in navigating vaccination information and understanding its sources.

While a need for health information is one reason that the public visits public libraries [6], little is known about public librarians' knowledge about childhood vaccination and vaccination information resources, as well as their practices in guiding patrons who are concerned about vaccination. In helping members of the general public navigate controversial health information, public librarians likely struggle with the same tension between neutrality and advocacy that health sciences librarians experience when dealing with the information needs of patients and their families. On the one hand, the principle of collection neutrality, expressed in the Library Bill of Rights [7], maintains that particular viewpoints should not be privileged over others and that a broad scope of views is required. On the other hand, the neutrality position has historically been a contested position, with some professional voices maintaining that there are times when librarians should be advocates [8]. This tension in vaccination information provision is the subject of this research report.

This paper presents an in-depth qualitative study of nine library workers' beliefs and attitudes about childhood vaccination, their knowledge of health information resources, and their response to a hypothetical reference scenario involving a young mother who is concerned about a possible connection between childhood vaccination and autism. In particular, the authors were interested in exploring the potential impact of personal beliefs, as well as the role of mitigating factors such as professional standards and knowledge about resources, on provision of information about vaccination. The impetus for the study was Flaherty and Luther's investigation of public librarians' responses to pseudo-patrons' questions about the connection between autism and vaccination [9].

### Library workers' personal beliefs about childhood vaccination and vaccination information provision\*

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This is a report on the impact of library workers' personal beliefs on provision of vaccination information. Nine public librarians were interviewed about a hypothetical scenario involving a patron who is concerned about possible vaccination-autism connections. The analysis employed thematic coding. Results suggested that while most participants supported childhood vaccination, tension between their personal views and neutrality impacted their ability to conduct the interaction. The neutrality stance, though consonant with professional guidelines, curtails librarians' ability to provide accurate health information. Outreach and communication between public and health sciences libraries

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## METHODS

### Participants

The nine participants in this study (five white, three African American, one Hispanic; seven women, two men) worked in eight public libraries in four library systems: the District of Columbia, Montgomery County and Prince George's County (Maryland), and Fairfax County (Virginia). Eight held master of library science (MLS) degrees; one was a paraprofessional. The four systems were chosen to represent a diversity of public library branches in the area. The general region was chosen because of its proximity to the institution of one of the principal investigators.

### Recruitment

Administrators at the four library systems collectively suggested eight libraries as representative. The eight library directors were asked to identify library workers with considerable reference responsibilities.

### Protocol†

The library workers completed a short questionnaire and participated in one-on-one, semi-structured interviews led by an undergraduate student. The interviews included questions about common consumer health information requests, librarians' collections and preferred health information sources, and their beliefs about the role of public libraries in addressing consumer health information needs. It also presented two scenarios involving hypothetical patrons' queries: one about Medicare Part D and the other about childhood vaccination and autism. General results and the complete interview guide can be found elsewhere [10]. The section of the interview pertaining to addressing a vaccination query provided the basis for this study:

■ We are interested in your own views about one kind of health information, which is about vaccination. It would be very helpful if you could fill out the following short questionnaire. (*See the questionnaire below.*) Could you please talk a bit about each of your answers.

■ Imagine that a patron, a young mother, approached you because she was concerned that vaccinations may cause autism. She is looking for information. What resources would you suggest to her and why?

■ We'd like to hear about what you think are the challenges of this kind of question.

The questionnaire, modified from previous studies on attitudes toward vaccination [3, 11], asked participants to rate their agreement or disagreement with the following statements:

- "Without vaccinations, a child may get a disease."
- "Without vaccinations, a child can cause other children and adults to get the disease."
- "Vaccines are necessary."
- "Vaccines are safe."
- "Serious side effects can occur with vaccination."

Six-point-scale response options ranged from "Strongly disagree" (1) to "Strongly agree" (6).

### Analysis

All interviews were audio-recorded, and transcribed and coded using NVivo 10 (QSR; Sydney, Australia). The coding scheme was adapted from Smith [12] and modified through pilot coding and resolving of disagreement by discussion. Each protocol was coded by two authors.

## RESULTS

### Summary of personal positions on vaccination

Review of the responses to the questionnaire reveals that none of the participants were opposed to vaccination. All agreed or strongly agreed that vaccines are necessary; no one disagreed that vaccines are safe. Yet, nuanced analysis of response patterns suggested a different level of internal consistency of participants' beliefs. Three patterns of response emerged. We identify our participants as Staunch, Concerned, and Tentative Believers (Figure 1).

### Three positions

**Staunch Believers.** Participants 5, 8, and 9 were the Staunch Believers: They not only saw vaccines as "necessary for the individual, but also for public health" (Participant 5), but also disagreed or strongly disagreed with the statement that "serious side effects can occur with vaccination." This disagreement did not mean that they saw the likelihood of side effects as the absolute statistical zero; rather, they viewed risks as minimal and benefits as highly exceeding the risks. For example, Participant 5 stated, "I do understand that every once in a while there are some side effects to some vaccines, [but] the side effects are very moderate..., so it's better than getting whatever the ailment is."

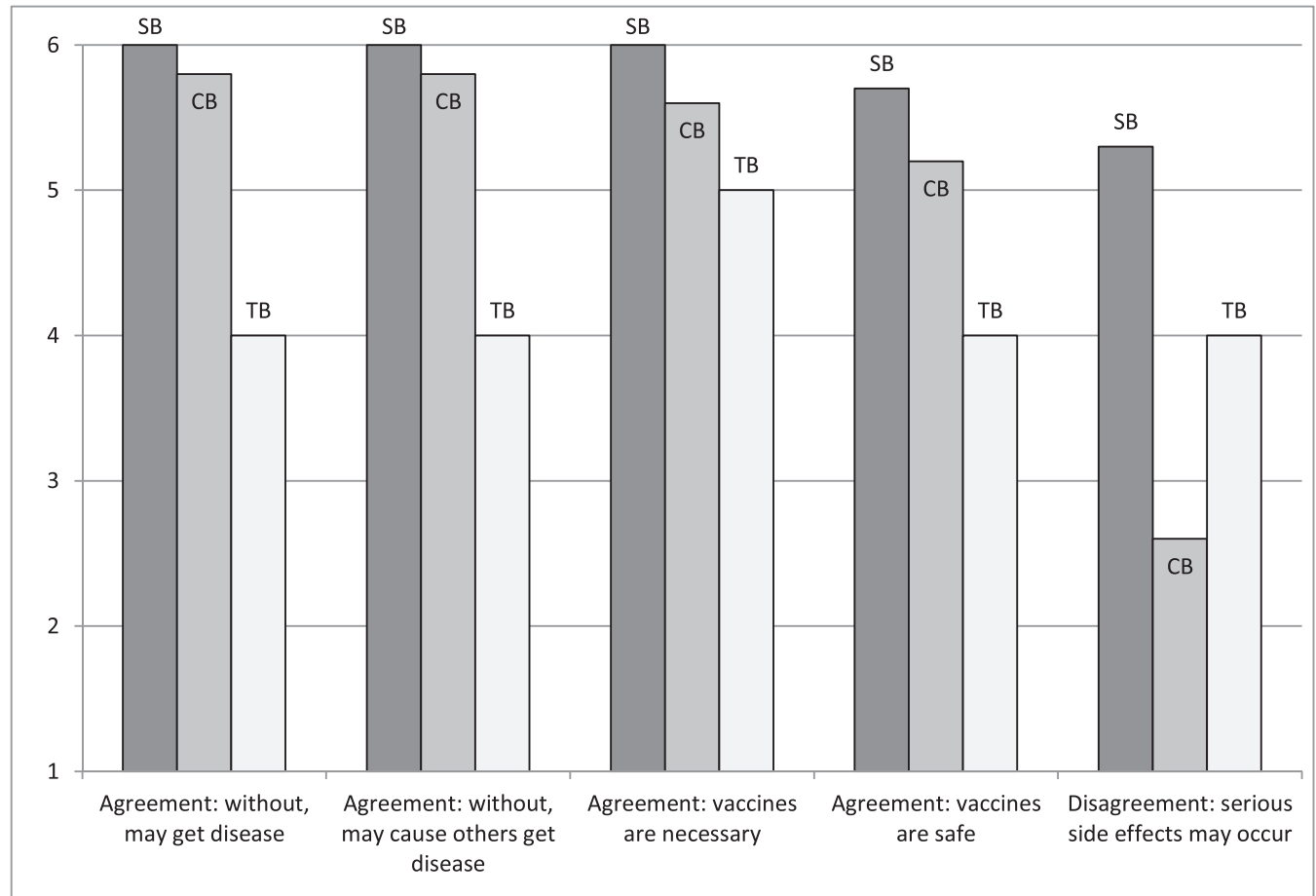
These participants viewed eradication of vaccine-preventable diseases as a remarkable human achievement and denial of vaccination as voluntarily giving up a major public health victory. For example, on noting that "some diseases that we thought were stamped back are coming back," Participant 8 continued, "I think that it would be a shame to slip back to those days where we know how to prevent something and we are not."

**Concerned Believers.** Participants 1, 2, 3, 4, and 6 agreed (Participant 6) or strongly agreed (the rest) that vaccines are necessary. They also agreed (Participant 3) or strongly agreed that without vaccination, a child might get a disease and cause others to get it (the rest).

† The protocol received institutional review board exemption from the National Institutes of Health Office of Human Subjects Research (OHSR).

**Figure 1**

Average strength of agreement or disagreement with survey questions for Staunch Believers (SB), Concerned Believers (CB), and the Tentative Believer (TB)\*†



\* Values along the x-axes represent the 5 questions of the questionnaire.

† The bars represent mean strengths of agreement or disagreement with the 5 questions of the questionnaire for each of the 3 participants' positions. Ranges of standard deviations from the mean were the following: SB (participants 5, 8, 9): 0–0.58; CB (participants 1, 2, 3, 4, 6): 0.45–0.89. As there was only 1 TB (participant 7), no standard deviation can be reported.

However, four of the five “Slightly agreed” that serious side effects can occur with vaccination. One (Participant 6) strongly agreed with this view.

Like Staunch Believers, Concerned Believers see many individual and societal values in vaccination. This is exemplified by Participant 4's statement, “I think that [vaccines] are for the good of the child and of society at large.” Where Concerned Believers differed from Staunch Believers was in their perception of vaccination-related risks, which they described in more specific, palpable terms. For example, when explaining her opinion about whether vaccines were safe, Participant 1 stated, “Generally safe.” She then continued, “I won't say that all of them are safe... You need to take into consideration allergies and the health problems of the individual and this kind of thing. Okay, see, problem with this is that you can't say that it's absolutely safe.”

Despite their concerns about vaccine safety, these participants weighted the risk/benefit ratio in favor of vaccination. For example, Participant 3 stated, “I

believe in vaccinations and I think that they're important; if I had a child I would vaccinate them.” She continued by saying, “However there are side effects, or there could be side effects... So I understand why some people are hesitant.”

**Tentative Believer.** Of all the participants in the study, Participant 7 had the most tentative attitudes toward vaccination. It appears that his tentativeness stemmed not so much from concerns about vaccine safety, as from beliefs in natural immunity and individual differences in immune response that diminish the positive value of vaccination. In explaining why he “Slightly agreed” that without vaccinations a child might get a disease, this participant said, “You are not necessarily always going to get that disease because it depends... [For example], I have a strong resistance to malaria. I could be in a malaria area and I won't get it. But then somebody else might not have the same resistance I have and they'll get malaria.” This participant similarly invoked individual differences in immune response when explaining his

slight disagreement with the statement that serious side effects can occur with vaccination. Although this participant viewed susceptibility to vaccine-predictable diseases and vaccine reaction as highly individualized, he nevertheless agreed with the statement that vaccines are necessary.

### **Distinction between personal views and professional role**

In discussing their role in helping the hypothetical patron, participants often mentioned remaining neutral and abstaining from expressing their personal views as essential to their mission. The value of neutrality was upheld by participants regardless of their personal beliefs about vaccination. For example, Participant 2, a concerned believer, eloquently stated, "as a professional librarian, it's not my job to tell people whether they should vaccinate their children or not. And I wouldn't give my opinion about that."

### **Recommended resources**

Participants had been presented with a hypothetical patron scenario in which a young mother approached them because she was concerned that vaccinations might cause autism. A hypothetical patron described by a third party in an interview setting away from the reference desk is very different from a real patron standing at the desk asking for information. For that reason, the interviewees had difficulty making specific suggestions. Two people indicated that they would use "library-subscribed," "consumer health," or "magazine databases" (Participants 8 and 9) or "books on autism" (Participant 9); another referred to a "relatively neutral" book in her library's collection covering vaccination "pros and cons." However, most subjects could name specific electronic resources. Participants from all three philosophical positions mentioned resources from the Department of Health and Human Services, National Institutes of Health (NIH), and National Library of Medicine (NLM), specifically, PubMed and Medline-Plus. One of the cautious supporters (Participant 2) also mentioned an "autism awareness organization website." Finally, the Tentative Believer mentioned WebMD and Mercola.com, which is one of the most "heavily trafficked" alternative medicine sites [13] officially warned by the Food and Drug Administration (FDA) [14].

### **Justification of source selection**

When asked why they would turn to particular resources, participants attempted to adhere to two not easily compatible positions: dedication to neutrality, requiring them to present a broad spectrum of opinions, and dedication to information quality, represented by sources with traits of authoritative-ness, reliability, and a solid base of evidence.

**Staunch Believers and Cautious Believers.** While these participants believed in the importance of

childhood vaccination, they refrained from letting their views guide their resource selection toward advocacy. For example, Participant 5 would take the concerned mother to two types of library books: the "health section about vaccinations" and "books about vaccines as a social issue." His response positioned a vaccination decision as a social, rather than a scientific debate.

While participants tended to refrain from expressing their personal opinions, they were strong believers in providing quality information. "Quality," for these respondents, meant that a resource was "reliable" and free of bias, particularly commercial bias. This clearly conflicted with their desire to present the patron with "both sides" of the debate. For example, Participant 5 stated at one point, "I will give them all the books, I will put both [sides] out there," but at another point in the interview, maintained, "I would be pretty reluctant to use a private website, like a drug company." Participant 2 was equally ambivalent, making statements that advocated neutrality, while also favoring "primarily government," "unbiased" sources.

One attempt to reconcile these positions involved presenting a broad range of information sources, while supporting patrons' evaluations of that information. Several respondents spoke to this directly. For example, Participant 1 stated: "We have several books...one of them...tries to look at the pros and cons of vaccination. It tries to be relatively neutral...it won't push one side or the other." Soon after, this participant suggested that the young mother could visit "websites like PubMed and MedlinePlus and be taken to sources that specialize in autism" to compare "the probability of getting [vaccine preventable] illness or problem if you do not get the vaccine" with "the likelihood [that]...vaccines can cause autism."

**Tentative Believer.** In discussing his strategies, Participant 7 established himself as a strong proponent of neutrality. He said (as previously quoted), "I like to give all different viewpoints to the person to make sure that they see all different sides of the arguments." Also, his list of suggested resources spanned a variety of information sources and positions on vaccination: "I would give her a couple of different sites to see the various viewpoints...like Dr. Mercola, a traditional site like WebMD, and NIH or NLM site concerning any studies from PubMed...concerning vaccination and autism. And then I would show her copies of any books we have related to that." This participant did not discuss criteria for "quality" information and did not explicitly exclude any types of information sources.

## **DISCUSSION AND CONCLUSIONS**

The objective of this report was to conduct a study into library workers' personal beliefs about childhood vaccination, their knowledge of health information resources, and the impact of personal beliefs on vaccination information provision.



The study had some limitations that need to be considered in interpreting the findings. The small sample, necessitated by the interview methodology befitting the research question, did not allow the authors to generalize our findings about our participants' mostly strongly pro-vaccination stances to the general population of public librarians. The study involved a hypothetical scenario, which prevented participants from drawing on the richness of verbal and nonverbal cues inherent in a real reference interaction. In addition, this was not a study of reference interviews, which meant that participants' strategies for completely meeting real patrons' information needs could not be explored in real depth. These limitations might well explain the lack of specificity in recommended resources.

With regard to this report, the most salient findings are two areas of professional tension. The first is between participants' personal views (largely supportive of vaccination) and the view that they feel they can bring to the reference transaction, that is, *no* views. The second is between neutrality (the above-mentioned view of bringing no views) and commitment to information quality. While the neutrality stance is completely consonant with professional practice guidelines, avoidance of the information quality problem has the potential to limit public librarians' ability to promote and support public health. Are librarians simply conduits to sources containing answers to questions, or are they socially responsible agents in the transaction? The answer to this question affects not only collection development and maintenance—the arena in which “neutrality” is traditionally explored—but also reference services, since library workers turn to their institution's collections to answer questions. This professional dilemma is an old one. It has been articulated and argued about since the dawn of the public library “medical department” in the 1880s [15]. It was refined in the early years of the AIDS epidemic [16], in the context of the library's obligation to provide information on condoms to teenagers. It was also recently underlined in two other health-related contexts. Malizia and Vargas wrote about the support that public libraries and library staff provide in the event of natural disasters as information hubs and as shelters [17]. Public libraries have also been identified as information resources about enrollment for coverage through the Patient Protection and Affordable Care Act [18].

Our small study also has implications for health sciences librarians who work with consumers and patients on the particular issue of vaccination. First, it is clear that the public library can be a source of useful health information. The public library workers we interviewed would be able to direct their real-life patrons to many reliable, authoritative consumer health electronic and print resources. Second, our scenario centered on a controversial topic: autism and a purported connection to childhood vaccination. This social issue is a public health concern with implications for any clinic: it directly affects families' potential communication with their children's health

care providers. This controversial topic can be addressed through the professional channels, such as outreach programs, through which information professionals of different types communicate with and educate each other. Public library workers, after all, are consumers, too, and are likely to have questions about vaccines themselves.

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