JOURNAL OF THE CANADIAN HEALTH LIBRARIES ASSOCIATION

Volume 40, Number 2, August 2019

JOURNAL DE L'ASSOCIATION DES BIBLIOTHÈQUES DE LA SANTÉ DU CANADA

Volume 40, numéro 2, août 2019

CHAPTER HIGHLIGHTS		FAITS SAILLANTS DES CHAPITRES
	93-97	CHLA/ABSC Chapter and SIG Updates

EDITOR'S MESSAGE / MESSAGE DE LA RÉDACTION

This is my final issue as Editor-in-Chief for JCHLA/JABSC. I have enjoyed my experience with the journal and with the amazing team of editors, authors, and reviewers. Thanks to all for your continued work to make JCHLA/JABSC a success.

I look forward to seeing what next year's group will accomplish: Erin Watson will be stepping into the role of Editor-in-Chief and Sandra McKeown will serve as Senior Editor, joined by Alanna Campbell as Junior Editor. Rounding out the team will be Lucy Kiester and Nancy Gadoury as Copyeditor and Production Editor respectively.

This issue includes a program description on a Canadian-African partnership for evidence synthesis training, an article on veterinary health literacy, a review on research data management, a product review on Isabel Pro, and a book review. It also includes contributed paper abstracts, lightning talk abstracts, and poster presentation abstracts from the annual CHLA/ABSC conference held in Ottawa in June, and updates from the CHLA Chapters and Interest Groups.

Nicole Askin
JCHLA/JABSC Editor-in-Chief
Email: editor@chla-absc.ca

Ceci est mon dernier numéro en tant que rédactrice en chef de JABSC/JCHLA. J'ai apprécié mon expérience avec le journal et avec la formidable équipe de rédacteurs, auteurs, et pairs évaluateurs. Merci à tous pour votre travail pour faire de JABSC/JCHLA un succès.

J'ai hâte de voir ce que le groupe de l'année prochaine accomplira. Erin Watson assumera le rôle de rédactrice en chef et Sandra McKeown agira en tant que rédactrice principale, et nous accueillons Alanna Campbell à titre de rédactrice adjointe. Lucy Kiester et Nancy Gadoury seront respectivement réviseure de textes et directrice de la production.

Ce numéro comprend une description du programme sur un partenariat afro-canadien pour la formation à la synthèse des preuves, un article sur la littératie en santé vétérinaire, une revue de la gestion des données de recherche, une évaluation de produit portant sur Isabel Pro, et une critique de livre. Il comprend également des extraits de présentations d'articles, d'extraits de présentations éclair, et d'extraits d'affiches dans le cadre de la conférence de l'ABSC/CHLA qui s'est tenue à Ottawa en juin, ainsi que les mises à jour des chapitres et des groupes d'intérêt.

Nicole Askin
Rédactrice en chef, JABSC / JCHLA
Courriel: editor@chla-absc.ca

RESEARCH ARTICLE / ARTICLE DE RECHERCHE

Veterinarians' Information Prescription & Clients' eHealth Literacy

Niloofar Solhjoo[+], Nader Naghshineh and Fatima Fahimnia

Abstract: Introduction: The aim of this study is to investigate the relationship between pet owners' perceived health literacy skills (in finding, evaluating, and applying online pet health information) and using the information prescription (IP) provided by veterinarians about education on the internet. **Methods:** Thirty telephone interviews were conducted with pet owners approximately two weeks after completing a questionnaire of eHealth Literacy Scale (eHEALS) followed by an IP which was provided by veterinarians in addition to pet owners' customary veterinary services in a vet clinic at the center of Tehran, Iran. Qualitative and quantitative data were merged to explore differences and similarities among respondents with different eHealth literacy levels. **Results:** Results indicate that pet owners with a higher score of eHealth literacy more often accessed the suggested websites and reported positive feelings about this addition to their veterinary services. Similarly, among the 8-item self-reported eHealth Literacy skills list, perceived skills at evaluating and applying information were significantly associated with the use of IPs. Lastly, eHealth literacy level was significantly associated with the outcomes of prescribed information, such as veterinarian-client communication and learning outcomes. **Conclusion:** Disparities in the application of the veterinarian's IPs for online pet healthcare information, and its outcomes are associated with different eHealth literacy skills. Veterinarians should collaborate with information specialists and librarians to perform education efforts to raise awareness on online pet health information quality and the impact of veterinarian-directed information prescription, especially among pet owners with low health literacy.

Introduction

The Internet has become a primary source of health information that potentially provides many benefits for both humans and animals. To make better decisions about pet health, sickness, and wellness, pet owners are turning to the Internet for information [1]. For instance, Kogan & et al. (2018) reported that most UK pet owners use the Internet as the main source of pet health information [2]. Another study in Iran shows that there is a high willingness (65%) to search and use online pet health information among the population, and more than half of this information is complementary to what veterinarians provide [3]. Digitization in veterinary science has changed rapidly over the last decades, and online information and applications are playing a growing role in pet health care. Veterinarians and their clients are using the internet to seek and share health information about companion animals, interact with each other, and promote client education programs [4-5].

One of the novel programs to help veterinary clients access relevant (in print/online) information is information prescription (IP). It was introduced in the early part of the twenty-first century as a means for a physician to direct a patient to reliable, understandable, up-to-date information about a particular disease or condition [6], and it leads to the active and informed participation of the patients in the healthcare process. In other words, IP provides specific evidence-based information to patients to help them understand and manage their health/disease status [9]. So, we can define IP in veterinary medicine as a provision of high-quality, reliable pet health

Niloofar Solhjoo, MS. Information Science & Knowledge Studies, University of Tehran, Tehran, Iran
Nader Naghshineh, Dr.
Fatima Fahimnia, Dr.
[+]Corresponding author (email: niloo.solh@gmail.com)

information to a specific client to help him/her makes better-informed pet health care decisions. Information may be prescribed by the veterinarians, librarians or IPs websites, such as *MedlinePlus Pet Health*. The IP may include the URL (universal resource locator) to a general veterinary medicine website or it may be a compilation of booklets and other pre-printed materials. In previous studies the impact of IP has been examined in relation to clinic success [8-7]. These examinations clearly illustrate the positive reactions reported by pet owners when given an IP and that they would like to receive guidance in their online searches for pet health information websites; however, no scale was used to measure the impact of IPs on their health literacy.

Health literacy is defined by a systematic literature review of existing health literacy definitions as "the knowledge, motivation and competences to access, understand, appraise and apply health information in order to make judgments and take decisions in everyday life concerning health care, disease prevention and health promotion to maintain or improve quality of life" [10]. The Internet-era equivalent to health literacy is eHealth literacy [11] which includes skills to search, select, appraise, and apply online health information and healthcare related digital applications [12]. Pet owners play an active role in pet health and contributes to the pet health decision-making process, and these goals can be achieved by having a high level of health literacy. Since pets are dependent upon their caregivers, Landue (2016) suggests that we consider the collective health literacy of all those responsible for a pet's care [13]. In fact, collective eHealth literacy—including the pet owner, all family members, and other pet health care providers—is particularly important in finding and using online information and services for pet health purposes. The relevance of this form of literacy is demonstrated in human health studies, showing that parents and siblings' skills to use online information actually affect the health of their child and that a lack of such skills may lead to adverse outcomes [14-15].

Given the fact that online pet health information and IP websites are not always reliable, and their contents are sometimes poorly designed, we expect that pet owners' eHealth literacy level would be positively related to using veterinarian-prescribed online information and after-visit information behaviors. Therefore, the aim of this study is to investigate the relationship of pet owners' use of IPs with their perceived eHealth literacy skills (in finding, evaluating, and applying online pet health information).

Materials and Methods

This case study used a mixed-methods approach to collect and analyze data from pet owners. This approach was particularly suited to the largely unexplored nature of the topic. Thirty pet owners with their companion animals (cat or dog) who were clients of a veterinary clinic in Tehran, Iran received an IP consisting of a handout that included several tips to help clients with searching and evaluating online pet health information as well as a blank space for writing addresses to reliable and up-to-date veterinary medicine websites in the Persian and English languages. The IP was created collaboratively: authors customized the IP template based on information provided by Ann Viera [16], a veterinary librarian at the University of Tennessee, and then veterinarians recommended trusted websites (i.e. veterinarypartener.com, dampezeshkan.com, or medlineplus.gov/pethealth).

Quantitative data was collected from participants (n=30) via standardized questionnaires about eHealth literacy at the clinic waiting room before the IP was handed out in the examination room by vets. Once questionnaires were submitted, dog/cat treats were given to participants in return for completion. All participants were subsequently (10-15 days later) surveyed on their reaction towards IP using a semi-structured telephone interview. This allowed us to distinguish individuals with low and high eHealth literacy and to link the participants' description of their application of IP and its outcome to a quantitative self-assessment of their eHealth literacy skills. Written informed project consent was obtained from participants in the waiting room, all of whom were Persian speaking. The form asked for clients' contact information and if they would be willing to participate in a follow-up interview on their veterinary visit experience. This study was approved by the Research Office of Faculty of Management, University of Tehran.

Setting and participants

Data was collected in the Aran small animal veterinary clinic, in the central metropolitan Tehran area, Iran, with the participation of its healthcare providers and clients. Purposeful sampling methods

such as convenience sampling were used to recruit pet owners who meet the sampling criteria of the study: young and middle-aged adults (between 18-55 years old), patients (have a veterinary medical record at the Aran vet clinic), and internet users. Sampling continued up to 30 participants until informational redundancy or saturation was achieved - the point at which no new information or themes emerged from the data.

Data collection

Thirty telephone interviews were conducted after receiving an IP with suggested websites in addition to clients' customary veterinary services; each interview lasted between twenty to thirty minutes. Four open-ended questions were used followed by prompts as necessary (see Appendix A) and they were audio recorded. Call-back appointments were made whenever the selected respondent was unavailable. All interviewing was conducted during August 2017 by a professional interviewer from the University of Tehran.

eHealth Literacy was assessed by the eHealth Literacy Scale (eHEALS), an established validated instrument to evaluate these skills [17]. The eHEALS was designed to assess health consumers' perceived skills at using information technology for health and to aid in determining the fit between eHealth information/services and consumers. It comprises six skill domains: traditional literacy, health literacy, information literacy, scientific literacy, media literacy, and computer literacy [12]. The scale was previously translated into Persian [18] and continues to perform consistently across settings and populations. The internal consistency of the data collected using the eHEALS in this study was high (Cronbach alpha=0.88) and the test-retest coefficients for the items were reliable ($r=0.96$, $P<0.001$) [18]. It provides insight into the self-reported skills of health care consumers when searching and using online health information. The scale comprises 8 items on a 5-point Likert scale (1=strongly disagree, to 5=strongly agree). Higher scores on the eHEALS indicate higher eHealth literacy.

In addition, demographic information on pet owners' age, gender, education, frequency of internet/web usage in general and for pet health information specifically, and pet's species and reason for the visit was obtained as part of the background variables.

Data analysis

Qualitative and quantitative data were merged to explore differences and similarities among respondents with different eHealth literacy levels. NVivo 10, qualitative data analysis software from QSR International (qsrinternational.com) was used to manage and code recorded interview data. Content analysis was performed on the recorded pet owner interviews. As a recognized qualitative analytic technique, content analysis was used to examine the data for meaning within the context of all the recorded information [18]. This approach identified the major opinions, feelings, reactions, and responses to IPs that repeated and were common to several participants. Also, IBM SPSS Statistics 22 was used to compute frequency and descriptive statistics to summarize demographic and frequency statistics for each eHEALS item. Since this case study had a small sample size and nominal and ordinal level data, several non-parametric tests (e.g. Kruskal–Wallis test, and Spearman's rank correlation coefficient) were performed to examine the association between eHealth literacy skills and pet owners' satisfaction with IPs. The Kruskal-Wallis test can be used to determine if there are statistically significant differences between groups of an independent variable (IP outcomes) on an ordinal dependent variable (eHealth literacy). Also, the Spearman's rank-order correlation is the nonparametric version of the Pearson product-moment correlation which measures the strength and direction of the association between two ranked variables (eHealth literacy and frequency of using IPs) [20]. Analyses were considered statistically significant at the $P<0.05$ alpha level (two-tailed).

Results

Participants' characteristics

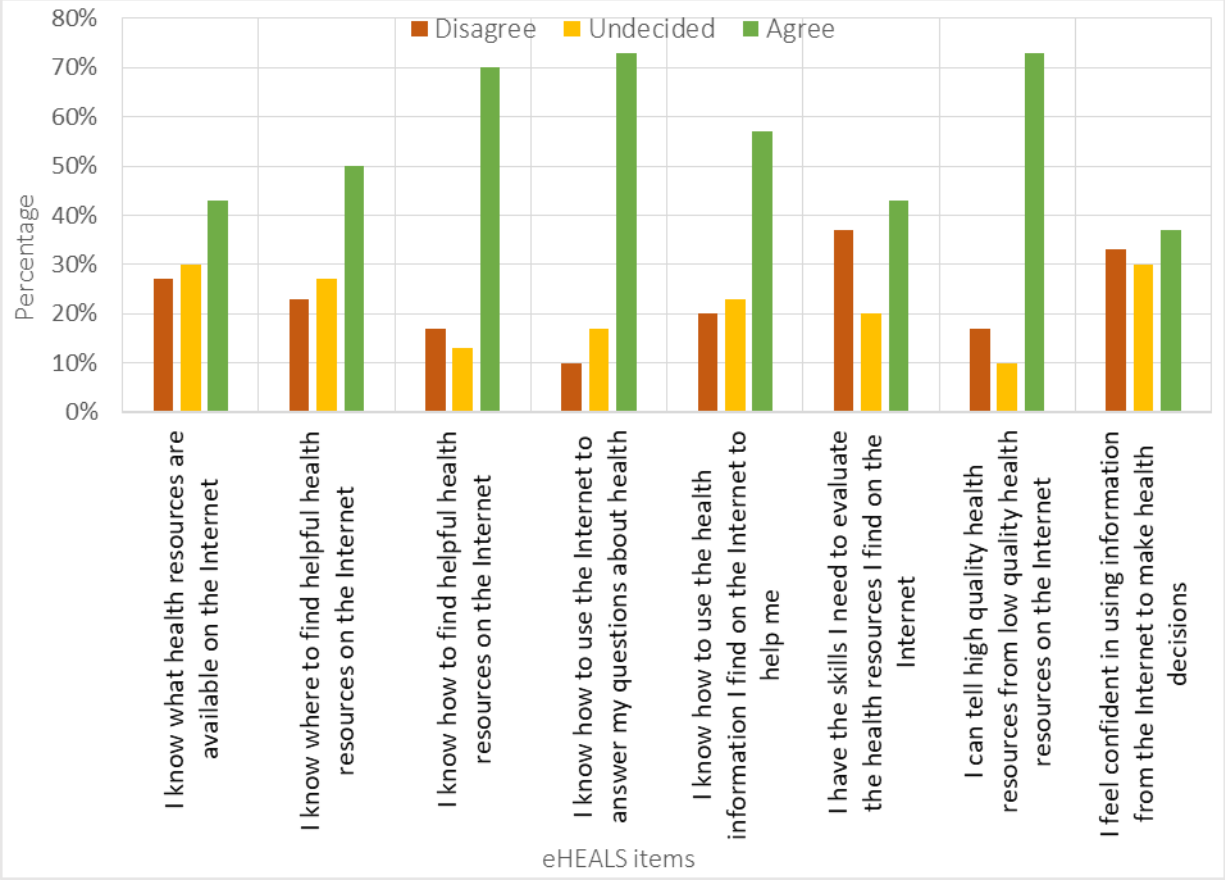
A total number of 30 participants completed the questionnaire and participated in the follow-up telephone interview. Although both sexes were fairly represented in the sample, more women (60%) than men took part in the study. The age of our participants varied, with an average age of 35 years (range 20-50 years). In terms of participants' education, a majority of them had undergraduate degrees 53% (n=16), 30% (n=9) had graduate/postgraduate degrees, and 17% (n=5) had college degrees. Also, participants were asked how frequently they accessed the internet in general, and for pet health information specifically.

Nearly all participants accessed the internet at least daily (28, 92%). Eleven participants accessed the internet for pet health information at least weekly (37%), while 19 (63%) reported at least once a month. When asked to indicate what species the participant owned or cared for, 15 (50%) were dog owners, and the other half were cat owners. Among the pet population, most visits (29, 97%) involved a single species of cat/dog and in one case the participant brought a mother cat with three kittens. As well, 13 of 30 visits (42%) were problem appointments, and 58% (n=17) were wellness appointments, namely routine checkup, vaccination, and deworming.

eHealth literacy

Participants scored on average 3.52 (SD=1.01) on the eHEALS (range 1–5), indicating a moderate perceived ability to perform online pet health information tasks. According to Figure 1, which illustrates the frequency of responses for each eHEALS item, over 70% of participants agreed with the following three statements on the eHEALS: "I can tell high quality health resources from low quality health resources on the internet" (22/30, 73%); "I know how to use the internet to answer my questions about health" (22/30, 73%); and "I know how to find helpful health resources on the internet" (21/30, 70%). Two statements with the greatest level of disagreement were related to confidence using online health information to make health decisions (10/30, 33%) and the ability to evaluate the health resources on the internet (11/30, 37%).

Fig. 1 Frequency of responses to 8-item eHEALS

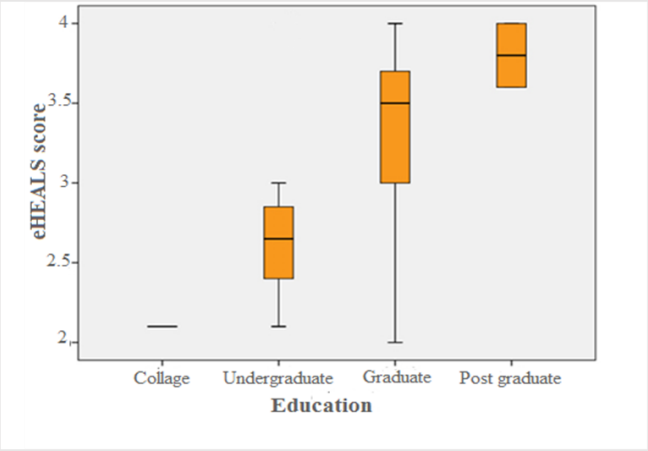


eHEALS scores were rank ordered from lowest to highest and divided into tertiles (i.e., low, moderate, and high scores), with the 33rd and 66th percentile used as cutoff points.

There was a statistically significant difference in total eHEALS scores based on education level (p=.041), whereby highly educated participants reported higher levels of eHealth literacy compared to

lower educated respondents (Figure 2). There was no statistical difference based on age (p=.501) or gender (p=.323).

Fig. 2 Distribution of eHealth literacy level based on pet owners' education



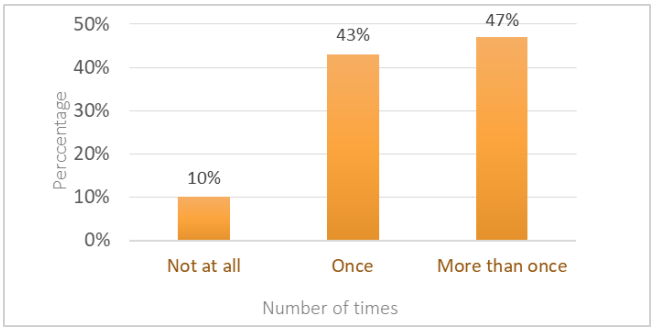
Information prescription outcomes

The follow-up telephone interview, conducted 10-15 days after the initial visit, was deemed successful at determining outcomes of veterinarians prescribed information. The recorded telephone interviews of 30 pet owners were analyzed using NVivo and after several passes through each interview, the emerging trends and patterns were organized into themes which are described in Table 1. In the following paragraphs, both quantitative and qualitative results will be presented.

During the interview, participants were asked how many times they used IP to access pet health online information since their veterinary visit. As Figure 3 shows, nearly 50% (14) of our participants used IP more than once, while 43% (13) of participants using it one time. Only 3 (10%) clients reported not viewing the IP at all. There was no significant difference in the number of times clients reported accessing the website based on gender (p=0.75), age (p=0.88) or education level (p =0.82). However, there was a statistically significant difference in the number of times using IPs based on type of appointments ($p<0.001$), whereby clients with problem appointments used IP more compared to clients with wellness appointments.

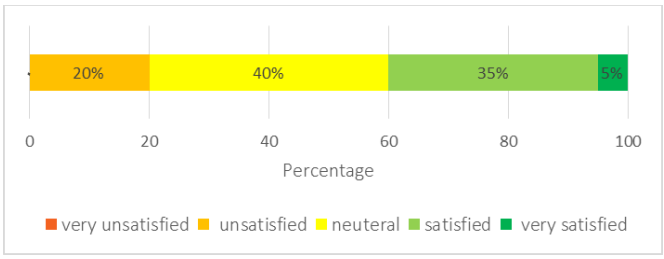
In general, pet owners' feedback about IPs were positive. Among the participants who used the IP, 22 (81.8%) found it helpful and 5 (18.5%) said it was unhelpful. Since IPs were suggested by veterinarians, all the participants trusted the recommended websites. The majority (20, 74%) of clients felt that receiving IP was a good idea, and 62.9% (17) stated they planned to visit the website again in the future.

Fig. 3 Frequency of using IPs among participants



Participants were asked to indicate their satisfaction with IP from 1 (very unsatisfied) to 5 (very satisfied) and results are illustrated in Figure 4.

Fig. 4 Frequency of satisfaction with IPs among participants



Moreover, we sought to extract and group all the outcomes reported by interviewees. The outcomes for pet owners were divided into three main themes of communication, learning and instrumental outcomes with their subthemes (Table 1). For instance, as a communication outcome, a cat owner who had used the IP stated that: "I talked with my husband about paying attention to the health website's domain that I read in the IP because he's a better internet user than me." Also, as an instrumental outcome, a dog owner talked about obtaining health information evaluation skills: "Within the last week I evaluated any piece of information I saw online following the tips in IP. In general, I pay more attention to the dates and sources."

In general, the following frequencies were reported for each group of outcomes by those who used the IP at least once (n=27): "Improving the understanding of pet health issues" (21, 77.7%), "Using recommended

pet health-related websites" (19, 70.37%), "discussing with veterinarian about pet health information" (19, 70.37%), "obtaining pet health information evaluation skill" (12, 44.4%), "changing in pet owner's health behavior" (10, 37%), and "discussing with family and friends about pet health information" (9, 33.3%). Relevant participants' quotes to illustrate the results from the interviews can be found in Table 1.

Table 1 Main themes of information prescription outcomes

#	Main-theme	Sub-theme	Participant's quote
1	**Communication outcomes**		
1-1		Discussing with veterinarian	(Female cat owner, 37 years old, undergraduate degree): "The IP was useful to give me some basic knowledge, but there were some weird medical term in recommended website that I didn't understand them. In my next visit I need to ask my vet to explain them for me."
1-2		Discussing with family and friends	(Female cat owner, 23 years old, undergraduate degree): "…I talked with my husband about paying attention to the health website's domain that I read in the IP, because he's a better internet user than me."
2	**Learning outcomes**		
2-1		Understanding pet health issues	(Female dog owner, 26 years old, undergraduate degree): "a documentary video of a dog suffering from Pyometra worried me a lot (on the recommended website), because the vet suggested to spay my middle-aged dog early in life, but in that time I didn't care enough about this issue."
2-2		Changing in pet owner's health behavior	(Male cat owner, 36 years old, graduate degree): "I found good tutorials on the suggested website for cat's teeth brushing. I tried many of them at home to see which suits my cat better. After a week, he [cat] still resists the brushing, but I'll continue to practice with him."
3	**Instrumental outcomes**		
3-1		Using recommended pet health-related websites	(Female dog owner, 42 years old, undergraduate degree): "I usually refer to a website, which is written by a veterinarian I know. But IP helped me to look for way more information, in particular information that could be more easily trusted, such as animal health-related websites published by nonprofit organizations."
3-2		Obtaining pet health information evaluation skill	(Male cat owner, 25 years old, undergraduate degree): "Within the last week I evaluated any piece of information I saw online following the tips in IP. In general, I pay more attention to the dates and sources."

Relationship between eHealth Literacy and Information Prescription outcomes

In Table 2 we present bivariate statistics of what is the relationship between clients' eHealth literacy and the use of veterinarians prescribed information. The

results outlined in Table 2 suggest that pet owners with the higher score of eHealth literacy accessed more to the suggested websites and reported positive feelings about this addition to their veterinary services. There was a moderate, positive association (Spearman correlation coefficient, r_s=0.890, p<0.001) which means that the higher score of eHealth literacy is associated with more use of IPs among pet owners. Also, there was a significant correlation between eHealth literacy and pet owner's level of satisfaction with IPs (Spearman correlation coefficient, r_s=-0.525, *p*=0.03).

Table 2 Comparison of the total eHealth literacy scores between frequency of using IPs, and levels of satisfaction

eHealth literacy score		
Frequency of using IPs	r_s	**0.890**
	p-value	<0.001
	n	30
Level of satisfaction with IPs	r_s	**0.525**
	p-value	0.03
	n	30

The different frequencies of IP use (not at all/once/more than once) were compared with each of the 8 items for eHealth literacy skills with one-way ANOVA. There were significant differences between using websites that suggested in the IPs and the three following eHealth literacy items: "I know how to use the internet to answer my questions about health" (*p*=0.014), "I know how to use the health information I find on the internet to help me" (*p*=0.013), and "I have the skills I need to evaluate the health resources I find on the internet" (*p*=0.004).

By observing the Spearman correlation coefficient between each of these items in Table 3, findings suggest the following:

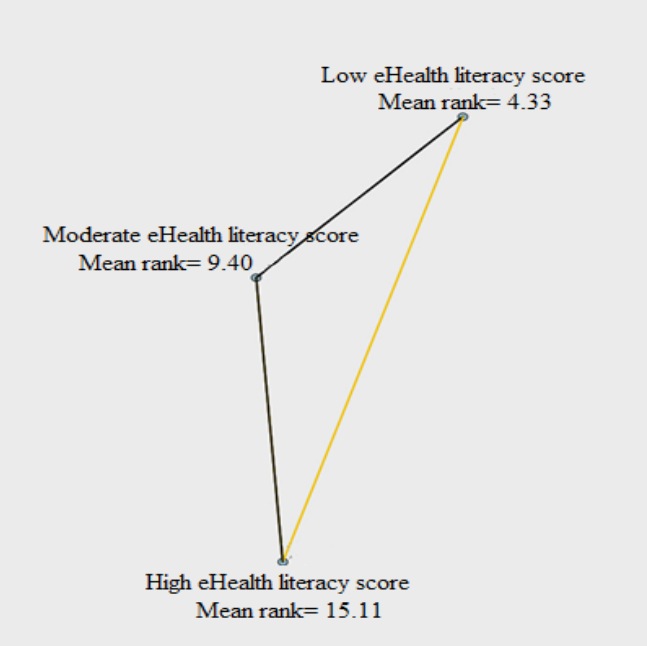
- Correlations between perceived skills at evaluating online health information and the frequency of using veterinarians prescribed information showed a strong association (r_s=0.715, p<0.001).
- Also, the correlation between using IP and perceived skills of applying online health information (including eHEALS items of "I know how to use the internet to answer my questions about health" and "I know how to use the health information I find on the internet to help me") was r_s=0.551 (*p*=0.01).
- There was no significant correlation between pet owners' ability to find online health information and using IPs (r_s=-0.381, *p*=0.089).

Table 3 Spearman Correlation Coefficients between 8 items of eHealth literacy and frequency of using IPs among pet owners

		eHealth literacy skills							
		I feel confident in using information from the Internet to make health decisions	I can tell high quality health resources from low quality health resources on the Internet	I have the skills I need to evaluate the health resources I find on the Internet	I know how to use the health information I find on the Internet to help me	I know how to use the Internet to answer my questions about health	I know how to find helpful health resources on the Internet	I know where to find helpful health resources on the Internet	I know what health resources are available on the Internet
Frequency of using IPs	r_s	0.087	**0.714**	**0.715**	**0.551**	**0.490**	0.234	0.381	0.103
	p-value	0.32	<0.001	<0.001	0.012	0.038	0.321	0.089	0.15
	n	30	30	30	30	30	30	30	30

In terms of outcomes, by applying one-way ANOVA on ranks results showed that there were statistically significant differences between IPs outcomes (veterinarians-client communication outcome and learning outcomes) and eHealth literacy scores. Participants with the higher score of eHealth literacy significantly (p=0.01) discussed more with veterinarians about health information they've found in IPs. According to Figure 5, participants with the high score of eHealth literacy (mean rank=15.11) understood more of their pet's health issues after using IPs compared with participants with the low level of eHealth literacy (mean rank=4.23) (p=0.01).

Fig. 5 Pairwise comparison of understanding pet health issues (as a learning outcome) between pet owners with different eHealth literacy levels



There were no significant differences based on other IPs outcomes: Using recommended pet health-related websites (p=0.278), obtaining pet health information evaluation skill (p=0.309), changing in pet owner's health behavior (p=0.335), and discussing with family and friends (p=0.362) among participants with different eHealth literacy scores. Table 4 illustrates frequencies of information prescription outcomes for each eHealth literacy groups.

Table 4 Frequencies of information prescription outcomes based on different eHealth literacy levels

			eHealth literacy scores			Total
			Low	Moderate	High	
	Instrumental outcomes					
IP Outcomes	Obtaining pet health information evaluation skill	n	2	1	6	9
	Using recommended pet health-related websites	n	4	5	4	13
	Learning outcomes					
	Changing in pet owner's health behavior	n	1	1	5	7
	Understanding pet's health issues	n	2	4	8	14
	Communication outcomes					
	Discussing with family and friends about pet health information	n	3	3	0	6
	Discussing with veterinarian about pet health information	n	3	0	9	12
	Total	n	15	14	32	61

Discussion

Past studies show that low health literacy had a negative impact on the use of the internet for health information, and the adoption of online services [21], however, never addressed the role of eHealth literacy on the application of IPs. It has been suggested that with a greater awareness of the issues of health literacy, health providers will elevate the information and services they provide to patients and clients alike [22-23]. The thematic analysis of the semi-structured interviews in our case study provided new insights to veterinary information prescription research by showing that different eHealth literacy skills have different associations with the use of IPs, and the relevant outcome categories for pet owners. Although our findings show that using IP is favorable in all groups with different eHealth literacy level, there are some indications that individuals with low eHealth literacy reported fewer IP outcomes.

The outcomes of IPs included changes in pet owner's attitudes and behavior (i.e., discuss pet health information with veterinarians). A participant mentioned that "I usually refer to a website, which is written by a veterinarian I know. But IP helped me to look for way more information, in particular information that could be more easily trusted, such as animal health-related websites published by nonprofit organizations." It seemed that for those who already use the internet, the IP can help direct such pet owners to recommended reliable websites. Also, the results emphasized IP program as a way to increase pet

owners' understanding of their pets' conditions. As an example a dog owner said, "a documentary video of a dog suffering from Pyometra (on the recommended website) worried me a lot, because the vet suggested to spay my middle-aged dog early in life, but in that time I didn't care enough about this issue." However, we were unable to provide evidence of efficacy of IP in improving pet health more than pet owners' behavioral changes.

It is also worth mentioning that participants who didn't find the IPs helpful seem to be highly dependent on direct communication with their vets and have a negative attitude toward the internet health information in general. For instance, they indicated that "I need to consult the vet for all my questions and concerns," "I don't want to replace my vet with the internet," or "I only trust information which is coming from my vet."

Findings show that most participants have at least a moderate eHealth literacy (30% of them identified with low eHealth literacy scores). Pet owners' education levels significantly related to their eHealth literacy skills. Previous studies note that educational background influences eHealth literacy [15, 24-25] in some instances. Similarly, in the pet/eHealth context having a higher level of education has been associated with greater overall eHealth literacy. However, these data should be interpreted with care, as the sample size was small.

In our study pet owners with higher eHEALS scores accessed the recommended websites more and reported positive outcomes to these additional veterinary services. The result is in line with findings of a recent systematic review of information interventions to assist pet owners which demonstrates health literacy (along with human–pet bond, and veterinarian–client relationship) as one of the most influencing factors on online pet health information behavior [23]. As suggested by Huber et al., the ultimate goal of any consumer health information program, requires that individuals be health literate [6]. According to Table 3, among the 8 items of eHealth literacy skills the following skills were significantly associated with the use of IPs among pet owners:

- Health information evaluation skill (items: "I have the skills I need to evaluate the health resources I find on the internet," "I can tell high quality health resources from low quality health resources on the internet")
- Health information application skill (items: "I know how to use the internet to answer my questions about health," "I know how to use the health information I find on the internet to help me")

One plausible explanation for these results may be due to the fact that information evaluation skills play an important role in pet owners' decisions to seek health information from multiple resources and enable them to understand specialized terminology, compare and evaluate information, and interpret them for their pet health. Thus, it is more likely to use veterinarian's information prescription and suggested websites.

The level of eHealth literacy is significantly related to the veterinarian-patient communication outcome and learning outcome. In other words, clients with a higher score of health literacy indicated more often that they would consult with their vet about online health information they found via IP and they seem more aware of their pet's health status.

Finally, these results suggest several opportunities for information specialists and librarians to become more active in different settings: veterinary clinics, veterinary schools, animal hospitals, and private sectors. Based on existing literature, it is obvious that the IP programs can be effective if librarians are used in the training process, targeting the appropriate audiences, and providing assistance to patients searching for health information online [26]. Therefore, veterinary librarians, as well as community librarians, can play a supportive role by providing evidence-based, accurate, up-to-date information to veterinarians and directly to veterinary clients [6-8, 23, 27]. For example, librarians can provide expert advice to veterinary clinical teams evaluating their patient education products and processes. They can help to raise awareness on animal health information quality and impact of veterinarian-directed IP especially among low health literate owners. Librarians can directly perform IP practices in animal hospitals or be involved in training the vets to use the IP since they are more engaged with pet owners. A good example of direct engagement of librarians with patients is the Info Rx program of the University of Virginia Health System where they measure long-term effects of the library service for consumer health information [28]. Also, the University of Tennessee Libraries has launched a portal of services for the veterinary practice team [16], which offers resources for techniques to evaluate what veterinary clients find on the internet,

high quality and easy-to-read veterinary medicine website, and templates for IP program.

Conclusion

Information prescription is increasingly considered as indispensable in animal health care services. Developing countries like Iran also have perceived its significant role in pet owner's health outcomes. While the aim of IP is to help to assess the quality of online health information, inadequate eHealth literacy of pet owners can prevent the application of IP to understand and evaluate online pet health information.

Limitations to the current study include a limited number of pet owners and the gathering data tools used in this research. Obtaining a larger and more diverse sample of pet owners is a possible avenue for future research. Also, open-ended interview questions and coding is subjective to the interpretation of the team and may be interpreted differently by other researchers.

eHealth literacy scale (eHEALS) is based on the individual's perception about their knowledge, skills, or feelings, and does not identify the true competence of their eHealth literacy. It is possible that pet owners who were interviewed could have overestimated their eHealth literacy abilities. A recent study shows that there is a moderate association between perceived and performed eHealth literacies which indicates that they should be assessed separately [17].

Another limitation is that the reported results are important for pet owners who have a positive overall attitude towards the internet and online health information. This study cannot help us to understand whether IP outcomes are important in improving the perception and behavior of individuals who do not use the internet.

Acknowledgements

The ideas in this article were first described and workshopped in a presentation at the 9th International Conference of Animal Health Information Specialists (ICAHIS), Budapest, Hungary, 2018.

References

1. Kogan LR, Schoenfeld-Tacher R, Viera AR. The Internet and health information: differences in pet owners based on age, gender, and education. J Med Libr Assoc. 2012 Jul; 100(3):197. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3411254/
2. Kogan L, Oxley JA, Hellyer P, Schoenfeld R, Rishniw M. UK pet owners' use of the internet for online pet health information. Vet Rec. 2018 May; 182(21):601. Available from: https://europepmc.org/abstract/med/29549181
3. Solhjoo N. Rabeteye tajviz etelaat ba raftere etelayabi va savade salamat sahbane heyvanate khanegi dar dampezeshki [The Association of Information Prescriptions in Veterinary Clinic with Pet Owner's Online Health Information Seeking Behavior and Health Literacy] [master's dissertation]. [Iran]: University of Tehran; 2018. 240 p. Persian.
4. Golbeck J. The more people I meet, the more I like my dog: A study of pet-oriented social networks on the Web. First Monday. 2011 Jan 29; 16(2). Available from: http://www.firstmonday.dk/ojs/index.php/fm/article/view/2859
5. White JI. Information management and animal welfare in crisis: The role of collaborative technologies and cooperative work in emergency response. University of Colorado at Boulder; 2015.
6. Huber JT, Shapiro RM, Gillaspy ML. Top down versus bottom up: the social construction of the health literacy movement. The Library Quarterly. 2012 Oct 1;82(4):429-51.
7. Kogan, LR, Schoenfeld-Tacher R, Gould L, Viera AR, Hellyer PW. Providing an information prescription in veterinary medical clinics: a pilot study. J Med Libr Assoc. 2014 Jan;102(1):41. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878934/

8. Kogan LR, Schoenfeld-Tacher R, Gould L, Hellyer PW, Dowers K. Information prescriptions: A tool for veterinary practices. Open veterinary journal. 2014;4(2):90-5.

9. Gavgani V Z. Evidence Based Information Prescription (IPs) in Developing Countries. IntechOpen. 2012; 1-17. Available from: https://www.intechopen.com/download/pdf/35208

10. Sørensen K, Van den Broucke S, Fullam J, Doyle G, Pelikan J, Slonska Z, Brand H. Health literacy and public health: a systematic review and integration of definitions and models. BMC public health. 2012 Dec; 12(1):80.

11. Neter E, Brainin E, Baron-Epel O. The dimensionality of health literacy and eHealth literacy. European Health Psychologist. 2015;17(6):275-80.

12. Norman CD, Skinner HA. eHEALS: the eHealth literacy scale. J Med Internet Res. 2006 Oct; 8(4). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1794004/

13. Landau RE, Beck A, Glickman LT, Litster A, Widmar NJ, Moore GE. Use of veterinary services by Latino dog and cat owners with various degrees of English-language proficiency. J Am Vet Med Assoc. 2016 Mar 15; 248(6):681-9.

14. DeWalt DA, Hink, A. Health literacy and child health outcomes: a systematic review of the literature. Pediatrics. 2009 Nov;124 (Supplement 3):S265-74. Available from: http://pediatrics.aappublications.org/content/124/Supplement_3/S265.short

15. Knapp C, Madden V, Wang H, Sloyer P, Shenkman E. Internet use and eHealth literacy of low-income parents whose children have special health care needs. J Med Internet Res. 2011 Jul;13(3). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222184/

16. Veira, A. Services for the Veterinary Practice Team [Internet]. 2018 Oct [cited 2018 Oct 14]. Available from: https://libguides.utk.edu/veterinarypracticeteam

17. Neter E, Brainin E. Perceived and performed ehealth literacy: survey and simulated performance test. JMIR human factors. 2017;4(1):e2.

18. Bazm S, Mirzaei M, Fallahzadeh H, Bazm R. Validity and reliability of Iranian version of eHealth literacy scale. J Community Health Res. 2016 Jan; 5(2): 121-130. Available from: http://jhr.ssu.ac.ir/article-1-312-en.pdf

19. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qualitative health research. 2005 Nov;15(9):1277-88.

20. Conover, W. Practical nonparametric statistics. 2007.[S.l.]: Academic Internet Publishers.

21. Tennant B, Stellefson M, Dodd V, Chaney B, Chaney D, Paige S, Alber J. eHealth Literacy and Web 2.0 Health Information Seeking Behaviors Among Baby Boomers and Older Adults. J Med Internet Res 2015;17(3):e70

22. Van der Vaart R, Drossaert CH, de Heus M, Taal E, van de Laar MA. Measuring Actual eHealth Literacy Among Patients With Rheumatic Diseases: a Qualitative Analysis of Problems Encountered Using Health 1.0 and Health 2.0 Applications. J Med Internet Res 2013;15(2):e27

23. Solhjoo N, Naghshineh N, Fahimnia F, Ameri - naeini AR. Interventions to assist pet owners in online health information seeking behaviour: a qualitative content analysis literature review and proposed model. Health Information & Libraries Journal. 2018 Dec;35(4):265-84.

24. Kim H, Xie B. Health literacy in the eHealth era: a systematic review of the literature. Patient Educ Couns. 2017 Jun 1;100(6):1073-82. Available from: https://www.pec-journal.com/article/S0738-3991(17)30015-0/abstract

25. Royal KD, Sheats MK, Kedrowicz AA. Readability Evaluations of Veterinary Client Handouts and Implications for Patient Care. Topics in Companion Animal Medicine. 2018 Apr 5.

26. Timm DF, Jones D. The information prescription: just what the doctor ordered!. Journal of Hospital Librarianship. 2011 Oct 1;11(4):358-65.

27. Dinkelman AL, Viera AR, Bickett-Weddle DA. The role of veterinary medical librarians in teaching information literacy. J Vet Med Educ. 2011 Jun; 38(2):141-9.

28. Witman L. “Information Prescription” Orders in the Electronic Medical Record at UVA: Bringing our Consumer Health Information Service to the Bedside and Planning for Outcomes Research. Journal of Hospital Librarianship. 2017 Apr 3;17(2):137-46.

Appendix A

Topic list qualitative follow-up interview about veterinarian's prescribed information
Probes (in italics) were used only if the interviewee did not mention the topic spontaneously.

Question 1. Could you tell me how many times have you used veterinarian's prescribed information?

- *Did you check recommended websites?*
- *What were they about?*
- *Can you describe them?*
- *Why did you decide to use them?*
- *Could you describe what you did?*
- *What was the reason for not using IP?*

Question 2. Did you encounter any problems during using the information prescription or recommended websites?

- *What kind of problems?*
- *How did you solve them?*

Question 3. Do you think that the information prescription was useful?

- *Are you satisfied with IP?*
- *How much of it was helpful?*
- *Will you use IP in the future?*
- *Was it useful in understanding your pet health issue? How?*
- *Did you discuss what you found online with a veterinarian (e.g. your physician or pharmacist)? Why (not)?*
- *Did it have any effect on your pet health/ disease? How?*
- *Did it change your health behavior about your pet?*

Question 4. Overall, how much do you trust the information prescription and recommended websites?

- *Why?*
- *How do you evaluate online health information on the recommended websites?*
- *Can you say some aspects that are important in making online information credible for you?*

PROGRAM DESCRIPTION / DESCRIPTION DU PROGRAMME

A collaboration for the promotion of evidence synthesis: A Canadian-African Partnership

Kim Sears[1], Amanda Ross-White, Christina Godfrey, Devind Peter, Alison Annet Kinengyere and Oluwaseun Ireti Obasola

Abstract: In 2018, the Queen's Collaboration for Health Care Quality: A Joanna Briggs Institute Centre of Excellence (QcHcQ) spearheaded an incentive to increase collaboration and international partnerships. As part of this initiative, 6 library scientists from the partner institutions of the Consortium for Advanced Research Training in Africa (CARTA) were invited to Queen's University in Kingston Ontario to undertake training. The objective was to provide these library scientists with a comprehensive systematic review-training workshop using the Joanna Briggs Institute methodology for evidence synthesis. The intense 6-day training workshop covered evidence synthesis of quantitative evidence and qualitative evidence as well as multiple methodologies for the synthesis of different levels of evidence. As a continuation of the collaboration a joint systematic review was embarked on titled: "The role of library scientists in fostering evidence based health care."

Background

The Queen's Collaboration for Health Care Quality: A Joanna Briggs Institute Centre of Excellence (QcHcQ) was established as part of the Queen's University School of Nursing in 2004. QcHcQ was the first Joanna Briggs Institute (JBI) Centre to be established in North America. QcHcQ is staffed with 5 members, the Co-Directors Dr. Christina Godfrey and Dr. Andrea Tricco, Deputy Directors Dr. Rosemary Wilson and Dr. Kim Sears, and library scientist Ms. Amanda Ross-White. QcHcQ is a leader in evidence synthesis and has an excellent track-record in training and supporting the efforts of healthcare professionals, faculty members, graduate students, library scientists, and researchers in the search and critical review of evidence [1]. QcHcQ's mission is to improve the quality and reliability of practice and ultimately health outcomes by enabling the use of best available evidence on patient safety and health care quality. QcHcQ aims to achieve this by engaging in diverse stakeholder partnerships, synthesizing evidence on priority topics identified by the partners, and adapting synthesized evidence from one context to another; applying methods to adapt guidelines or safety/quality information for different contexts; and by collaborating with partners to develop and conduct implementation studies.

The Consortium for Advanced Research Training in Africa (CARTA) is a consortium of 9 academic and 4 research institutions from Central, Western, Eastern, and Southern Africa, as well as 7 Northern partners. CARTA is an Africa-led initiative that supports the development of a vibrant African academy and is able

Kim Sears. Associate Director, School of Nursing, Queen's University, Kingston ON
Amanda Ross-White. Clinical Outreach Services Librarian, Queen's University, Kingston ON
Christina Godfrey. Assistant Professor, School of Nursing, Queen's University, Kingston ON
Devind Peter. Librarian, University of the Witwatersrand, Johannesburg, South Africa
Alison Annet Kinengyere. Director, Sir Albert Cook Medical Library, Makerere University College of Health Sciences, Kampala, Uganda
Oluwaseun Ireti Obasola. Librarian**,** Medical Library, University of Ibadan, Nairobi, Kenya
[1]Corresponding author (email: jak13@queensu.ca)

This article has been peer-reviewed.

to lead world class multidisciplinary research that impacts positively on public and population health [2]. CARTA began in 2008 with the underlying awareness that African universities lack the human and financial resources to effectively educate and produce researchers and scholars [2].

Under the auspices of CARTA is the CARTA Librarian Group (CLG). CLG is an alliance supported by CARTA, which is made up of library scientists from the CARTA institutions involved in CARTA's capacity building programme. CLG's support CARTA to achieve its objectives through the provision of information services. With this support CARTA is able to build a critical mass of highly trained African scholars at PhD level, institutionalize CARTA innovations at key partner institutions and secure the future of CARTA graduates by mentoring them to become leaders in their research fields [2,3].

Currently there are many groups in Africa who engage in evidence synthesis, including: 8 collaborating or affiliate centres of the Joanna Briggs Institute (Botswana, Cameroon, Ethiopia, Ghana, Kenya, Nigeria, South Africa); the Evidence Informed Policy Network active in Burkina Faso, Cameroon, Central African Republic, Ethiopia, Mozambique, and Zambia; and the African Institute for Development Policy in Kenya and Malawi. For a variety of reasons, many of these centres are not able to complete the conduct of evidence syntheses following their initial training in this methodology. In this project proposed by QcHcQ, the intention was to support the CARTA library scientists with additional mentorship to assist them to become active evidence synthesis centres and in so doing, promote interactions between Canada and Africa, as well as within Africa.

In 2017, QcHcQ secured a small Queen's Research Opportunity Fund - International Funding award which was used as seed money to fund the collaborative effort between QcHcQ and the CARTA library scientists. Queen's Strategic Research Plan (SRP) 2012-2017 identifies various guiding principles and objectives for advancing the portfolio of research. Under advancing international research, priorities, and global partnerships, increasing global engagement and expanding international research collaborations are key significances. The Queen's Research Opportunity Funds - International Fund supports the prior objective of advancing international research with the understanding that the fund will help to develop and grow international research partnerships and collaborations for Queen's researchers and scholars.

The Comprehensive Systematic Review Training Workshop was held in March 2018 at Queen's University in Kingston Ontario. Attendees included 6 library scientists from Kenya, Malawi, Nigeria, South Africa, Tanzania, and Uganda. All of these library scientists are involved in healthcare related positions within their library services. In addition to these attendees, 3 library scientists from Queen's University Engineering Library also attended the workshop. The objective of this workshop was to provide training in the methodology of synthesis following the JBI methodology of evidence synthesis. This methodology was chosen for the workshop due to the fact QcHcQ is a collaborating Centre of the Joanna Briggs Institute – an International organization focused on the methodology of evidence synthesis. The JBI methodology is well established and offers both qualitative and quantitative methods. The JBI methodology can be found in detail at the following site http://joannabriggs.org and the JBI review manual can be accessed at https://wiki.joannabriggs.org/display/MANUAL/Joanna+Briggs+Institute+Reviewer%27s+Manual. The members of QcHcQ are also certified trainers in the JBI methodology of evidence synthesis. This article describes the development of an international research alliance and illustrates the process used to build a network amongst library scientists.

Objectives

The main objectives of this 6-day training workshop were:

1. To conduct a needs assessment to identify the type of support the CARTA library scientists required to initiate and increase their capacity to perform evidence syntheses
2. To develop a tailored training program to meet the needs of the African partners in evidence synthesis
3. To deliver the training program to a small group
4. To set up a mentorship program that will support the African partners as they conduct systematic reviews of literature

The long-term outcomes of this collaboration are to build proficiency in the science of evidence synthesis with the core team of library scientist that came to Queen's University. Our long-term goal is to also engage the healthcare professionals so that they too may gain proficiency in this methodology.

Method

A needs assessment was conducted through an online survey 10 months prior to the training workshop to identify what type of support the library scientists required to increase their capacity to perform evidence syntheses. The needs assessment survey was developed by the Queen's team and piloted with a select group of library scientists. Feedback from the pilot was used to refine the survey tool. Information regarding available technology, personnel, practice links, and organizational readiness was collected from 29 library scientists involved with CARTA. This group of 29 library scientists represents the health librarians at the 9 CARTA institutions. The survey was hosted on the Microsoft Forms platform, as part of the Queen's University Microsoft Office 365 license. Responses from the library scientists were further analyzed, and training needs voiced by the trainees were collected for the purpose of developing a training program. During the first training session an informal discussion further clarified the skill set of the trainees in this area. Following the completion of each of the 3 training models a post assessment was completed by each trainee.

Once the needs assessment phase was complete, the general mentorship program was planned and the selection of trainees occurred. Potential trainees were identified from key centres that displayed a readiness to conduct an evidence synthesis or from centres that displayed the greatest need to obtain this intensive support. The trainees that wanted to take the training and were available to be granted leave were self-selected. Three university library scientists were not able to obtain their visas in time for the course. Six individuals were brought to Canada for a period of 6 days for an intensive workshop in evidence synthesis. Furthermore, additional library science support was provided to assist the trainees with locating the relevant literature for their project. The 6 days of training consisted of 3 modules of the proprietary JBI course. The 3 modules covered the introduction to evidence synthesis; the synthesis of quantitative evidence and the synthesis of qualitative evidence respectively.

The Comprehensive Systematic Review Training Workshop program included rigorous methods and tools to appraise and synthesize evidence from research literature and documentary sources. Trainees gained hands-on experience in drafting a systematic review protocol, including definition of the question(s) and search, retrieval and selection of research for the review. In addition, trainees gained experience with the process of critically analyzing sample quantitative and qualitative research and expert opinion papers and were introduced to JBI software for performing meta-analysis and meta-synthesis of selected studies. Trainees were given the opportunity to examine the nature of evidence and its role in healthcare to further understand how evidence transfers into health care practice. This program is based on current practice-based research. The goal of evidence synthesis is to integrate current evidence to inform practice, and once complete, these reviews will serve to guide future practice.

The delivery of this workshop required computers with internet access for each trainee, training materials on a memory key and a workbook that was printed for each trainee, qualified instructors, administrative support, a travel agent to organize flights and visas, and meals and accommodation for the trainees. Further, as this course was delivered in March in Canada we provided them with winter apparel.

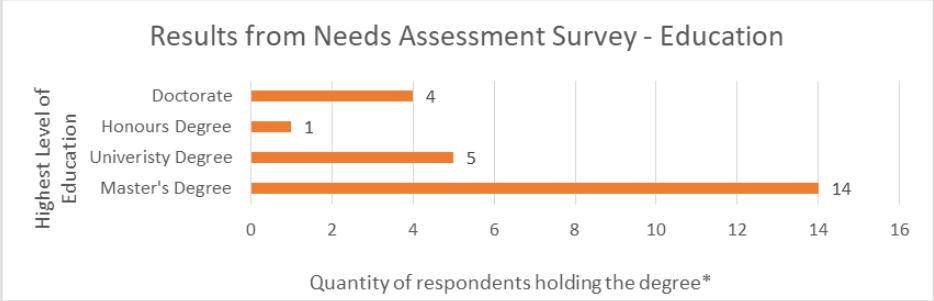
The workshop equipped these individuals with the skills they need to set up a review panel and conduct their own evidence syntheses. The training workshop dually provided networking and mentorship necessary to support new authors and review panels through conducting evidence synthesis. Currently, there is ongoing mentorship provided to the trainees by email. A protocol for a systematic review is in draft and should be submitted shortly. As well as the needs assessment that was conducted on the entire CARTA group of library scientist (n=29), trainees gave qualitative feedback to the QcHcQ coordinator prior to their departure and were required to fill out a JBI online survey consisting of standard questions to assess the effectiveness of the workshop. The data is reported below and will be used to inform further workshops.

Results

The needs assessment was sent prior to the planning was underway for the workshop to assess the level of current knowledge that participants had prior to attending the workshop. The needs assessment was sent to the entire CARTA group of library scientist (n=29), however as 4 participants did not consent to the sharing of their information only the results from 25 participants can be found below. The needs

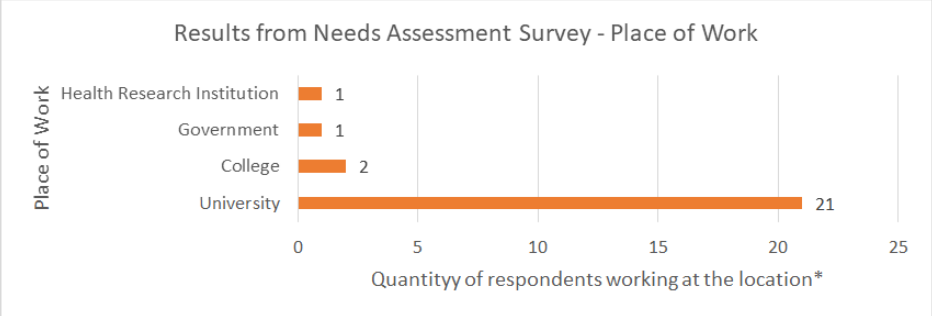
assessment demonstrated that the majority of the group had a Master's degree (14), and there were 4 members of the group that had a doctorate degree (Figure 1). Further, the majority of participants (21) worked in a university setting (Figure 2). The majority of participants identified that they had the least experience with scoping reviews (12) followed by mixed method reviews (8) quantitative reviews (7) and then qualitative reviews (5) (Figure 3).

Fig.1



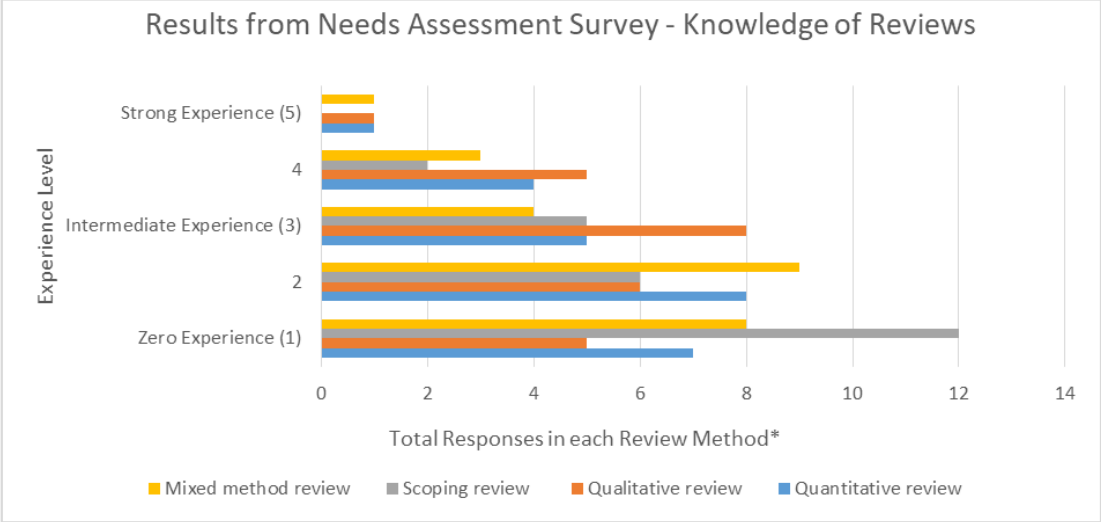
*Four (4) respondents declined consent for research participation

Fig.2



*Four (4) respondents declined consent for research participation

Fig.3



*Four (4) respondents declined consent for research participation.

Nine library scientists were invited to attend the CSRT in Canada. However, only 6 library scientists representing 6 different countries (Kenya, Malawi, Nigeria, South Africa, Tanzania, and Uganda) were able to attend. These library scientists were all the head of the healthcare branches in their respective libraries. Within the group there was a wide range of experience and knowledge with the conduct of evidence synthesis. Some of the trainees had never conducted a systematic review whereas others had experience. One trainee stated, "Up to now, I have been conducting systematic reviews with a 'learners license,' now I feel I am fully qualified to do them." All trainees completed the training. On the last day of training trainees are required to present a protocol of a potential systematic review and all trainees completed their presentations. When suggesting systematic review topics for investigation one attendee posed an important question about strategies used to keep patients safe in a hospital setting. The team at QcHcQ have extensive expertise health care quality and patient safety in both developed and developing countries, and immediately thoughts went to risks such as hospital acquired infections, medication errors, falls, and adverse drug events. However, the attendee went on to explain that patients were often assaulted in their hospital beds and she was determined to investigate strategies to prevent these violations and keep patients safe.

All of the trainees asked questions and were engaged throughout the course. Lively discussions occurred with library scientists from Canada and Africa sharing and comparing their experiences. In the Western context often it would be the clinicians and researchers that would seek and receive training in these advanced methodologies. Conversely, in these institutions, the library scientists are seen as the gatekeepers of this knowledge and are expected to be the first to gain this training.

The post survey circulated online from JBI indicated that 90% of the participants agreed or strongly agreed that by completing CSR Module 2 which was the quantitative component, they had a better understanding of the essential knowledge and skills for the conduct of a systematic review of quantitative evidence.

The post survey indicated that 100% of the participants strongly agreed by completing CSR Module 3, which was the qualitative component; they had a better understanding of the essential knowledge and skills for the conduct of a systematic review of qualitative evidence. At the end of the workshop one participant noted, "Thank you JBI for the training. It has made a very big difference in my understanding of systematic reviews."

Discussion

Through the teaching of the Comprehensive Systematic Review Training Workshop, attendees were able to develop their evidence-based research skills, conduct evidence synthesis following the JBI method and hone the skills required to set up a review panel. The outcomes of the training workshop included the ability to use JBI software tools to draft a systematic review protocol including (i) identifying a question, (ii) searching, (iii) retrieving and selecting research studies for the review, (iv) critically appraising quantitative and qualitative research and/or text and opinion papers, (v) data extraction, and (vi) the use of the JBI software to analyze and integrate the new knowledge using either a meta-analysis or meta-synthesis.

International partnerships were developed and through the workshop, a joint research project was established that will allow for continued mentorship and support. The development of international research collaboration was built alongside a commitment to expand international relationships. These international partnerships have allowed for a systematic review entitled, "The role of librarians in fostering evidence-based health care: a systematic review" to begin as an application of the skills developed and learned through the workshop.

With many countries in Africa represented around the table, it was valuable to learn the profound influence that context plays on the focus of health care. This alarming and unexpected extension of the bounds of the concept of patient safety highlights the importance of being aware of the context in which people live and work. As a result of the impact of the definition "keeping patients safe" and how this definition was shown to have a truly situational context based on one's experience, it is essential to remain mindful to the global context. Remaining open to hearing the experiences of professionals is a key part of bringing evidence into practice globally and is consistent with the tailoring, problem solving and mutual learning activities that are part of the Knowledge Translation process [4,5]. These activities address the "know-do gap" that exists between what is

known and what is done following the synthesis of the best available evidence. There is a fundamental need to bring together clinicians, policy-makers, and researchers in Low- and Middle-Income Countries (LMICs) to define concepts like "quality of care" at a cultural level to avoid inappropriate comparisons that can add further barriers to evidence use in LMIC. Collaborators from developed countries need to be prepared to provide consistent support and give as well as receive guidance from local colleagues in the knowledge translation process. Ultimately, the sustainability of evidence-informed implementation projects depends on their appropriateness and feasibility in the environment and the commitment of the setting to a local definition of quality.

Trainees also commented on their lack of academic status as library scientists and an uncertainty about their role in conducting research as perceived by some researchers in their institutions. The role of the library scientists and what they could offer in terms of evidence synthesis was unclear prior to attending the workshop; however, with the practical and hands-on knowledge they received from the training program, they received a foundation of skills to support the teams they will work with.

Conclusion

As a result of this international collaboration, 6 African library scientists completed the Comprehensive Systematic Review Training Program following the Joanna Briggs Institute methodology for evidence synthesis. This international partnership has facilitated the development of a joint systematic review protocol entitled, "The role of librarians in fostering evidence-based health care: a systematic review" with continued support from QcHcQ members. The QcHcQ collaboration with CARTA members has been a worthwhile alliance and planning has begun to prepare another training workshop, with considerations for it to be held in Africa. This fulfills our initial aim to increase the capacity of professionals' use of evidence synthesis to inform practice.

Statement of Competing Interests

No competing interests declared.

References

1. Nursing.queensu.ca [Internet]. Kingston, On: School of Nursing, Queen's University; c2019 [cited 2019 Mar 20]. Available from: https://www.queensu.ca/qjbc/.
2. CARTA. [Internet]. Nairobi : The Consortium for Advanced Research Training in Africa; c2018 [cited 2019 Mar 20]. Available from: http://cartafrica.org/about-carta/.
3. Obasola OI, Oladele BA, Eyers J. Building Capacity of Librarians for Knowledge and Skill Development : A Case Study of Nine Institutions of the Consortium for Advanced Research Training in Africa (CARTA) Case Study of Nine Institutions of the Consortium for Advanced Research. 2014;6(4).
4. Harrison MB, Legare F, Graham ID, Fervers B. Adapting clinical practice guidelines to local context and assessing barriers to their use . Vol. 182, CANADIAN MEDICAL ASSOCIATION JOURNAL . OTTAWA : CMA-CANADIAN MEDICAL ASSOC ; 2010. p. E78–84.
5. Graham ID, Logan J, Harrison MB, Straus SE, Tetroe J, Caswell W, et al. Lost in knowledge translation: time for a map? J Contin Educ Health Prof. 2006;26(1):13–24.

REVIEW ARTICLE / VUE D'ENSEMBLE

"How Do I Do That?" A Literature Review of Research Data Management Skill Gaps of Canadian Health Sciences Information Professionals

Justin Fuhr

Abstract: Background: Research data management (RDM) services are becoming more commonplace in health sciences libraries. A review of the literature reveals numerous strategies to provide training for health sciences librarians as they provide these new services to health sciences researchers, faculty, and students. With the Tri-Agency Research Data Management Policy currently circulating for consultation, it is imperative for Canadian health sciences information professionals to offer RDM services in their libraries. **Methods:** A review of relevant scholarly articles were collected and analyzed. Initial searches were conducted in the University of Manitoba Libraries' discovery service, as well as in MEDLINE, Scopus, and Web of Science. Articles were analyzed for skills necessary to provide RDM services and proposed training initiatives to fill RDM skill gaps. **Results:** After initial searches, 2 142 articles were identified for review. After removing duplicates and articles with only titles and abstracts, 38 articles were selected by analyzing citation counts in Web of Science and Scopus, as well as analyzing selected reference lists. **Conclusion:** Several suggestions for training are highlighted from the identified articles, including building a national support network, changes to post-secondary library and information studies' curricula, and offering professional development workshops. However, no consensus emerges with respect to RDM training initiatives. As training initiatives are developed and documented, future studies will verify which initiatives have the greatest success for upskilling information professionals in managing research data in Canadian health sciences libraries.

Introduction

Research data management (RDM) is an increasingly common set of practices offered in Canadian health sciences libraries. RDM, as defined by Whyte and Tedds [1], "concerns the organisation of data, from its entry to the research cycle through to the dissemination and archiving of valuable results." RDM organizes data that is created during the overall research lifecycle to make it accessible for current and future users. Managing research data is complex and comprises wide-ranging data services such as planning, data curation, data storage, data hosting, and long-term preservation. Specific services include consultations on funding body compliance, creating informatics, data licensing, depositing data into digital repositories, among others [2].

Though researchers are the ones creating data, they may not be the best managers of data. Conrad, Shorish, Whitmire, and Hswe claim "[m]ost researchers have not been formally trained to manage their own data" [3]. Who should manage research data, if not researchers? Library and information studies (LIS) researchers analyzed the impending "data deluge" and recognized librarians could provide services to manage research data [4-5]. Librarians have a long history of organizing and managing digital resources, making RDM a natural fit. Conrad, et al. recognize the link between curation of digital library resources and research data as they write: "[m]anagement of content and data aligns logically with digital curation practices" [3].

However, are health sciences librarians prepared to provide this new service? Do health sciences librarians

Justin Fuhr. MLIS, University of Alberta, Edmonton AB
(email: justin.fuhr@umanitoba.ca)

This article has been peer-reviewed.

have the necessary skills to provide expert data services? This paper reviews literature discussing data management services, highlights skills necessary to provide RDM services in different contexts, and identifies training initiatives that could be used in Canadian academic health sciences libraries. Following the literature review, potential research opportunities are presented to study how best to bridge the gap in research data management skills among Canadian health sciences librarians.

Methods

The author searched the University of Manitoba Libraries' discovery service (Ex Libris Primo) to find an initial set of peer-reviewed resources on research data management in academic and health sciences libraries. The author used the search string: ("research data management" OR "RDM" OR "research data services") AND ("academic" OR "health sciences" OR "medical" OR "medicine") AND librar*. The author limited the search results to scholarly articles. This resulted in 2 142 results. The author completed further searches in MEDLINE, Scopus, and Web of Science using the same search string. In MEDLINE, the search string was modified by omitting quotation marks and searching the following field codes: .ti (title), .ab (abstract), .ot (original title), .kf (keyword heading word), and .hw (subject heading word). The author then used "pearl growing," or scanning of selected reference lists, of reliable and scholarly articles. Reliable and scholarly for the author is defined by articles with a Field Weighted Citation Impact score greater than 1.00 in Scopus. Overall, the author found 38 articles that discussed research data management to build a historical narrative in this emerging area of LIS. As well, these articles list specific skills and training initiatives for information professionals to provide RDM library services. The author prioritized articles with a geographic focus on Canada, however the author found little research in this area. The author had to discard one article due to its focus on bibliometrics despite the title indicating split coverage of bibliometrics and RDM [6]. The author included Cronin [7] and Gieryn [8] to reflect early cross-disciplinary activities based on feedback received from peers. Due to research data services as an emerging field in LIS, sources are largely compiled from the mid-1990s to the present, with a focus on sources published after 2012.

Literature Review

Cross-Disciplinary Activities in LIS

RDM is a new service provided by health sciences libraries, but its roots can be seen as far back as the 1980s in cross-disciplinary scientific research [7-8]. "Before information professionals can begin to improve existing services or develop new approaches that account for the complex needs of contemporary researchers," Palmer writes, "[information professionals] need to understand the activities and patterns involved in the cross-disciplinary research process" [9]. Palmer sees academic librarians as active participants in cross-disciplinary research, which was becoming increasingly common throughout the 1990s. For Palmer, librarians step outside traditional domains of knowledge to support researchers doing "boundary work," or work that interacts with multiple fields, such as sharing data between labs. This includes improving access to scholarly documents, which has a direct link to making research data more accessible. Palmer suggests, "[w]e will need to develop new standards and criteria for the presentation of raw data and results and create platforms for discussion around materials." Storing and providing access to research data becomes increasingly significant as research data proliferates, especially in digital formats.

The Data Deluge

Increasing amounts of research data is shared through cross-disciplinary studies in academic institutions. However, it is important to define what research data is. In the late twentieth and into the early twenty-first century, researchers saw an exponential increase in scientific research data, with digital data becoming increasingly common [4, 9]. Hey and Trefethen call this the "data deluge" and predicted the increase in repositories to store data, not unlike current domain or institutional repositories [4].

Much of the increased digital data stems from scientific fields and is given the name "e-science." E-science joins experimental, theoretical, and computational approaches in scientific research [10]. Jim Gray, a respected computer scientist, as quoted in Hey et al., says "[t]he goal is to have a world in which all of the science literature is online, all of the science data is online, and they interoperate with each other. Lots of new tools are needed to make this happen" [10]. The world in which Gray writes is overwhelming and intimidating. Research data spans a diverse range of types and formats. Surkis and Read [11] use the

example of studying before and after MRI images of patients in a clinical trial. The data produced in this study includes folders filled with images, spreadsheets of drug dosages, data examining tumour size, and processed data used to create figures for publication [11]. With the amount and variety of research data, it is clear that services are required to manage e-science data.

Services to Manage Research Data

The deluge of e-science data necessitates management. Read, Surkis, Larson, et al., interviewed basic scientists and clinical researchers and found major challenges in managing data including lack of standards, a diverse range of types of data, and low quality of data associated with inconsistent data collection methods [12]. These challenges opened the door for libraries to offer data services. A major white paper published by Tenopir, Birch, and Allard gives RDM services scope [13]. The authors claimed that in 2012, "[o]nly a small minority of academic libraries in the United States and Canada currently offer research data services (RDS), but a quarter to a third of all academic libraries are planning to offer some services within the next two years."

Yakel divides data management into five areas: "lifecycle management of materials; active long-term involvement by data creators and managers; appraisal and selection of materials; provision of access; and preservation" [14]. Lee and Stvilia list many lifecycle models of research data but use the Digital Curation Centre's (DCC) Curation Lifecycle Model in their study of the roles of institutional repository staff [15]. The DCC model lists the sequential activities in curating and preserving data: conceptualize, create or receive, appraise and select, ingest, preserve, store, and access, use and reuse [16].

Looking at the data management lifecycle, Walters and Skinner's report, *New Roles for New Times: Digital Curation for Preservation*, outlines academic librarian's role as "collaborative network creators and participants," which sees American academic librarians building digital frameworks to make scholarly data accessible [17]. Harkening back to Palmer (1996), Pryor and Donnelly describe data practitioners as "hybrid information specialists with boundary-spanning roles" [18]. Lee and Stvilia [15] list specific activities for data curators and metadata specialists: building "data governance structure," helping "data providers to create appropriate metadata for their dataset," maintaining software, and metadata creation. Lyon sees information professionals offering RDM planning, training, citing, licensing, and storage [19].

There are several data management service models proposed throughout the literature to deliver RDM services. Pinfield, Cox, and Smith see a library-oriented model, which sees library staff managing research data directly [20]. Whyte provides further clarity to the library-oriented model [21]. He sees libraries providing 3 levels of data management services: minimal, mediated, and consultancy. Others see librarians collaborating with other departments, echoing Palmer [9]. Wittenberg and Elings' case study shows a successful partnership of the University of California, Berkeley's Library with the Research Information Technologies department to manage research data [22]. Wang and Fong's study at Rutgers University-Newark sees health sciences librarians playing a central role by being embedded directly into the research process, including processing data in the lab and developing data management plans [23]. Wherever health sciences librarians physically find themselves, LIS researchers see them being involved in the management of research data.

National Policies on Research Data Management

Antell, Foote, Turner, and Shults explore RDM services in light of requirements by the United States' National Science Foundation (NSF) to have a data management plan before applying for grants [24]. Their work has relevance to Canada since Canadian federal funding bodies have similarities to NSF's requirements, such as the Tri-Agency Open Access Policy on Publications. In this policy, researchers who receive federal funding are mandated to make any peer-reviewed publication stemming from this funding open access within 12 months [25]. Further, Canadian Institutes of Health Research grant recipients are required to deposit "bioinformatics, atomic, and molecular coordinate data" into a publicly accessible database and retain datasets for a minimum of 5 years [25].

A research data management draft policy is currently being circulated for consultation by the Tri-Agencies for managing research data, which complements the existing Tri-Agency Statement of Principles on Digital Data Management [26]. In the draft policy, researchers are required to provide a complete data management plan (DMP) and deposit all research data into a recognized digital repository [27]. In addition, institutions that administer Tri-Agency funds will be required to have a local research data management policy [27]. It is the hope that with this

policy, RDM will be seen as an integral step in the research process. Health sciences information professionals are well-positioned to provide services in this emerging area, including providing assistance with creating a DMP and providing support with depositing and preserving data in repositories.

Though Canadian perspectives are difficult to find, Steeleworthy speaks to the Tri-Agency requirements for open access [28]. However, because the Tri-Agencies' policies are relatively new, the policies are in flux and Steeleworthy's article shows its age. Steeleworthy advocates for partnerships with stakeholders and to unravel shifting open access requirements by federal funders. He recognizes managing research data is multi-faceted and includes scholarly communication, information technology, and liaison services in the provision of management services. Guindon presents an informal survey of research data practices at Concordia University, but it is not comprehensive as it only surveys one institution in Canada, nor is it peer-reviewed [29].

Infrastructure of Research Data Management

Health sciences information professionals currently or are able to provide a wide variety of services to manage research data, but adequate infrastructure is needed to properly preserve data. Long-term storage of scientific data is a consideration for RDM as this is how data will be preserved and made accessible. Digital repositories are one way to deposit, store, and make research data accessible. These online platforms host and provide access to research documents and data. Among the 3 types of digital repositories (domain, discipline, and institutional), academic institutions commonly offer institutional repositories which store theses, dissertations, and data produced at the university [30]. All U15 research institutions in Canada have institutional repositories, such as the University of Alberta's Education & Research Archive, the University of Toronto's Tspace, and the University of Manitoba's Mspace [31].

However, generally institutional repositories are not capable of ingesting large amounts of research data. Rather, Canadian institutions such as the University of Manitoba and Dalhousie University have implemented Dataverse, software for managing research data which also includes a repository.

Pinfield, Cox, and Smith highlight the need for secure storage of research data, albeit in a UK context [20]. In semi-structured interviews with librarians, they found data storage was often prioritized in their institutions and one of the major reasons research data services were being offered in the first place. The researchers note necessary collaboration with IT departments may limit libraries' access to storage, important to note for health sciences libraries without internal storage solutions.

Discussion

Health Sciences Librarians' RDM Skill Sets

With new and evolving roles in data management, it should not be a surprise that health sciences librarians are currently under skilled to offer fully developed data management services. For example, Read, et al. found a perception from basic scientists and clinical researchers that librarians "do not understand research data and have no role to play in data management" [12]. This suggests a gap in skills, a lack of advocacy and marketing to show librarians' value, and a failure to translate traditional librarian skill sets to this new domain. While not a prerequisite to managing research data, Lyon claims few librarians have direct experience working in scientific environments, such as a laboratory, and do not feel comfortable providing data curation for research studies [32]. Lyon terms this the "curation domain disconnect" [33].

Cox, Kennan, Lyon, and Pinfield point directly to data management skills that are lacking among librarians [34]. The researchers developed a maturity model to benchmark current RDM services in academic libraries. The authors use studies led by Carol Tenopir, et al. to highlight areas of significant management and operation concerns [35-36]. This includes the capability of library staff to provide RDM services and technical gaps including the curation of active research data. Cox, et al. provide an international scope, which includes information professionals from Australia, Canada, Germany, Ireland, the Netherlands, and the UK. Librarians may be adequately prepared for advising or consulting but lack technical skills such as data cataloguing and curating, which may be necessary for health sciences librarians to know.

Research from Auckland [37] and Cox and Pinfield [38] highlight several areas that librarians should focus on to reduce RDM skill gaps, including preserving research data, data curation, advising on funder mandates. These are areas which saw service need and growth since Auckland's report was written and where librarians were currently deficient [38]. The researchers also highlight data curation skills that are

lacking among librarians and are needed now and in the future.

Lyon identifies many skills required for information professionals to manage data [19]. She identifies "strong informatic skills," along with "working knowledge of the research practices and workflows...an awareness of the national and international data centres where research data in that domain are deposited, and a good grasp of the data publication requirements of the leading scholarly journals." Delserone documents the need for adequate infrastructure and curation by information professionals [39]. Delserone includes quotations from researchers at the University of Minnesota: "[d]ata storage is fundamental to all of us" and "[t]he Libraries could facilitate the curation and preservation of data by scholars, and teach researchers how to better organize it." Lee and Stvilia list additional skills, including "metadata knowledge particular for research data" and "technical details of repository software, server, and its architecture" [15]. Nicholson and Bennett claim "sound and consistent methodologies" are needed to ensure data is available to access [40]. Auckland, speaking on her research from UK libraries, recognizes the need for preserving research outputs via repositories, data analysis, and knowledge of data manipulation tools [37]. Heidorn suggests grant proposal assistance will be necessary for library staff to provide, especially in light of library staff who are familiar with "digital object access and preservation" [41].

Recent research from Federer shows data librarians need an immense skill set [42]. Somewhat surprisingly, while Federer suggests there is little consensus on what specific skills are needed to manage data, her research shows soft skills such as oral communication and teamwork are rated as very important by data librarians.

Though researchers throughout the literature disagree on precisely what skills are needed to provide RDM services as information professionals due to differing levels of service maturity, and differing contexts, Table 1 summarizes the author's findings of what skills are needed and may be missing by information professionals to provide a wide range of RDM services.

Tab.1 Identified skills for providing research data services

Skill Set	Source
Knowledge of research methods, practices, and workflows	Cox, et. al. (2017); Lyon (2012); Nicholson & Bennett (2011)
Legal, policy, and advisory skills	Cox, et. al. (2017)
Data curation and preservation	Cox, et. al. (2017); Delserone (2008)
Data mining and analysis	Auckland (2012)
Data visualization and informatics	Federer (2018); Lyon (2012)
Awareness of national and international data centres where data is deposited	Lyon (2012)
Data publication requirements of leading scholarly journals	Lyon (2012)
Grant proposal expertise	Heidorn (2011)
Data description and metadata knowledge of research data	Cox, et. al. (2017); Lee & Stvilia (2017)
Technical details of repository software, server, and its architecture	Delserone (2008); Lee & Stvilia (2017)
Soft skills such as oral communication, teamwork, and developing relationships with researchers and faculty	Federer (2018)

RDM Training Initiatives

Pryor and Donnelly want to establish a clearly defined career path for research data management practitioners [18]. The authors seek to entrench competencies for librarians during academic training, though they recognize restructuring LIS curricula is difficult. Lyon is another proponent of ensuring data management skills are taught in library and information science graduate programs [19, 32]. Wang and Fong recognize the lack of RDM training when they write, "research data services are new and few library school programs offer formal training in this area" [23]. Lyon suggests three initiatives where LIS graduate programs could bolster RDM skills: define core components of data management, encourage potential students with science-related backgrounds into LIS graduate programs, and set up an international data informatics working group [19]. Lyon and Brenner see the potential for graduate programs to offer what they call the Capability Ramp Model [43]. This model leverages three areas that library and information science graduate programs excel at: education, research intelligence, and professional practice.

Heidorn [41] echoes Lyon's [19] suggestion for training in graduate program. He notes the LIS programs at University of Illinois, University of North Carolina, and the University of Arizona offer courses that train students in skills necessary for RDM. In the years following Heidorn's research, many more programs offer data management and data services courses, documented by Research Data Management Librarian Academy [43].

Federer also suggests training information professionals in data management while potential data librarians are in graduate school [42]. Her study focuses on identifying key competencies and skills data librarians require. While Federer is hesitant to identify specific training in graduate programs due to the ever-changing needs of library patrons, her point of bolstered data services in LIS programs is a strong one and echoed by other researchers [2, 18, 23, 32, 41, 43].

Wang and Fong want data librarians to keep up to date with resources, including scholarly literature and online tools [23]. Brown, Wolski, and Richardson's case study of an academic librarian at Griffith University (Australia) successfully transitioning to a research data support role highlights key training opportunities such as mentorship, background reading, and participation in a massive open online course on metadata [45]. Brown, et al. propose the development of a support network that consists of trained specialists with specific domain knowledge, which information professionals could call upon when needed [45]. This idea has similarities to Lyon's [2] proposed international data informatics working group.

Cox and Pinfield, in their research surveying academic librarians, found the majority of librarians surveyed thought they had adequate RDM skills, with some caveats [38]. Their research found librarians claim development of staff combined with recruitment would fill skill gaps slowly over time. This hints at the bolstered graduate programs suggested by Lyon and Brenner above [43].

Conrad, Shorish, Whitmire, and Hswe [3] support professional development workshops held by the Association of College and Research Libraries (ACRL) [46]. These workshops, called "roadshows," travel to institutions, organizations, and conferences to teach skills in a specific area. One roadshow focuses on data management: "Building Your Research Data Management Toolkit: Integrating RDM into Your Liaison Work," which has its roots in a 2015 ACRL preconference workshop [3]. Read describes success in hosting library workshops for clinical researchers at New York University's Health Sciences Library [47]. These workshops were primarily attended by clinical professionals such as research coordinators, research managers, and faculty, but could be applied to library staff as well.

Another option are online courses. The National Library of Medicine and the National Network of Libraries of Medicine Training Office offer a 7-module course on data management, entitled "Biomedical and Health Research Data Management for Librarians" [48]. This course can be taken online and is an option for Canadian health sciences librarians to upgrade their RDM skillset. Another online course is the Research Data Management Librarian Academy (RDMLA), set to launch in Fall 2019 [44]. RDMLA is a collaboration between Elsevier and several American post-secondary institutions. Canadian health sciences associations would do well to offer similar courses if the programs above do not satisfy current Canadian health information professionals. Another option is mid-career fellowships to upgrade existing skills for already experienced information professionals.

More research is required to determine which RDM skills should be prioritized, as well as which training initiatives are most successful at Canadian health sciences libraries. Training initiatives will be

beneficial as health sciences information professionals are increasingly providing some level of data services

Limitations

The author recognizes this paper is not a full systematic review. Articles were selected from a pre-defined set of criteria for a concise review of relevant literature. As well, the focus of this paper is on academic health sciences libraries rather than other health contexts such as hospital libraries, of which little literature currently exists. The author also recognizes he excluded non-English sources in the identified scholarly articles. As such the results of this paper are intended to be an introduction for Canadian health sciences librarians to ensure research data management initiatives are implemented. More robust research will be required for libraries to implement evidence-based practices with regards to how to train information professionals to provide RDM services.

Conclusion

RDM is poised to be an essential library service across health sciences libraries. Canadian post-secondary institutions are beginning to integrate these services, all the more relevant due to the forthcoming Tri-Agency Research Data Management Policy. The author foresees a trickle-down effect of research data services in health sciences and specialized libraries, regardless of affiliation with a post-secondary institution. In light of these developments, information professionals of all types of libraries need to ensure staff have key competencies, especially if they find themselves in a role where they directly manage data.

Future Research

While the literature is populated with a number of studies from an American, UK, and Australian perspective, Canadian health sciences libraries would benefit from further research. Research exists that highlights specific skill sets, captured in Table 1 above, but work could be completed to confirm whether these skills are relevant for Canadian information professionals. Furthermore, more in-depth research should emerge verifying which initiatives have the greatest success as RDM training is developed across Canada. A future research study can explore current RDM-focused graduate-level courses offered at Canadian post-secondary institutions, complementing the work completed by RDMLA researchers. Using this information, Canadian health sciences libraries and library associations could implement professional development opportunities to bridge skills gaps to provide high-level, mature RDM services.

Acknowledgments

The author would like to thank Dr. Tonyia Tidline for her guidance in preparing this article.

Statement of Competing Interests

No competing interests declared.

References

1. Whyte, A, Tedds, J. Making the Case for Research Data Management [Internet]. DCC Briefing Papers. Edinburgh: Digital Curation Centre; 2011 [cited 2018 Nov 18]. Available from: http://www.dcc.ac.uk/resources/briefing-papers
2. Lyon L. The Informatics Transform: Re-Engineering Libraries for the Data Decade. International Journal of Digital Curation [Internet]. 2012 Mar [cited 2017 Oct 30];7(1):126–38. Available from: http://dx.doi.org/10.2218/ijdc.v7i1.220
3. Conrad S, Shorish Y, Whitmire AL, Hswe P. Building professional development opportunities in data services for academic librarians. IFLA Journal [Internet]. 2017 Mar [cited 2017 Nov 3];43(1):65–80. Available from: https://doi.org/10.1177/0340035216678237
4. Hey T, Trefethen A. The Data Deluge: An e-Science Perspective. In: Berman F, Fox G, Hey T, editors. Wiley Series in Communications Networking & Distributed Systems [Internet]. Chichester, UK: John Wiley & Sons, Ltd; 2003 [cited 2017 November 18]. p. 809–24. Available from: http://doi.wiley.com/10.1002/0470867167.ch36
5. Hey T, Hey J. E-Science and its implications for the library community. Library Hi Tech [Internet]. 2006 Oct [cited 2017 Oct 29]; 24(4): 515–28. Available from: https://doi.org/10.1108/07378830610715383

6. Corrall, S, Kennan, M, Afzal, W. Bibliometrics and research data management services: Emerging trends in library support for research. Library Trends [Internet]. 2013 Jan [cited 2017 Oct 19];61(3): 636–74. Available from: https://doi.org/10.1353/lib.2013.0005

7. Cronin B. Invisible colleges and information transfer: A review and commentary with particular reference to the social sciences. Journal of Documentation [Internet]. 1982 Mar [cited 2017 Oct 24];38(3): 212-36. Available from: https://doi.org/10.1108/eb026730

8. Gieryn TF. Boundary-work and the demarcation of science from non-science: Strains and interests in professional ideologies of scientists. American Sociological Review [Internet]. 1983 Dec [cited 2017 Nov 5]; 48(6): 781-95. Available from: https://www.jstor.org/stable/2095325?seq=1#page_scan_tab_contents

9. Palmer CL. Information work at the boundaries of science: linking library services to research practices. Library Trends [Internet]. 1996 Oct [cited 2017 Nov 2]; 45(2): 165-91. Available from: https://www.ideals.illinois.edu/handle/2142/8089

10. Hey S, Tansley S, Tolle K. Jim Gray on eScience: A transformed scientific method. In: Hey S, Tansley S, Tolle K, editors. The Fourth Paradigm: Data-Intensive Scientific Discovery [Internet]. Redmond, WA: Microsoft Corporation; 2009 [cited 2017 November 18]. p. xvii-xxxi. Available from: https://www.microsoft.com/en-us/research/wp-content/uploads/2009/10/Fourth_Paradigm.pdf

11. Surkis A, Read K. Research Data Management. J Med Libr Assoc [Internet]. 2015 Jul [cited 2017 Nov 7]; 103(3): 154-56. Available from: https://dx.doi.org/10.3163%2F1536-5050.103.3.011

12. Read K, Surkis A, Larson C, McCrillis A, Graff A, Nicholson J, Xu J. Starting the Data Conversation: Informing Data Services at an Academic Health Sciences Library. J Med Libr Assoc [Internet]. 2015 Jul [cited 2018 Apr 8]; 103(3): 131-35. Available from: https://doi.org/10.3163/1536-5050.103.3.005

13. Tenopir C, Birch B, Allard, S. Academic libraries and research data services: current practices and plans for the future; an ACRL white paper [Internet]. Chicago, IL: Association of College and Research Libraries; 2012 [cited 2018 Nov 18]. Available from: http://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers/Tenopir_Birch_Allard.pdf

14. Yakel E. Digital Curation. OCLC Systems & Services: International Digital Library Perspective [Internet]. 2007 Nov [cited 2019 Apr 3]; 23(4): 335-40. Available from: https://doi.org/10.1108/10650750710831466

15. Lee DJ, Stvilia B. Practices of research data curation in institutional repositories: A qualitative view from repository staff. PLOS ONE [Internet]. 2017 Mar [cited 2017 Nov 5];12(3):e0173987. Available from: https://doi.org/10.1371/journal.pone.0173987

16. Higgins S. The DCC curation lifecycle model. The International Journal of Digital Curation [Internet]. 2008 Dec [cited 2017 Nov 4]; 1(3): 134-40. Available from: http://dx.doi.org/10.2218/ijdc.v3i1.48

17. Walters T, Skinner K. New Roles for New Times: Digital Curation for Preservation [Internet]. Washington, DC: Association of Research Libraries; 2011 [cited 2018 Apr 18]. Available from: https://vtechworks.lib.vt.edu/bitstream/handle/10919/10183/nrnt_digital_curation17mar11.pdf;sequence=1

18. Pryor G, Donnelly M. Skilling Up to Do Data: Whose Role, Whose Responsibility, Whose Career? International Journal of Digital Curation [Internet]. 2009 Oct [cited 2017 Oct 19];4(2):158–70. Available from: http://dx.doi.org/10.2218/ijdc.v4i2.105

19. Lyon L. The Informatics Transform: Re-Engineering Libraries for the Data Decade. International Journal of Digital Curation [Internet]. 2012 Mar [cited 2017 Oct 30];7(1):126–38. Available from: http://dx.doi.org/10.2218/ijdc.v7i1.220

20. Pinfield S, Cox AM, Smith J. Research Data Management and Libraries: Relationships, Activities, Drivers and Influences. PLoS ONE [Internet]. 2014 Dec [cited 2017 Oct 24];9(12):e114734. Available from: https://doi.org/10.1371/journal.pone.0114734

21. Whyte A. Delivering research data management services. In: Pryor G, Jones S, Whyte, A, editors. A pathway to sustainable research data services: From scoping to sustainability London, UK: Facet; 2014. p. 59-88.

22. Wittenberg J, Elings M. Building a Research Data Management Service at the University of California, Berkeley. IFLA Journal [Internet]. 2017 Mar [cited 2018 Apr 15]; 43(1): 89-97. Available from: https://doi.org/10.1177/0340035216686982

23. Wang M, Fong BL. Embedded Data Librarianship: A Case Study of Providing Data Management Support for a Science Department. Science & Technology Libraries [Internet]. 2015 Jul [cited 2017 Nov 3];34(3):228–40. Available from: https://doi.org/10.1080/0194262X.2015.1085348

24. Antell K, Foote JB, Turner J, Shults B. Dealing with Data: Science Librarians' Participation in Data Management at Association of Research Libraries Institutions. College & Research Libraries [Internet]. 2014 Jul [cited 2017 Oct 22];75(4):557–74. Available from: https://doi.org/10.5860/crl.75.4.557

25. Government of Canada. Tri-Agency open access policy on publications [Internet]. 2016 Dec 21 [cited 2017 Oct 17]. Available from: http://www.science.gc.ca/eic/site/063.nsf/eng/h_F6765465.html?OpenDocument

26. Government of Canada. Tri-Agency statement of principles on digital data management [Internet]. 2016 Dec 21 [cited 2017 Oct 17]. Available from: http://www.science.gc.ca/eic/site/063.nsf/eng/h_83F7624E.html

27. Government of Canada. Draft: Tri-Agency research data management policy for consultation [Internet]. 2018 May 5 [cited 2018 Nov 16]. Available from: http://www.science.gc.ca/eic/site/063.nsf/eng/h_97610.html

28. Steeleworthy M. Research Data Management and the Canadian Academic Library: An Organizational Consideration of Data Management and Data Stewardship. Partnership: The Canadian Journal of Library and Information Practice and Research [Internet]. 2014 Jun [cited 2017 Oct 26]; 9(1): 1-11. Available from: https://journal.lib.uoguelph.ca/index.php/perj/article/view/2990

29. Guindon A. Research data management at Concordia University: A survey of current practices. Feliciter [Internet]. 2014 Apr [cited 2017 Nov 15]; 60(2): 15-17. Available from: http://community.cla.ca/2014/04/

30. Witt M, Cragin M. Introduction to institutional data repositories workshop [Internet]. Libraries Research Publications; 2008 [cited 2018 Nov 24]. Available from: http://docs.lib.purdue.edu/lib_research/83

31. Canadian Association of Research Libraries. Repositories in Canada. 2017 [cited 2018 Apr 3]. Available from: http://www.carl-abrc.ca/advancing-research/institutional-repositories/repos-in-canada/

32. Lyon L. Librarians in the Lab: Toward Radically Re-Engineering Data Curation Services at the Research Coalface. New Review of Academic Librarianship [Internet]. 2016 Oct [cited 2017 Oct 28];22(4):391–409. https://doi.org/10.1080/13614533.2016.1159969

33. Lyon L. Reflections & challenges, preparing the workforce for digital curation: the iSchool perspective [Internet]. 2014 Feb [cited 2017 Nov 18]. Available from: http://www.dcc.ac.uk/sites/default/files/documents/IDCC14/Panels/LizLyon_Panel.pdf

34. Cox AM, Kennan MA, Lyon L, Pinfield S. Developments in research data management in academic libraries: Towards an understanding of research data service maturity. Journal of the Association for Information Science and Technology [Internet]. 2017 Sep [cited 2017 Nov 4];68(9):2182–200. Available from: https://doi.org/10.1002/asi.23781

35. Tenopir C, Hughes D, Allard S, Frame M, Birch B, Baird L, Sandusky R, Langseth M, Lundeed, A. Research Data Services in Academic Libraries: Data Intensive Roles for the Future? Journal of eScience Librarianship [Internet]. 2015 Dec [cited 2017 Nov 4]; 4(2): 1-21. https://doi.org/10.7191/jeslib.2015.1085

36. Tenopir C, Sandusky RJ, Allard S, Birch B. Research Data Management Services in Academic Research Libraries and Perceptions of Librarians. Library & Information Science Research [Internet]. 2014 Apr [cited 2017 Nov 17];36(2):84–90. https://doi.org/10.1016/j.lisr.2013.11.003

37. Auckland, M. Re-skilling for research: an investigation into the role and skills of subject and liaison librarians required to effectively support the evolving information needs of researchers [Internet]. Research Libraries UK. 2012 [cited 2017 Nov 4]. Available from: https://www.rluk.ac.uk/portfolio-items/re-skilling-for-research/

38. Cox AM, Pinfield S. Research data management and libraries: Current activities and future priorities. Journal of Librarianship and Information Science [Internet]. 2014 Dec [cited 2017 Oct 24];46(4):299–316. Available from: http://dx.doi.org/10.1177/0961000613492542

39. Delserone LM. At the watershed: preparing for research data management and stewardship at the University of Minnesota Libraries. Library Trends [Internet]. 2008 Oct [cited 2017 Oct 14];57(2):202-10. Available from: https://doi:10.1353/lib.0.0032

40. Nicholson SW, Bennett TB. Data sharing: Academic libraries and the scholarly enterprise. Portal: Libraries and the Academy [Internet]. 2011 Jan [cited 2017 Nov 5]; 11(1): 505-16. Available from: https://muse.jhu.edu/article/409890

41. Heidorn PB. The Emerging Role of Libraries in Data Curation and E-science. Journal of Library Administration [Internet]. 2011 Oct [cited 2017 Nov 5];51(7–8):662–72. Available from: https://doi.org/10.1080/01930826.2011.601269

42. Federer L. Defining data librarianship: a survey of competencies, skills, and training. J Med Libr Assoc [Internet]. 2018 Jul [cited 2017 Nov 2];106(3): 294-303. Available from: http://jmla.pitt.edu/ojs/jmla/article/view/306

43. Lyon L, Brenner A. Bridging the data talent gap - positioning the iSchool as an agent for change. International Journal of Data Curation [Internet]. 2015 Mar [cited 2017 Oct 30]; 10(1): 111-22. http://dx.doi.org/10.2218/ijdc.v10i1.349

44. Research Data Management Librarian Academy. Training [Internet]. 2018 [cited 2019 June 5]. Available from: https://github.com/RDMLA/home/raw/master/Training.pdf

45. Brown RA, Wolski M, Richardson J. Developing new skills for research support librarians. The Australian Library Journal [Internet]. 2015 Jul [cited 2017 Oct 22];64(3):224–34. Available from: https://doi.org/10.1080/00049670.2015.1041215

46. Association of College and Research Libraries [Internet]. ACRL roadshows. 2017 [cited 2017 Oct 15]. Available from: http://www.ala.org/acrl/conferences/roadshows

47. Read K. Adapting Data Management Education to Support Clinical Research Projects in an Academic Medical Center. J Med Libr Assoc [Internet]. 2019 Jan [cited 2019 May 10]; 107(1): 89-97. Available from: http://dx.doi.org/10.5195/jmla.2019.580

48. National Network of Libraries of Medicine. Biomedical & health research data management for librarians [Internet]. 2019 [cited Apr 18]. Available from https://nnlm.gov/classes/biomedical-and-health-research-data-management-librarians

BOOK REVIEW / CRITIQUE DE LIVRE

Johnston LR. **Curating research data, volume one: practical strategies for your digital repository**. Chicago, Illinois: Association of College and Research Libraries; 2017. Softcover: 285p. ISBN 9780838988589. Price: USD $65.00. Available from: https://www.alastore.ala.org/content/curating-research-data-volume-one-practical-strategies-your-digital-repository

Data curation, the management of data from its inception through its entire life cycle, is a crucial issue in research institutions throughout the world. There is a growing awareness of the responsibility to collect, describe, store and make accessible, the results of research studies. It is not enough to simply analyze research data and report on it in publications. It is becoming increasingly common to have obligations to journals, funding agencies and the public to publish the research data that supports published results. There is a plethora of articles, books and reports on the state of data curation in the academic world. These publications range from beginner to extremely advanced and sometimes it is difficult to choose where to focus one's energies, when so much information exists.

Curating Research Data, Volume One: Practical Strategies for Your Digital Repository is an introduction to data curation that is aimed at librarians, information specialists, and data custodians who are interested in the field of data management and who want a good background understanding of the principles of data curation. These principles are illustrated by numerous examples of well curated data repositories in various fields and arenas, with the focus being on academic research institutions. The book and its companion volume aim to "present those tasked with long-term data stewardship of digital research data a blueprint for how to curate data for eventual reuse." (p. 1) The editor, Lisa Johnston, is well qualified to provide this blueprint, as she currently holds the position of Research Data Management/Curation Lead at the University of Minnesota Libraries. She is also the Co-Director of the University Digital Conservancy, which is the University of Minnesota's institutional repository. Ms. Johnston serves also as principal investigator of the Data Curation Network, a multi-institutional collaboration of data curation experts. Ms Johnston has compiled an admirable group of librarians, information scientists, and data scientists to collaborate on this work. Amongst the authors are 5 Canadian librarians who are leaders in the field in our country.

The book is divided into 3 parts that flow nicely from one to the next. The first part, "Setting the Stage for Data Curation" provides a picture of the culture of data in various disciplines and geographical regions. It starts by discussing the changing nature of data curation, then moves on to paint a picture of the landscape of institutional, funding agency, and journal data policies. Once the broad picture is developed, the book moves on to discuss the collaborative nature of data curation services in Canada as well as the differences across disciplinary data practices and how those differences shape repositories and curation services. I was happy to see the inclusion of the Canadian collaboration in this book and, while I recognize this is an American publication, I would have liked to see more examples from Canada interspersed throughout the book. Part one concludes with a discussion on the importance of librarians and data custodians working with scientists to develop and implement good data practices, rather than just preaching to researchers about the importance and hoping they will comply.

Part 2, "Data Curation Services in Action" discusses the development of data services, mainly at academic institutions, focusing on the importance of policy development and professional development to ensure that data services can continue to mature and adjust to changing requirements and practices. It stresses the importance of working collaboratively with all groups with an interest in data management,

groups such as the library, IT services and the Office of Research. Various funding models are discussed, outlining advantages and disadvantages of each. The book moves on to provide some excellent examples of successful outreach and promotional strategies.

Finally, part 3, "Preparing Data for the Future: Ethical and Appropriate Reuse of Data" discusses data at the end of life. It provides advice on when and how to end the life of a dataset, a discussion on meta repositories for data as well as data rescue and how to best prepare repositories to be able to handle situations where data rescue may be needed.

This is a useful book for those interested in gaining a better understanding of data curation, those new to the field, and those wanting to start a data repository in their own institutions. It is aimed mostly at librarians and data managers, but stresses the importance of including all major stakeholders in data curation decisions. I thought it extremely appropriate that it stresses the importance of involving researchers in data curation decisions. I recently attended the National Data Services Framework Summit in Ottawa, ON, where the importance of researcher involvement was stressed as something that is essential to the success of data curation efforts.

The book provides a good overview of the current landscape, though it may become outdated fairly quickly as this is a rapidly evolving field. For example, the chapter "Collaborative Research Data Curation Services: A View from Canada" does an excellent job of describing the state of data services in Canada in 2016, however, there have been many advances since. In addition, there will be many changes to funding agency policies over the next few years.

For those looking for advice on how to develop data curation services, there are some excellent examples of data repositories. In chapter 4, Ixchel Faniel and Elizabeth Yakel do an exemplary job of describing 3 disciplinary repositories, from the fields of social science, zoology, and anthropology, the different views that each discipline holds with respect to sharing and reusing data, and the implications that these differences have on the infrastructure of the repositories and the associated documentation.

Overall, this book is well written, with some chapters being more interesting than others. It is a useful book to have if you are just starting down the data curation path and need a good basic understanding of how to get services and resources started in your institution. The same could be accomplished with reading a variety of articles, but due to the abundance of information surrounding this topic, it is nice to have a concise collection readily available. I look forward to reading *Curating Research Data, Volume Two: A Handbook of Current Practice.*

Statement of Competing Interests

No competing interests declared.

Alison Farrell
Public Services Librarian
Health Sciences Library, Memorial University
St John's NL
Email:alisonr@mun.ca

PRODUCT REVIEW / ÉVALUATION DE PRODUIT

Product: Isabel Pro – the DDX Generator

URL:
https://www.isabelhealthcare.com/products/isabel-pro-ddx-generator

Cost: Free 30-day trial,
Standard individual subscription USD $149/yr
Premium individual subscription USD $219.99/yr
Institutional subscription also available

Purpose and Intended Audience

Isabel Healthcare began in 1999 as a non-profit organization after its founder Dr. Mark Graber's daughter suffered a near fatal misdiagnosis. In 2004, the organization converted to a for-profit business to support individual healthcare providers, and institutions including hospitals and medical schools. Isabel Pro or differential diagnosis (DDX) generator (henceforth, Isabel Pro) is a web-based diagnosis decision-making tool as part of the Isabel product suite of diagnosis decision support systems. Instead of rules-based algorithms, Isabel Pro uses statistical natural language processing (SNLP) to provide diagnosis retrieval for physicians and healthcare providers to avoid "System 1 diagnosis errors" in clinical settings. Sample cases can also be built to support the teaching of medical students and residents. Patients can use the free Isabel Symptom Checker to make sense of and research their symptoms. It allows patients to describe their symptoms in plain language and helps patients figure out their next steps (e.g. visit a clinic, visit the emergency, etc.). This product review is intended for the former product, Isabel Pro.

Product Description

Isabel Pro is a software tool that uses SNLP engine to search in a database of disease presentations or illness scripts for physicians. Isabel Pro determines likely diagnosis based on the patient's demographics and clinical features, including time-sensitive "Don't Miss Diagnoses."

Symptoms can be searched using natural language in a database of over 10 000 diagnoses of which 6 000 are diseases and 4 000 are drugs. The database is manually built and populated with knowledge about each disease from different sources. It does not give a sufficient precision but, instead, presents different potential diagnoses and match rates.

Isabel Pro Features and Usability

The interface is intuitive to use. It takes information entered and matches it across electronic sources to create a checklist of potential diagnoses. For teaching purposes, cases can also be generated and uploaded to Isabel Pro to support students in the diagnosis decision-making process. Additional training and support are also available from Isabel representatives.

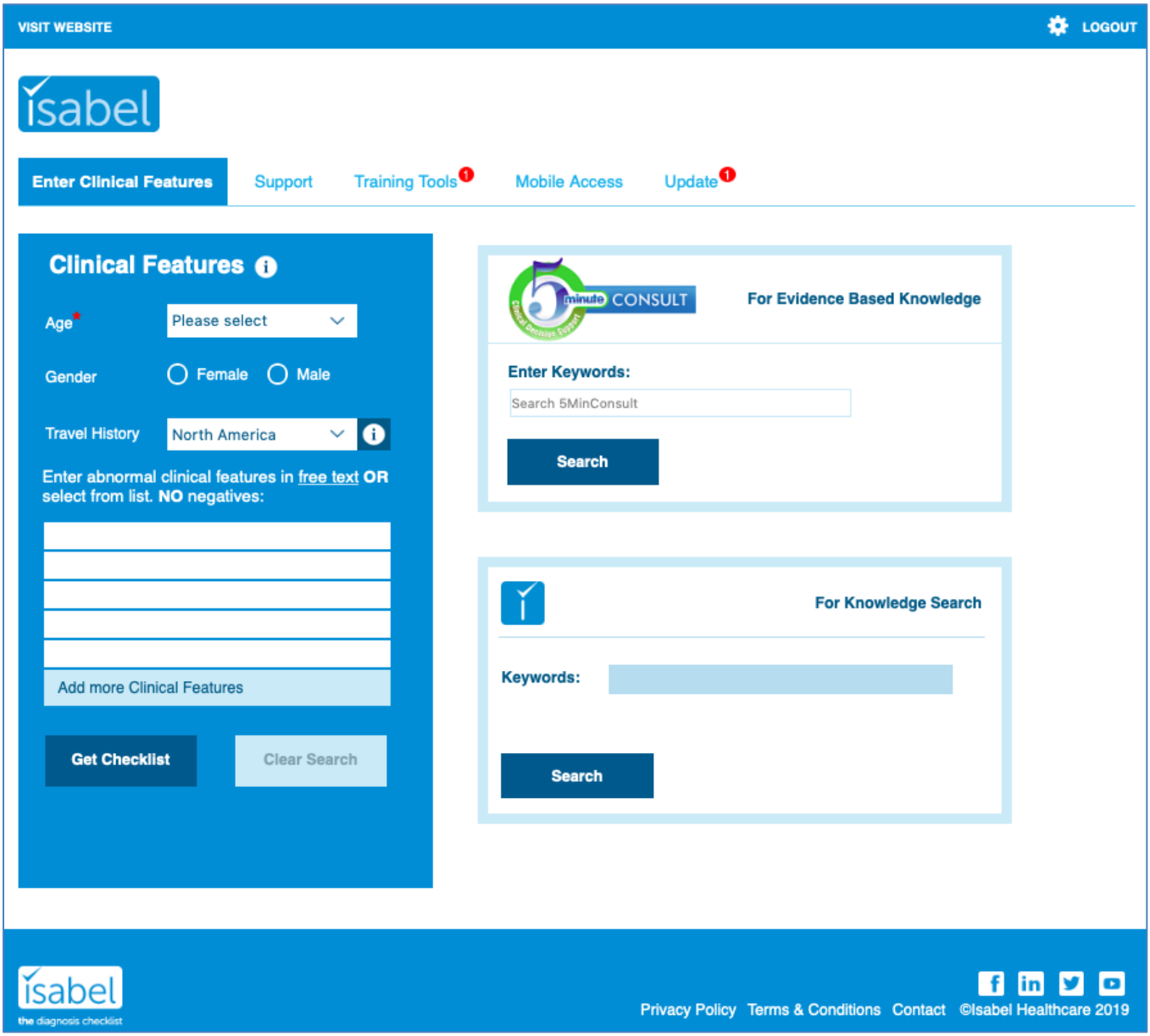
Search

The search feature has the ability to retrieve results using natural language. Physicians can begin the differential diagnosis process by entering patient data (e.g. age, gender, pregnancy status, travel history) into the "Clinical Features" box. Next, physicians can enter "Abnormal Clinical Features" including chief complaints, common medical abbreviations such as SOB (i.e. shortness of breath), labs, vitals, and comorbidities extracted from the patient's medical record. The search box can also directly link to a library's subscription of evidence-based resources.

Ranked Diagnoses

By clicking on the "Get Checklist" button, the system generates a ranked list of diagnoses arranged by a color bar of "Likelihood Indicator." Outputs are filtered for the relevant age, gender, and region of the patient. The list can also be sorted by specialty or red flags (i.e. conditions requiring immediate attention). In a separate tab, drug side effects that may have caused the symptoms are also listed.

Fig.1. Isabel Pro user interface



Results

In the options listed on the right of the ranked diagnoses, every generated differential diagnosis can be emailed, printed, saved, or copied. The interface also allows users to provide direct feedback to Isabel representatives through a "feedback" icon on the page.

Other Features

Medical publishers have also partnered with Isabel Healthcare to provide links to resources a library may have, including Minute Consult from Wolters Kluwer, DynaMed Plus from EBSCO, and Best Practice from the British Medical Journal (BMJ).

Sample Case[1]

Case description:

[1] Case modified from Isabel case template retrieved from http://www.isabelhealthcare.com

A 34-year-old woman who was 14 weeks pregnant presented to the emergency department with 5 days of nonspecific abdominal pain, nausea, vomiting. On examination, she appeared well with normal vital signs and had some mild diffused abdominal tenderness.

Test results:

- White blood cell count of 19 000 cells/uL
- Urinalysis shows positive for nitrates and leukocytes esterase

As test results are added, Isabel Pro produces a modified ranked list of diagnoses. Acute appendicitis and peritonitis move up on the ranked listed and highlighted in dark orange as "most likely" diagnoses.

Knowledge Resources

Users can click on each diagnosis to access knowledge resources integrated into Isabel Pro.

Fig.2. Isabel Pro results based on initial clinical features

Fig.3 Isabel Pro results after lab test results added

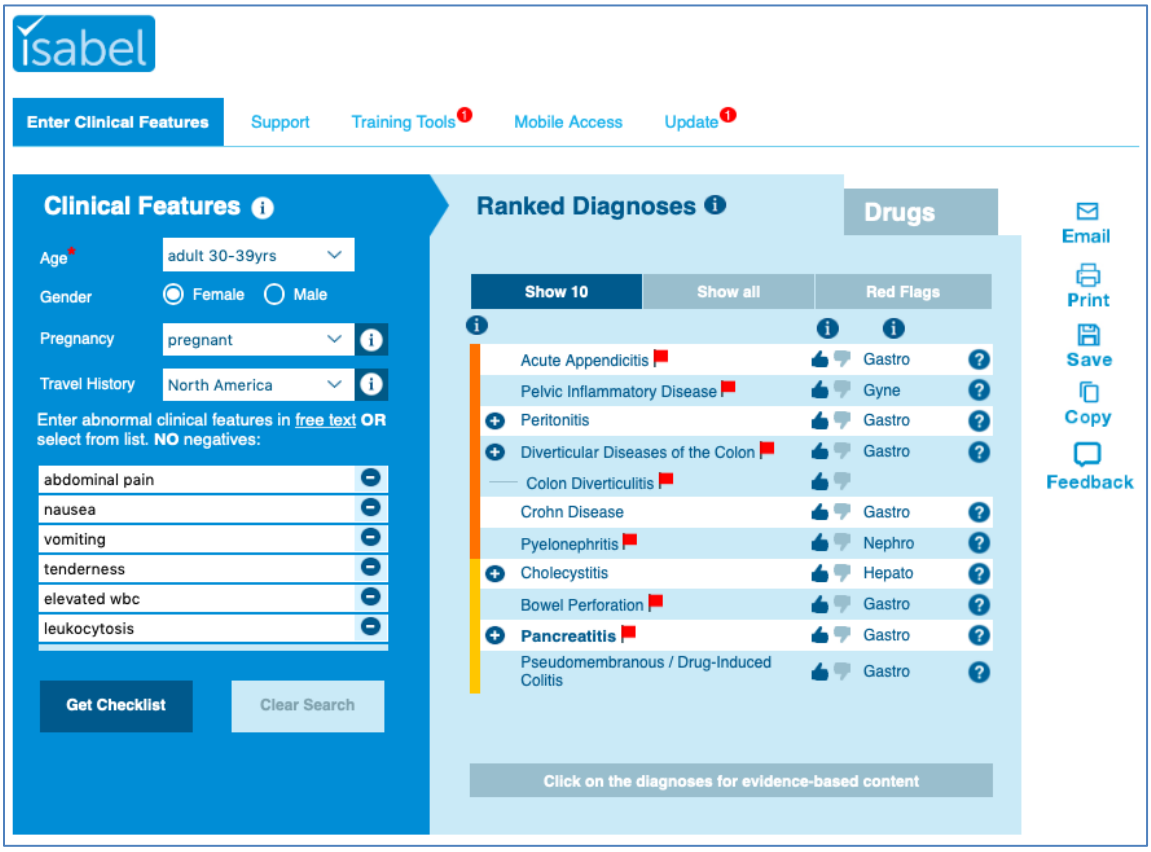
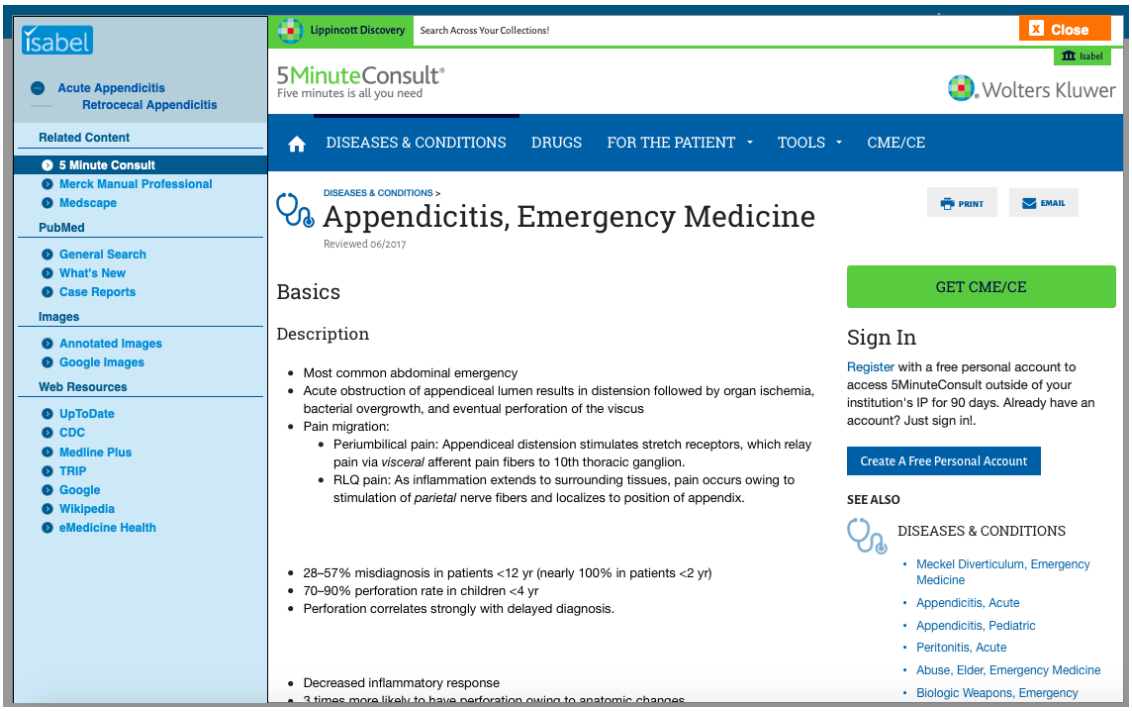


Fig.4 Pop-up window of knowledge resources for a selected diagnosis



Product Integration

Knowledge and Library Resources

The tool has the capability to integrate with many popular databases, clinical tools, and library resources such as PubMed, Embase, MEDLINE, UpToDate, DynaMed, Lexicomp, Micromedex, CDC, and TRIP. When integrated with DynaMed or UpToDate, results will link directly to relevant DynaMed or UpToDate topics. If neither is available, the links will resort to PubMed.

Integration into EMR

Isabel Pro can be integrated in an electronic medical records (EMR) system. Data from pre-assigned EMR fields can be submitted to Isabel Pro using the Isabel User Interface. Current EMR vendors that offer an Isabel interface are Epic, Cerner, NextGen, Allscripts, SystmOne, T-Systems, Better Day, and VersaSuite.

Strengths and Weaknesses

Isabel Pro is selected by the American Medical Association (AMA) as the diagnosis tool for its portal and endorsed by the British Medical Journal (BMJ). The tool undergoes continuous validation processes, including controlled trials and peer-reviewed studies, covering various aspects of the system. For users, the Isabel Healthcare support team provides on demand support, customizable interfaces using the Isabel API, and seamless integration with a library's databases, clinical tools and resources, or EMR system. Users can also capture and print what they learned in Isabel Pro for a credit to be issued towards their continuing medical education (CME).

While Isabel Pro is intuitive and user-friendly, knowledge of medical terms may be a drawback for some users. It can also be costly for individuals and institutions on top of their existing subscriptions. For the full potential use of the tool, it is best integrated with other resources, most of which require a library subscription.

Peer Review and Validation Studies[2]

A number of Isabel Healthcare and independent studies have studied the usefulness of Isabel Pro for attending physicians, residents, nurses, and medical students in the diagnosis decision-making process. A summary of findings is listed below.

- Ramnarayan et al. (2007) found that Isabel performs with an acceptable degree of clinical accuracy. In particular, Isabel was helpful for reminding junior doctors of key diagnoses in the emergency department. Isabel displayed the final discharge diagnosis in 95% of inpatients and 90% of "must-not-miss" diagnoses suggested by the expert panel.
- Bond et al. (2012) tested four diagnosis programs and found that the performance testing supports the use of Isabel and DxPlain.
- El-Kareh et al. (2013) reported accuracy rates for DDX generators in the range of 70-95%. However, they suggest the development of alternative metrics to measure diagnostic performance.
- In a pilot study, Henderson and Rubin (2013) found that Isabel was of limited utility for secondary medical care in the general practice setting in the UK
- In an audit study, Semigran et al. (2015) examined the clinical performance across 23 symptom checkers and a wide range of conditions in the UK, US, the Netherlands, and Poland. Their study found that symptom checkers had a deficit in diagnoses and triage. Isabel achieved 44% accuracy for correct symptom ranked first and 69% ranked in the top three.
- Riches et al. (2016) highlight in their systematic review and meta-analysis that DDX generators have the potential to improve diagnostic practice and reduce diagnostic error.

The literature on DDX generators is complex, with a variety of study designs. The lack of standardized appraisal and criteria for DDX generators often result in poor quality and insufficient evidence from the existing literature to recommend the routine use by

[2] Visit https://www.isabelhealthcare.com/validation/peer-reviews for other peer reviews and clinical studies.

physicians. DDX generators are not intended to replace physicians but rather augment the diagnosis decision-making process. Further studies that examine the efficacy, ranking of diagnoses, cost-effectiveness, and time should be addressed before further recommendations can be made.

Product Comparisons

DDX generators have moved away from rules-based systems that were developed in the 1970s and 1980s. Tools, such as DxPlain, QMR, Meditel, and Diagnosis Pro, tend to associate each symptom with a particular disease and assigned probability. On the other hand, Isabel Pro is part of a new generation of tools that uses natural language pattern recognition through a database of diagnosis presentations to provide a list of ranked diagnoses. A competing tool similar to Isabel Pro is VisualDx, which is a system primarily based on digital images and allows physicians and clinicians to build visual differential diagnosis based on the patient's test findings.

Compatibility

Isabel Pro is web-based and compatible with all browsers and mobile platforms. While no mobile app is available, users can save a shortcut of a web link to their device's home screen for easy access.

Currency

Database contains 10 000 diagnoses including 6 000 diseases and 4 000 drugs. Records are updated on a weekly and monthly basis with submissions from 30 different sources, including Isabel Healthcare, users, and physicians.

Cost/Value

Isabel Pro is a subscription-based product. Annual individual subscriptions are available for two versions: standard USD $149/yr and premium USD $219.99/yr. The premium package includes access to 5 Minute Consult. Institution subscriptions are negotiated for each institution. Discounts are also available for students.

Contact Information

To discuss your library's needs, please contact an Isabel Healthcare representative for an inquiry or visit https://www.isabelhealthcare.com/contact-isabel-healthcare.

Acknowledgement

Thanks to Patrick Garrett, Isabel Sales Associate, for providing a product demo and addressing follow-up questions.

Statement of Competing Interests

No competing interests declared.

References

1. Amy, L. R., Borowitz, S. M., Brown, P. A., Mendelsohn, M. J., & Lyman, J. A. (2006). Impact of a Web-based diagnosis reminder system on errors of diagnosis. *AMIA ... Annual Symposium proceedings. AMIA Symposium*, *2006*, 843.

2. Bond, W. F., Schwartz, L. M., Weaver, K. R., Levick, D., Giuliano, M., & Graber, M. L. (2012). Differential diagnosis generators: an evaluation of currently available computer programs. *Journal of General Internal Medicine*, *27*(2), 213-219.

3. El-Kareh, R., Hasan, O., & Schiff, G. D. (2013). Use of health information technology to reduce diagnostic errors. *BMJ Quality & Safety*, *22*(Suppl 2), ii40-ii51.

4. Henderson, E. J., & Rubin, G. P. (2013). The utility of an online diagnostic decision support system (Isabel) in general practice: a process evaluation. *JRSM Short Reports*, *4*(5), 1–11.

5. Ramnarayan, P., Cronje, N., Brown, R., Negus, R., Coode, B., Moss, P. Britto, J. (2007). Validation of a diagnostic reminder system in emergency medicine: a multi-centre study. *Emergency Medicine Journal: EMJ*, *24*(9), 619–624.

6. Riches, N., Panagioti, M., Alam, R., Cheraghi-Sohi, S., Campbell, S., Esmail, A., & Bower, P. (2016). The effectiveness of electronic differential

diagnoses (DDX) generators: a systematic review and meta-analysis. *PloS one*, *11*(3), e0148991.

7. Semigran, H. L., Linder, J. A., Gidengil, C., & Mehrotra, A. (2015). Evaluation of symptom checkers for self diagnosis and triage: audit study. *British Medical Journal*, *351*, h3480.

Lili Yuxi Ren
Reference Librarian
The Hospital for Sick Children
Toronto ON
Email: lily.ren@sickkids.ca

CHLA 2019 CONFERENCE CONTRIBUTED PAPERS / ABSC CONGRÈS 2019 COMMUNICATIONS LIBRES

CP = Contributed Paper

CP1. Research Data Management Librarian Academy

Jean P. Shipman[1] & Elaine R. Martin[2]
[1]Elsevier & [2]Harvard Medical School

Introduction: Many librarians are active participants in their institutions' research lifecycles. Their expertise captures scientific knowledge as it is being created to manage and record it for later dissemination, but their skills with managing research data vary greatly. For librarians to lead research data management (RDM) solutions, they may need skill development. **Description:** Several librarians studied the need for an RDM Librarian Academy. The development team includes librarians from Harvard Medical School, Tufts Health Sciences, MCPHS University, Boston University School of Medicine, Northeastern University, Elsevier, and Simmons University. The team compiled an inventory of existing courses and conducted a needs assessment through interviews, surveys and focus groups to identify gaps in current training offerings and to identify what librarians need for their success. The team also surveyed library and i-school educators. **Outcomes:** The needs assessment indicated librarians feel they want to be part of research teams to assist with managing research data, but they often feel they don't have the needed skills or confidence to do so. They prefer to learn through online modules and at their own pace. A training program is being developed to meet these expressed needs. The program will include 6-7 online training modules and will be offered to anyone across the globe for free. If continuing education credit is desired, Simmons University will offer such for a fee. **Discussion:** The inventory of available trainings guided the development of the training modules to address gaps in current offerings.

CP2. Allied Health Professionals as Information Mediators: Information Practice in a Community Centre

Sara Sharun
Mount Royal University

Introduction: This exploratory study describes the information world of staff at a community health centre serving vulnerable youth. It aims to illustrate key aspects of allied health professionals' information practices and develop a picture of workplace information literacy (IL) in a community healthcare setting. **Methods:** Semi-structured interviews were conducted with nine Youth Support Specialists and Medical Office Assistants at a youth health centre in Calgary, Alberta. **Results:** Staff highly valued their relationships with each other, community agency partners, and clients when seeking, evaluating, and using information. Specific information practices were dependent on their level and type of professional experience; and were determined above all by personal relationships. Staff described themselves as navigators who used their strength in relationship building and their understanding of the health and social care system—and their clients' place within that system—to inform their information practice. Major themes that emerged from the interviews were valuing information, navigating the landscape, and developing capacity. **Discussion:** This study is a first step towards generating a richer description of professional information literacy in a healthcare setting, based on healthcare workers' descriptions of their experiences of this phenomenon. This understanding of socially-situated information practices may inform approaches to IL instruction and support for professionals in navigator or mediator roles. Future

research will continue to examine the role that non-medical healthcare staff have in supporting and developing health literacy for clients, and the role that Librarians may have in preparing these staff members for that role.

CP3. Are University Libraries Supporting Medical Student Wellness? Results from an Exploration of Library Social Media

Jackie Phinney[1] & Lucy Kiester[2]
[1]Dalhousie University, [2]McGill University

Introduction: Academic libraries that support medical schools must provide certain services that are in line with Canadian accreditation standards. These standards exist within twelve checklists and are overseen by The Association of Faculties of Medicine of Canada. Checklist #12 pertains to medical student health and well-being. The literature shows that libraries have diversified their services to meet a variety of patron needs, including wellness. Therefore, to strengthen the library's role in the accreditation process, we investigated to see if academic libraries that support medical schools are actively engaging in student wellness. **Methods:** A scan of social media accounts for all medical school campus libraries across Canada. Instagram, Facebook, and Twitter accounts were checked daily during the months of November 2018 and February 2019. Data was collected then analyzed by identifying common themes related to events, services, etc., that were being promoted at the different campuses. **Results:** Results indicate that some libraries actively promoted student wellness during our collection time frame, while others did not. Common themes found in the data include—among others—recreation, pet therapy, and strategies for positive self-management. **Discussion:** Academic libraries that actively promote student wellness can demonstrate to their medical schools that they can support accreditation on a deeper level. Regardless of who we support, it is important to remind our faculties that we can serve them in non-traditional ways that create a lasting impact.

CP4. MEDLINE vs. PubMed in Literature Searching

David Kaunelis, Amanda Hodgson, Hannah Loshak, Kaitryn Campbell & Carolyn Spry
Canadian Agency For Drugs And Technologies In Health

Background: In conducting comprehensive literature searches, multiple database searches are generally performed to ensure optimal retrieval. The value of searching both MEDLINE and PubMed is routinely discussed by information specialists internationally on listservs although no definitive general consensus has been reached. In 2010, CADTH presented a filter developed to capture the 2% of documents found in PubMed that were not in the Ovid version of MEDLINE (https://www.cadth.ca/media/is/Search-dev/Missing2_CHLA_ABSC_Poster.pdf). This year, an exploratory research project was undertaken to assess changes in the gap of coverage between Ovid MEDLINE All and PubMed since that time. **Objectives:** The authors will discuss the preferences of searchers with regards to searching MEDLINE and PubMed, identify coverage overlap between both sources, and promote discussion on whether information specialists should still utilize both databases to ensure comprehensive searches. **Description:** There are numerous advantages and disadvantages to using either MEDLINE or PubMed for complex literature searches. The findings of this exploratory project show that in terms of coverage overlap PubMed includes very few additional citations compared to Ovid MEDLINE All, mainly those items added to PubMed within the past couple of days. However, searchers may still wish to use both databases when conducting comprehensive literature searches. We will delve into reasoning behind why searching both databases might be appropriate. Issues that affect preferences will also be discussed, including search platform capabilities, alerts processing, citation software concerns, and coverage of health technology assessments reports and other grey literature in PubMed.

CP5. Can PubMed's Best Match Algorithm Place the Eligible Studies of Systematic Reviews in Ranks 1- 50?

Margaret Sampson[1], Nassr Nama[2], Katie O'Hearn[1], Kimmo Murto[1,3], Ahmed Nasr[1,3], Sherri Katz[1,3], Gail Macartney[4], Franco Momoli[1,3,5] & Dayre McNally[1,3]
[1]Children's Hospital of Eastern Ontario, [2]BC Children's Hospital, [3]University of Ottawa, [4]University of Prince Edward Island, [5]Ottawa Hospital Research Institute

Introduction: Solutions like crowd screening and machine learning can assist systematic reviewers with heavy screening burdens, but require training sets containing a mix of eligible and ineligible studies. This study explores using PubMed's Best Match algorithm to create small training sets containing at least 5 relevant studies, which we considered to the be minimum required. **Methods:** Five systematic reviews were examined retrospectively. MEDLINE searches were converted and run in PubMed. Position of included studies was noted under both Best Match and Most Recent sort orders, as were the number of included studies in ranks 1-50. **Results:** Retrieval sizes for the systematic reviews ranged from 151-5086. The number of relevant studies ranged from 8 to 129. Median ranking of relevant records was higher in Best Match in all cases. Best Match placed a total of 25 relevant records in the first 50, at least 2 for each systematic review. Most Recent sorting placed 9 relevant records in the first 50, with none in the first 50 for 2 reviews. Although Best Match sorting outperformed Most Recent in all cases, Best Match placed 5 or more relevant records in the first 50 only twice. **Discussion:** The Best Match sort in PubMed improves the ranking and increases the proportion of relevant records in the first 50 records, but may not provide enough true positives for an effective systematic review training set. However, if investigators need to identify relevant studies for training, investigator screening of PubMed records ranked by Best Match may be the most efficient approach.

CP6. It's Not the Most Credible, But I Use it Anyway: How Millennials Evaluate and Select Everyday Health Information Sources

Joan Bartlett, Cynthia Kumah & Aaron Bowen-Ziecheck
McGill University

Introduction: Past research indicates that millennials rely heavily on information obtained from the web and social networks, but also that they may not be able to judge the authenticity, validity, and reliability of the digital information, and may share misinformation among themselves. In the first phase of ongoing research into millennials' information behaviour, we found inconsistency between the resources judged most credible for health information (experts, scholarly books and journals, and government or university websites) and the resources used most frequently (friends and family, experts, and well-known websites). **Methods:** The first phase of this research yield 3 565 survey responses from McGill University undergraduate students. The second phase involves ongoing semi-structured interviews with the same population, to further investigate the survey findings. Questions include why the resources used most frequently to find everyday health information are not those judged most credible, and how and why credibility judgments are made. We anticipate reaching data saturation with 15-25 participants. **Results:** Interviews and data analysis are in progress; preliminary interview results will be presented. **Discussion:** We will discuss the implications of the results, including those relating to information literacy, and consumer health information services. Ongoing and future research will also be discussed.

CP7. Evaluation of Health Information 'On the Go'

Cynthia Kumah & Joan Bartlett
McGill University

Introduction: Previous research shows 98% of millennials between the ages of 18-24 own smartphones; while they use smartphones to search for health information almost as frequently as they do computers, little is known about how they evaluate information found on the smartphone. The goal of this study is to understand how millennials evaluate health information found on their smartphones. The work reported here is part of a larger study into information use and well-being among millennials. **Methods:** Data were collected using semi-structured interviews with 27 participants (undergraduate students ages 18-24). Questions focused on the preferred device for health information searching and how participants evaluated the information found on the device. **Results:** Preliminary results indicate that although majority of millennials use their smartphones to search for health information, most of them do not evaluate information found on them. The choice of the smartphone as the preferred device for information on the go may have influenced users to think the information found on them can also be used "on the go," without applying the due diligence commonly used in computers. Users overly depend on the underlying technology to automatically retrieve credible information from them. **Discussion:** Millennials are not evaluating health information found on smartphones. To help overcome this problem, health information professionals need to find ways of providing credible health information on mobile devices, and to support millennials (among others) to evaluate what they find.

CP8. The Creation of a Policy for Systematic Review Services and its Impact in a Hospital Library

Carolyn Ziegler[1], Zack Osborne[2], Teruko Kishibe[1], David Lightfoot[1] & Nazi Torabi[1]
[1]St. Michael's Hospital, [2] Centre for Addiction and Mental Health

Introduction: Until recently, Information Specialists (IS) at our health sciences library did not uniformly approach the communication, documentation, or co-authorship criteria for conducting systematic review services with clients. To improve and standardize our service for each search request, we developed the Systematic Review Search Services Policy; a formal document was created outlining our systematic search policies, procedures, workflows, deliverables, and co-authorship criteria. A Memorandum of Understanding (MOU) was prepared for agreement between the IS and Principal Investigator. **Description:** The Systematic Review Search Services Policy was implemented in September 2018, following a review of practices at other institutions, the literature, an analysis of our existing procedures, consultation with the Research Department, and corporate approval. **Outcomes:** Our initial feedback from research teams with whom we work has been very positive. The clarity of roles and responsibilities from the initial stages of the systematic review process has meant ISs spend less time explaining the services we provide, and the MOU outlines straightforward criteria for co-authorship. To date (February 2019), the policy has been successfully implemented 13 times, with co-authorship agreed upon in 12 cases. **Discussion:** The creation and implementation of a policy has added rigour, standardization, and professionalism to the systematic review services the library offers. We are now gathering feedback from a post-review survey and collecting statistics on the uptake, time spent, and frequency the process leads to a successful publication.

CP9. Untapped Potential: Examining the Role of Library Technicians in Knowledge Synthesis Projects

Bradley-Ridout[1] & Alissa Epworth[2]
[1]University of Toronto, [2]St. Michaels' Hospital

Introduction: The field of knowledge synthesis is increasingly drawing on library services to support it. This project aims to investigate 1) the extent to which library technicians are currently collaborating with librarians as part of the systematic review process and 2) the potential for further involvement. A literature review was conducted and both librarians and technicians were surveyed to gauge both present involvement and overall interest. **Methods:** A detailed literature review was conducted in MEDLINE (Ovid platform), and Library and Information Science Abstracts (EBSCO platform) using related subject heading and keyword terms. Grey literature was also searched for relevant conference abstracts and other research. No language, geographical, or publication year limits were placed on the search. Additionally, an electronic survey has been developed and tested, using both qualitative and quantitative queries. This survey will be distributed to library communities in early 2019. **Results:** To date, 333 articles have been screened and reviewed for relevance. Very little discussion regarding library technicians current or potential involvement in systematic reviews was found. Results from the survey are forthcoming (June 2019). **Discussion:** The literature indicates that library technicians are performing traditional roles such as document retrieval, interlibrary loan, and photocopying for systematic reviews. However, there has been little to no published discussion regarding the evolving profession of library technicians and their potential for deeper collaboration in the systematic review process. This is an area that requires further exploration given the changing landscape and skill set of this profession.

CP10. Réflexion Stratégique des Bibliothèques Médicales du CHU de Québec - Université Laval

Zorica Djordjevic & Katia Boivin
CHU de Québec - Université Laval

Introduction: Les bibliothèques médicales évoluent dans un environnement complexe et doivent s'adapter face aux développements technologiques et aux besoins évolutifs des utilisateurs. À la suite d'une fusion récente et dans la perspective de la construction d'un nouveau complexe hospitalier, une réflexion stratégique devenait impérative pour les cinq bibliothèques de l'établissement. L'objectif était de définir des orientations stratégiques guidant le développement des bibliothèques. **Description:** Afin d'alimenter la réflexion, une revue de la littérature grise et scientifique a été effectuée. Ensuite, les données recueillies ont été confrontées ou corroborées lors d'entrevues des principales parties prenantes. Finalement, les orientations stratégiques ont pu être dégagées de cet exercice en intégrant en complément, une analyse des forces, faiblesses, opportunités, et menaces. **Résultats :** 49 personnes ont fait partie des consultations et la démarche de réflexion stratégique a permis de dessiner des orientations alignées sur une vision contemporaine et innovante des bibliothèques. Quatre orientations stratégiques ont été déterminées, soient: Renforcer l'offre de service en recherche documentaire et en formation; Moderniser l'espace-bibliothèque; Faire connaitre et reconnaître les services; Développer une offre de service pour les patients. **Exposé:** La démarche a permis, au-delà des objectifs initiaux, de mobiliser l'ensemble de l'organisation autour de la grande pertinence des services de bibliothèque médicale.

CP11. Comment Faire Vivre les Collections Littéraires dans les Bibliothèques Universitaires de Santé?

Bérengère Schietse
Université Libre de Bruxelles

Dans les bibliothèques reliées aux facultés intégrant une orientation Narrative-based Medicine ou une approche Medical Humanities dans leur cursus, elles sont un support direct aux enseignements. Mais, lorsque ces ancrages ne sont pas formalisés, quel service peut-on développer pour faire vivre ces collections ? Une bibliothèque universitaire a mis au point un séminaire interactif avec un principe simple : susciter l'échange d'idées entre étudiants à partir de sa collection littéraire. Le module est inséré dans une unité d'enseignement de la première année de bachelier en faculté de médecine et en faculté des sciences de la motricité (kinésithérapie) mais peut se décliner et s'adapter à d'autres niveaux de formation. Le bibliothécaire compile une série d'extraits abordant des thématiques souhaitées et validées par l'enseignant (représentation métier, relation avec le patient, etc.). La séance (souvent en grand groupe) est animée par le bibliothécaire, les extraits s'enchaînent et une application de sondage permet aux étudiants de réagir directement et anonymement via les smartphones. Une heure trente suffit pour initier une réflexion qui se poursuivra avec le professeur au-delà du séminaire. Le dispositif est économiquement intéressant à plusieurs niveaux: pour le titulaire, qui puise peu sur son capital d'heures de cours et pour la faculté, qui ne doit pas engager puisque le séminaire est considéré comme un service pris en charge par le personnel de la bibliothèque, au même titre que les formations en Information Literacy. Les résultats du sondage d'appréciation demande aux étudiants directement après ces séances encouragent à poursuivre.

CP12. Alerte Ebola au CHUM! Rôle du Spécialiste, Gestion de l'information en Situation de Désastre (DIS)

Diane St-Aubin, Caroline Sauvé & Daniela Ziegler
Centre Hospitalier de l'Université de Montréal

Lors du Congrès des Professionnels de l'Information (CPI) du Québec d'octobre 2017, l'équipe de la Bibliothèque du CHUM avait présenté son projet de développer le rôle du spécialiste de Gestion de l'information en situation de désastre (Disaster Information Specialist: DIS). Après un bref rappel de la mise en place de ce service, nous saisissons l'opportunité du Congrès de la CHLA/ABSC pour relater les journées du 6 et 7 décembre 2018 quand après la théorie, nous sommes passés de la simulation à la réalité. Nous ferons état de la chronologie des événements: Comment avons-nous vécu cette vraie Alerte? Qu'est-ce qui a fonctionné? Ce que nous devons améliorer? Quel a été la réaction de nos collègues à ces rôles et services?

CP13. Opening a Virtual Library Service by Closing Hospital Libraries: Improving Access for Clinicians in a Health Authority

Carol Cooke & Christine Shaw
University of Manitoba

Introduction: Economic factors, online availability, and access were key drivers in the decision by a Canadian university and its affiliated health authority to close eight hospital libraries and merge them into one virtual library service. This case study describes the processes and considerations both for closing library spaces and transitioning to a new virtual library service. **Description:** The hospital libraries were closed and transitioned to a virtual library service within a six-month period. The new virtual library service—launched in January 2018—offers document delivery, literature searching, online training, and

access to electronic resources licensed for health authority staff. This service is staffed by four librarians and four library technicians and is physically located in the university's health library. Patrons access the Virtual Library's resources and services through the virtual library's website. **Outcomes:** Access to electronic resources and services was expanded across the health authority's clinical programs from approximately 5 000 patrons to just over 20 000. Service uptake data and a cost review of the transition will be presented. **Discussion:** No librarian wants to close one library, let alone several. Economic factors pressure health sciences libraries to adapt to new fiscal realities. In the health sciences, online availability and patrons' desire for access at the bedside result in the need for libraries to respond to patron driven needs. A virtual library service is one response to the alignment of these factors. The lessons learned from this experience will inform others facing hard decisions.

CP14. Has Our Big Idea had a Big Impact? User Satisfaction Survey for a Health Sciences Library Outreach Service

Orvie Dingwall & Christine Neilson
University of Manitoba

Introduction: Manitoba's Health Information and Knowledge Network (MHIKNET) was launched in 2009 to provide library services to Manitoba Health and rural health professionals throughout the province. As the service prepared to celebrate its 10th anniversary, we sought a better understanding of users' satisfaction to assist in identifying the service's strengths and weaknesses, and to inform future service improvements. **Methods:** After receiving ethics approval, health professionals eligible for the library service were invited to complete a short online satisfaction survey. The survey was designed to gauge respondents' degree of familiarity and satisfaction with the service in general, and the four core services: literature searches, document delivery, current awareness, and education and training. A combination of open-ended and closed questions were used. **Results:** There were 198 survey respondents, which is an estimated response rate of 8%. The majority of respondents (75%) were employees of Manitoba Health and its two provincial facilities, while the remaining respondents (25%) worked in rural health regions. **Discussion:** The response rate was low, particularly from the rural health regions, demonstrating a need to improve communications and outreach to those who are eligible for MHIKNET. Overall, survey respondents indicated that they value MHIKNET, and that the four core services saved them time, helped them stay up to date, and influenced their work.

CP15. Language Used on Library School Websites: Are we Missing Out on Recruiting Librarians with a Life Sciences Background?

Victoria Eke, Tabatha Plesuk & Janice Kung
University of Alberta

Introduction: The majority of students obtaining library degrees have undergraduate degrees in the Humanities, English, or Education. Studies published throughout the 1950s imply that a liberal arts education is the most appropriate preparatory area of study for prospective information studies students. Does the language used on library school websites to attract potential students align with these findings and inadvertently discourage students from non-arts disciplines from applying? Does having a health-related educational background benefit library graduates when embarking upon a career in the health sciences? **Methods:** This two-part study includes a scoping review and content analysis. We conducted a scoping review by searching major library databases to examine whether or not library schools encourage potential applicants with diverse educational backgrounds to apply for admission. Through a content analysis of the websites of 60 North American ALA-accredited institutions, we identified language used to recruit prospective students. We also evaluated the desired qualifications from recent Canadian health

sciences librarian job postings to determine how often employers seek candidates with a health sciences educational background. **Results:** Scholarly literature on the topic is limited. Findings suggest library school websites seldom encourage applications from candidates with non-arts educational backgrounds. Approximately 20% of job postings have a preference for individuals with health sciences-related educational backgrounds. **Discussion:** The common themes across the two-part study indicate that educational diversity is not a priority for library school recruitment or academic literature. The implications for hiring requirements for health sciences librarian positions are discussed.

CP16. What Employers Really, Really Want: Investigating Desired Qualifications in Health Sciences Library Job Postings

Lydia Thorne
University of Ontario Institute of Technology

Introduction: Health sciences librarianship is a rapidly changing profession that requires unique skills and experiences for information professionals to perform at the highest level. But what core competencies are employers looking for and are there any recurring themes? To understand how the role of the health sciences librarian is evolving, this study examines required and preferred qualifications by Canadian institutions for professional employment in academic and specialized health sciences libraries. **Methods:** A content analysis of job postings from January 2017 to December 2018 helped to determine the most desirable qualifications for health sciences librarians. Job announcements were collected from various online sources, including the University of Toronto's Faculty of Information iSchool job site, Partnership Job Board, and canmedlib listserv archives. Two reviewers independently coded each position and discussed discrepancies until a consensus was reached. Advertisements were analyzed for eight variables: job closure date, position title, job status, type of library, geographic location, required years of experience, subject background, and qualifications. **Results:** 59 job listings met the inclusion criteria. Most job advertisements for health sciences librarians asked for previous health sciences library experience. In addition, required and preferred qualifications listed in job postings differed based on library type and job status. **Discussion:** This research will be of interest to library science students interested in pursuing a career in health sciences librarianship, current job seekers, and employers hoping to attract qualified candidates to fill health library positions.

CP17. Organizational Dynamics with StrengthsFinder® Facilitation

Gabriel Rios & Hannah Craven
Indiana University School of Medicine

Introduction: Team building is a crucial investment to any library. It increases communication, trust, and collaboration while minimizing conflict. It is the director's responsibility to create an environment conducive to collaboration. The purpose of this trial program is to present strategic steps toward building an effective team and to present techniques on becoming a successful contributor on an existing team. Previous organizational-level facilitation was done, establishing core values. The current focus uses the industry standard tool StrengthsFinder to help staff understand their preferences and how they can be most supportive of others. **Description:** New hires have been informed of prior staff development and current core values. Individuals will complete the StrengthsFinder inventory and go over their results with a facilitator. The facilitator will then work with the library staff to show the different perspectives and preferences of their fellow coworkers. Pre- and post-team evaluation results will be measured. In this presentation, the director will describe the greater mission behind this exercise, which is ultimately to foster bonds and create a more efficient work place environment. A new faculty hire will describe their experience becoming an effective team member pre- and post-inventory facilitation.

Outcomes: Recognize the importance of industry standard tools, such as StrengthsFinder, to encourage team building. Illustrate the library director's role in the building of an effective team. Discuss strategies to become an effective contributor of a team as a new librarian. Translate the trial program to one's own institution. **Discussion:** Results are pending.

CP18. The Picture of Health (Libraries): An Examination of the CHLA/ABSC Annual Conference Program, 2013-2018

Zack Osborne
Centre for Addiction and Mental Health

Introduction: What are the emerging trends and conversations in health libraries? Which topics have continued to evolve, and which activities are dwindling? Who are the players discussing the challenges we face, and what does that tell us? This paper will identify the trends in Canadian health information settings and among health library professionals by examining CHLA/ABSC Annual Conference programs from 2013-2018 to reveal where we've been, where we're headed, and who's leading the way. **Methods:** CHLA/ABSC Annual Conference programs from 2013-2018 were retrieved from the CHLA/ABSC website. Each program was reviewed, and the following session details captured: year, conference location, session block theme, session title, session format, primary language. Additionally, 1-3 themes/categories were assigned to each session using a controlled vocabulary based on the session abstract/description. Speaker information was also recorded: organization name, organization type, city and province, position/title. All details from each conference program were transcribed and organized in Microsoft Excel. Analysis was carried out on the six years of data to identify themes over time regarding the sessions and speakers represented at the CHLA/ABSC annual conference. **Results:** Consistently programmed topics included efforts to demonstrate value and impact (of the library, services, collections), approaches to evaluating library services, highlighting collaboration and partnerships, teaching and instruction efforts, as well as exploring user information needs and seeking behaviours. Further details and trends will be explored. **Discussion:** Aside from general interest, these findings remind us of the value in sharing our activities for inspiration, knowledge exchange, and peer-to-peer learning in our professional community.

CP19. Comparing the Efficacy of De-duplication Methods in Ovid, EndNote and Covidence

Sandra McKeown
Queen’s University

Introduction: Searching multiple databases when conducting systematic review searches can result in hundreds and even thousands of duplicate search results. Researchers often use citation management programs and systematic review software to identify and remove duplicate records. The accuracy of any automated de-duplication process is crucial because removing records that are not true duplicates (false positives) could result in missing eligible studies for the review. This is the first study to evaluate the accuracy and efficiency of de-duplicating in the systematic review software Covidence, in comparison to Ovid and EndNote. **Methods:** A systematic search was executed in four databases on the Ovid platform: MEDLINE, Embase, PsycINFO, and the Cochrane Central Register of Controlled Trials. The combined search results were exported to an Excel spreadsheet where duplicates were identified manually to create a benchmark for evaluation. The benchmark set of records was compared to the de-duplicated sets of records obtained from Ovid, EndNote, and Covidence. **Results:** EndNote returned a substantially higher number of false negatives (records that should have been removed but were not) than Ovid and Covidence. The number of false positives and negatives varied by de-duplication method. Overall, Ovid and Covidence performed very well. Reviewing the false positives and negatives from each de-

duplication method provides insight on the types of records that can be problematic for automation. **Discussion:** Researchers using Covidence need not remove duplicates in EndNote beforehand, as previously recommended. Researchers using EndNote to screen results can reduce the number of false negatives by de-duplicating across Ovid databases first.

CP20. Reporting of Searches for Randomized Controlled Trial Protocols in Cochrane Systematic Reviews

Catherine Boden[1], Julia Bidonde & Jose Meneses
[1]University of Saskatchewan

Introduction: Conduct and reporting guidelines for systematic reviews of interventions mandate that clinical trial registries be searched in order to compile a complete listing of published and unpublished studies. But guidance on the utilization/reporting of trial registry records (TRR) and published protocols (PP) is limited. We evaluated a sample of Cochrane systematic reviews to describe how reviewers report searching for TRR and PP in the methods and whether TRR/PP, when found, are clearly documented in the search results, flow charts, discussion and conclusions. **Methods:** We searched the Cochrane Library for systematic reviews of interventions for the August 2015-16 period. A block random sample (stratified by Cochrane Review Group and as drug/non-drug interventions) of the identified Cochrane reviews were screened. We sampled with replacement to achieve a sample of 20% of the retrieved reviews. Systematic reviews evaluating intervention efficacy with at least one RCT were included. Reviews were screened by two independent reviewers at title/abstract and full-text stages. Quantitative and qualitative data about TRR/PP use were extracted independently by two authors. Disagreements were resolved by consensus. **Results:** We found 904 reviews of which 177 were included after block random sampling and screening. Analysis will be completed by January 2019. **Discussion:** Understanding how reviewers report TRR/PP in systematic reviews of interventions can aid in the development of best practices to supplement existing guidelines and increase our understanding of patterns of adherence to conduct and reporting guidelines (e.g., MECIR).

CP21. What's New in the Cochrane Handbook? Highlights from Chapter 4: Searching for and Selecting Studies

Tamara Rader[1], Carol Lefebvre, Julie Glanville, Simon Briscoe, Anne Littlewood, Chris Marshall, Maria-Inti Metzendorf, Anna Noel-Storr, Farhad Shokraneh, James Thomas & L. Susan Wieland
[1]Canadian Agency for Drugs and Technologies in Health

Introduction: Cochrane Reviews take a systematic and comprehensive approach to identifying studies that meet the eligibility criteria for the review. Members of the Cochrane Information Retrieval Methods Group (IRMG) have recently updated the Cochrane Handbook chapter on methods for searching and selecting studies. The chapter reflects the IRMG's aim to provide practical support for the development of information retrieval techniques for information searchers. **Methods:** This presentation will introduce participants to the Cochrane Handbook's updated guidance on searching and selecting studies for Cochrane reviews. We will highlight current issues in searching for studies and describe the main sources of potential studies. We will discuss the latest guidance on how to plan the search process, design and carry out search strategies, manage references found during the search process, correctly document the search process and select studies from the search results. **Results:** This version of the Cochrane Handbook has integrated the Methodological Expectations for Cochrane Intervention Reviews (MECIR) framework, which specifies “mandatory” and “highly desirable” standards for various aspects of Cochrane review conduct, including searching. However, this version is written for a wider audience of anyone working in the area of systematic review searching. Software for reference management and

study selection is discussed, as well as the value of peer review for electronic searches. The practical content found in this chapter will help searchers balance the thoroughness of the search with efficiency and will be useful to those who want to provide comprehensive searching service.

CHLA 2019 CONFERENCE LIGHTNING TALKS / ABSC CONGRÈS 2019 PRÉSENTATIONS ÉCLAIR

LT=Lightning Talk

LT1. Embedded Medical Research Librarianship in Academia: A Case Study

Amanda Wanner
University of Plymouth

Introduction: Embedded librarianship has been much discussed in the literature, but few institutions have the resources in place to implement such a role. This abstract describes the creation of an embedded medical research librarian role aimed at moving traditional library services from a support role to a researcher-in-situ role. This full-time position is grant-funded, and not affiliated with the university's library services. **Description:** The librarian is co-located within the Community and Primary Care Research Group department at the University of Plymouth and contributes to department projects from conception to dissemination as a full research team member. Part of the librarian's time is also allocated to systematic review support across the university in one-to-one consultations and workshops. **Outcomes:** Researchers have expressed appreciation for the new embedded role. In particular, researchers cite the ability to get quick, in-person support (e.g. EndNote) for issues they may not otherwise contact the library for, having an information specialist integrated into evidence synthesis project teams from the outset, access to information specialist skills by a wide range of staff, upskilling of existing research staff in information specialist skills, and availability of a specialist librarian with comprehensive skills in research and search methodologies who can be a single point of contact throughout a project's life-cycle. **Discussion:** Due to the overwhelming support for the position, it will continue to be funded into the next round of grant funding. Other research departments may benefit from funding similar positions.

LT2. Impact of Research Consults: Development and Implementation of a Survey at the W.K. Kellogg Health Sciences Library

Robin Parker, Melissa Helwig & Kristy Hancock
Dalhousie University

Introduction: Individual research consults in academic libraries are rarely evaluated, and when they are, their impact on scholarly pursuit or the specific projects for which the consults were booked is not assessed. We developed a tool to collect feedback from individuals supported through research consults with librarians at the Dalhousie University W.K. Kellogg Health Sciences Library. Using the collected responses, we aim to answer the following research question: How do users apply the knowledge and skills shared in individual research consults? **Methods:** We created a survey tool using REDCap software based on a review of the literature and existing consult evaluation instruments. Data collection variables include user demographics, characteristics of the specific research consult, user satisfaction, and details regarding scholarly outcomes. Data collection takes place directly following the research consult, and longer-term outcomes are assessed with follow-up questions after three months. Questionnaire data are analyzed, and summary statistics are used to describe the demographic characteristics and post-consult information use of respondents. Qualitative data from open-ended questions are coded to identify themes. **Results/Discussion:** Preliminary results from our research consult evaluation tool provide insight into the impact of our research support services and illuminate ways to improve consult sessions for our users. The survey also offers other libraries a tool they can use or adjust to measure impact in their local setting.

Furthermore, the initial results of our study can be used to justify librarian time and effort dedicated to providing research consults at academic libraries.

LT3. Translating Clinical Research to the Bedside with the Mobile Tool MDPhD

Janice Thompson[1] & Sanjeev Singwi[2]
[1]William Osler Health System & [2]Headwaters Health Care Centre

Introduction: Despite the digitization of academic publishing, sophisticated search engines and dedicated medical libraries, physicians are not reading the clinical literature. Common barriers are information overload, lack of time and expertise to read articles, the rising costs of articles and decreasing budgets of medical libraries. As a result important clinical research is not being translated to the bedside in a timely and efficient manner. **Description:** The objective of this project was to collaborate with Dr. Sanjeev Singwi who is tackling the barriers to keeping up with clinical literature using Artificial Intelligence, Big Data, and Natural Language Processing. He has developed the mobile application MDPhD which makes real-time summaries, called EBM flashcards, of clinical abstracts 24 hours after publication. Each flashcard contains key Evidence Based Medicine insights and are designed to be consumed by the health professional within minutes. Many tools organize the clinical literature, however no other tool automatically summarizes the clinical literature like MDPhD. **Outcomes:** Dr. Singwi and I have collaborated to develop an institutional version of MDPhD called MDPhD Teams that is using data visualizations, analytic tools, and collaborative tools to help our staff at William Osler Health System and Headwaters Health Care Centre consume and synthesize clinical evidence for quality initiative projects, clinical protocols, and meaningful changes in practice. **Discussion:** We will discuss our collaboration and how our institutions are using the app so other librarians can seamlessly integrate MDPhD Teams into their institutions.

LT4. It's Time for a Makeover! Remodeling our Medicine Subject Guide to Improve Usage and Impact

Jackie Phinney, Robin Parker & Melissa Helwig
Dalhousie University

The Medicine subject guide for UGME at Dalhousie University was once one of the most highly used guides offered, but usage has steadily declined over the past few years. While revising and updating our guide, we also want to ensure the resource is useful to—and used by—our medical students. To this end, we decided to look at how other universities in Canada and abroad are organizing their Medicine guides, what content they are prioritizing, and how they are choosing to name their navigation menu tabs. In reviewing all these guides and noticing a variety of differences, this led us to ask: what is the best way to engage our community and evolve our subject guides, so our users continue to identify them as a starting place for curriculum resources and assignment/research support? This lightning talk will describe our makeover process (and what we discovered along the way), who we consulted for input, and the impact we hope our guide will have going forward.

LT5. Teaching Ovid MEDLINE to Non-Medical Frontline Library Staff

Helen Lee Robertson
University of Calgary

Introduction: For interdisciplinary research that bridge health and societal issues, i.e., in the social sciences or education, researchers would benefit from readily accessing the biomedical literature covered

in MEDLINE. In our academic institution, the medical library is a branch separate from the main university library. Anecdotally, the main library reference staff, including librarians and support staff, have expressed discomfort with using Ovid MEDLINE. Questions transferred to our branch include basic "how-do-I" queries, suggesting that that is the case. **Methods:** We are developing a 50-minute training session to familiarize library staff with MEDLINE. It will be offered through the regular "Training Tuesday" drop-in sessions. Librarians and reference staff at the medical library will provide input into the content and pilot the session. It will cover what MEDLINE is, what MeSH is, Advanced Search using MeSH and keywords, and managing results. We will present a simple pre- and post-test to gauge comfort levels with the database. **Results:** There will be at least two sessions offered in the upcoming winter term. **Discussion:** It is hoped that following these sessions, non-medical library staff will be more comfortable with, and more willing to suggest that clients search MEDLINE. This will grow capacity in the library staff to respond to questions and more evenly distribute staff workload. More importantly, it will build staff confidence, improve quality, provide immediacy of service to clients, and possibly make the biomedical literature more accessible to non-medical researchers.

LT6. Open Educational Resources in the Health Sciences

Nicole Askin
University of Manitoba

This talk will outline how and why to incorporate open educational resources (OERs) in the health sciences. It will explain what OERs are and their importance in providing equitable access to health information in both the academic and clinical context, with a focus on medical education. It will briefly cover locating and using OERs as a tool for learning and health promotion, including a list of key sources.

LT7. A Little Idea Made a Big Impact: How 10 Fun Library Trivia Questions Generated Engagement of Health Professionals

Orvie Dingwall & Christine Neilson
University of Manitoba

Introduction: Manitoba's Health Information and Knowledge Network (MHIKNET) launched in 2009 to provide library services to Manitoba Health and rural health professionals throughout Manitoba. To celebrate the service's 10th anniversary, we featured a series of events including monthly lists of ten feature resources, a service satisfaction survey, in-person events, and an online trivia quiz. The trivia was meant to be a fun activity with an opportunity to win a gift-card. **Description:** The online trivia quiz was open from December 10-14, 2018, utilizing the quiz feature in the online survey tool SurveyMonkey. The link to the survey was emailed to clients via listserv, followed by one reminder email. There were ten multiple-choice questions relating to the library service. Correct answers were displayed at the end of the quiz. **Outcomes:** There were 282 respondents to the trivia quiz. **Discussion:** The number of respondents to the trivia surpassed our expectations, particularly compared to the satisfaction survey we conducted in October which only had 198 respondents, despite it being open twice as long and more heavily promoted. Though the questions were simple, it became apparent that the trivia served as an education tool. For example, only 40% of respondents could identify the correct pronunciation of MHIKNET. Similarly, nearly 50% were not aware that literature searches can be conducted on any topic and are not restricted to health care. A fun trivia quiz is an educational opportunity in disguise that other health libraries should consider incorporating.

LT8. Teach Them Before They Need it: Instilling Research Skills in Pre-Professional Students

Goudreau[1] & Jackie Phinney[2]
[1]University of New Brunswick Saint John & [2]Dalhousie University

Students entering professional programs such as medicine, dentistry, etc. can sometimes be overwhelmed by the idea of doing research. At the University of New Brunswick Saint John (UNBSJ), undergraduate students can enrol in BIPS 4000, which is a non-credit seminar course that prepares them to enter a professional health program after graduation. With Dalhousie Medicine New Brunswick (DMNB) residing on the UNBSJ campus, UNBSJ's Science & Health Sciences librarian teamed up with DMNB's on-site librarian to deliver a research skills workshop to the BIPS 4000 group. This lightning talk will discuss the content we covered, the immediate outcomes of our session, and the impact we hope this workshop will have on the students' future success.

CHLA 2019 CONFERENCE POSTERS / ABSC CONGRÈS 2019 AFFICHES

PP = Poster Presentation

PP1. A Stride Towards Open Access and Open Science: Libraries and Librarians as Promoters of Change

Lily Yuxi Ren
The Hospital for Sick Children

Introduction: Concerns for the production, sharing and communication of scientific information contribute to the Open Access (OA) and Open Science movements that strive to bridge the divide between traditional and OA models of research and publishing to create a paradigm shift in scientific communication. This poster aims to examine the discourse surrounding the development of the 2008 National Institutes of Health Public Access Policy (NIH-PAP). It maps the opportunities and challenges of the policy in the scientific communities and presents areas where librarians can advocate and support OA and OS. **Methods:** Examining key tenants of the NIH-PAP, the analytic method used in this study is Norman Fairclough's three-dimensional model for a critical discourse analysis (CDA) which consists of three interrelated processes of analysis to explain the relationship between language, ideology, and identity, and uncover hidden determinants. **Results:** The NIH became the first United States federal agency to legally require OA to the results of its funded research through intensive advocacy efforts on the part of the America library community and a broad coalition of allied organizations. The CDA documents the competing discourses of the NIH-PAP between the American library community and a subset of the publishing industry who continue to stage efforts to influence the debate over public access. **Discussion:** The advocacy effort on the public discourse of OA requires the support from critical strata of the academy and congress. Libraries and librarians are the catalyst for new opportunities to extend OA to publicly funded research.

PP2. Utilisation d'un Bulletin de Veille en Application des Connaissances : une étude Longitudinale Descriptive

Nathalie Rheault[1], Hervé Tchala Vignon Zomahoun[1], Lobna Khadraoui[1] & France Légaré[2]
[1]Unité de Soutien-SRAP du Québec & [2]Center Recherche Sur Les Soins Et Les Services De Première Ligne De L'université Laval

Objectif: La Composante “Application des Connaissances” de l’Unité de soutien-SRAP du Québec a pour mandat de faciliter la diffusion et l’application des connaissances auprès de ses clients. Elle a donc mis en place un système de veille informationnelle permettant de produire des bulletins bimensuels en application des connaissances français/anglais. Chaque bulletin comprend quatre sections: Actualités, Évènements, Ressources, et Articles Scientifiques. **Méthode**: Nous avons fait une analyse descriptive des données générées par MailChimp suite à l’envoi des bulletins sur la période de mai 2017 à décembre 2018. **Résultats**: Nous avons publié neuf bulletins pour un total de 5 195 abonnés contactés. Le nombre cumulatif d’abonnés contactés a augmenté de 504 à 607 (Médiane=589). En moyenne, 52.6% des courriels envoyés ont été ouverts avec une variation allant de 42.0% à 59.3% (Médiane= 52,0%). La section des bulletins qui est la plus lue est celle des Ressources avec en moyenne 9,4 clics/hyperlien, tandis que celle la moins lue est celle des Événements avec 4.4 clics/hyperlien. **Exposé**: Nous avons observé une augmentation progressive du nombre d’abonnés aux bulletins et une variation modérée des

intérêts suscités. La section Ressources où on publie des outils en application des connaissances semblait être la plus convoitée. Ceci témoigne de l'intérêt des lecteurs pour l'utilisation des produits de connaissances. Par ailleurs, nous devrons rendre plus attrayantes les autres sections pour nos bulletins futurs.

PP3. Haven't We Seen This Already? Duplicate Records in Weekly Ovid AutoAlerts

Mohr-Elzeki & Irina Iavorskaia
McGill University Health Centre (MUHC) Libraries

Introduction: The primary objective of this study is to present data on records identified via Ovid's AutoAlert (SDI) feature. AutoAlert is one of several strategies that healthcare professionals can use to keep up-to-date with the literature and thus maintain their clinical competence. It allows users to be notified via email when any new citations matching their search specifications are created in Ovid databases. **Methods:** We performed searches in MEDLINE and Embase via Ovid on two topics and created weekly alerts for each search. Over a period of one year, each "new" result was analyzed to determine whether it was previously retrieved by the initial search or in subsequent alerts. If the result had been retrieved previously, the nature of the revision to the initial record (the reason it was identified as "new") was noted. **Results:** Extracted data was analysed in Excel. The investigators will present descriptive statistics on the frequency and nature of duplicate records generated via AutoAlert. **Discussion:** Given the increasing rate of publication in the medical literature (813 598 citations were added to Medline in 2017), email alerts in bibliographic databases can be useful tools to help healthcare professionals keep abreast of their topics of interest. Unfortunately, our study found that the AutoAlert feature consistently included edited or revised records in addition to newly created citations and was therefore of limited value.

PP4. Gaining Autonomy and Ownership of Library Web Properties in a Hospital Library Setting

Osborne[1] & Alissa Epworth[2]
[1]Centre for Addiction and Mental Health (CAMH) & [2]St. Michael's Hospital

Introduction: Like many libraries in hospital settings, our library's web properties were built and accessed within the rigid platform of the corporate intranet; inflexible, cluttered design, difficult to access from off-site, and awkward to update. For many years, our library staff and users made the best of the disappointing situation aching for something better, which, all the while was right under our noses. In the words of Kelly Clarkson, to "breakaway," one must "take a risk, take a chance, make a change." Following this sage wisdom, our library undertook efforts to develop a new, external, and public-facing web presence using existing licensed content management system (CMS) software available to us. **Description & Outcomes:** After consultations with our users and library peers, we customized our CMS to build a new library website outside the confines of the hospital's locked-down and centralized intranet portal. We gained autonomy and ownership of our library web properties to better fulfill the information needs and meet information-seeking behaviours (and expectations) of our users from wherever they are on any device. **Discussion:** This session will highlight our approach, considerations, and share the tools used for our library website to successfully "breakaway."

PP5. Developing a Provincial Liaison Model in a Healthcare Organization

Connie Winther, Nicole Loroff, Joycelyn Jaca, Ashley Leonard, Alison Pinches & Shelley White
Alberta Health Services

Introduction: The Knowledge Resource Service (KRS) provides library services to Alberta Health Services' (AHS) staff and physicians with a client base of over 108 000. A provincial liaison model (PLM) was developed to provide a framework of responsibility for library liaison activities, as traditional subject liaison was not possible given the complexity and geographic spread of AHS. **Description:** Through a consensus decision making process, the PLM was developed by the KRS liaison workgroup with the exception of the subject areas of cancer care and mental health which have subject liaisons. Each librarian's responsibility encompasses set geographic areas including both urban and rural regions and equitable client numbers. A literature review and needs assessment were completed to identify what tools and training library staff need to provide best practices in liaison with AHS clients. A communications toolkit, mobile apps training, networking training, shared learning meetings, and a promotion and awareness plan are all in development to support liaison activities. Furthermore, a trial of a Customer Relationship Management tool is ongoing to manage liaison contacts and activities for tracking and evaluation purposes. **Outcomes:** The PLM is currently in the pilot phase with ongoing informal evaluation of KRS staff through email feedback and in person meetings. A more formal evaluation is planned for the end of the trial period. **Discussion:** Initial feedback on the PLM has been positive, with KRS staff optimistic about a structured approach to developing new relationships and the potential impact on client centred services.

PP6. Database Selection in Systematic Reviews: A Review of Recent Systematic Reviews in PubMed

Debbie Chaves
Wilfrid Laurier University

Introduction: Systematic reviews require effective search stings to use when searching databases. Librarians are experts in developing these search strings. However, which databases should you search, and how many? Should your library subscribe to a particular database? This survey examines recently published systematic reviews and determines the number of different databases searched and which databases are searched most often. **Methods:** The most rigorous systematic reviews are usually Cochrane Reviews, which require reporting of the databases used within an Appendix. PubMed will add the new MeSH term “Systematic Reviews as a topic” in January 2019, which will broaden this research to include a wider sample set beyond just Cochrane Reviews and increase the number of systematic reviews that can be sampled. **Results:** As a test, a quick survey of all Cochrane Reviews for the month of November found 64 reviews (one was withdrawn, and one had no Appendix). Out of the remaining 62 reviews, the frequency and choice of databases were collected. The average number of databases used was 5.8 and the median was 6. EMBASE was searched the most frequently with 82% of reviewers' choosing to search it. Only one review used the free database Epistemonikos. **Discussion:** The results of this data will help inform librarians about which databases to use for systematic reviews, which databases it might be prudent to own, the variety of databases currently in use, and the use of new open access databases for systematic reviews.

PP7. Do We Go Big, or Do We Stay Home: Needs Assessment for a Systematic Review Service

Krista Alexander & Katharine Hall
Concordia University

Introduction: How do you know if your library needs a systematic review service? Before spending time developing a service, a needs assessment was done to examine Concordia University's systematic and scoping review (SR) output. **Description:** Searches were performed in 19 databases to find SRs co-authored by Concordia affiliated researchers. Ross-White's methodology was used to determine the level of librarian involvement in these SRs. **Outcomes:** There were 102 Concordia affiliated SRs from a variety of departments, most prominently Health, Kinesiology & Applied Physiology, Psychology, Education, and Management. A full-text analysis of 101 articles revealed that 17 articles had librarian co-authors, 26 acknowledged a librarian, and 58 did not mention librarians. Of those articles with librarian co-authors, 9 were co-authored by a single individual at Concordia Library. Of those articles that acknowledged a librarian, 3 acknowledged librarians from Concordia Library. **Discussion:** The number of SRs (43) that acknowledged or were co-authored by librarians was not negligible and showcased evidence of a research culture at Concordia accepting of librarian involvement in SRs, thus hinting at the potential for a service to be well received. At the same time, more than half of the articles (58) did not mention librarians. Creation of a service and outreach targeting those departments may help increase the collaboration with librarians in SRs authored by Concordia researchers.

PP8. Making Space for Innovation: British Columbia Health and Human Services Library and Health Innovation Hub

Denise McGeachy, Jenny Bourhill & Anne Lomas
Health and Human Services Library, BC Ministry of Health

Introduction: The Health and Human Services Library (HHSL) provides library service to the Ministries of Health, Mental Health and Addictions, and Children and Family Development in British Columbia. In late 2017, the Ministry of Health engaged consultants to conduct an external review of the HHSL and develop strategies to enhance its sustainability. The consultants were also tasked with exploring the feasibility of building a Ministry Innovation Hub that could be aligned with the HHSL operations. The recommendation of both reviews was to physically integrate the HHSL into the Innovation Hub. **Description:** In late 2018, construction began to transform the HHSL space into the Innovation Hub. The Hub will be both a physical space and a corporate service that houses the library and provides space for collaboration and innovation for Ministry staff and teams. **Outcomes:** The physical space is currently under renovation and will be substantially complete in April 2019. The Hub will support innovation and collaboration across the Ministry, with the outcome of delivering evidence-based policy. The Library will be a partner in supporting evidence-based decision-making for the Ministry. **Discussion:** The HHSL began planning for integration into the Innovation Hub in late 2018. Working closely with colleagues from the Knowledge Management Branch, the Library team is working through the nuances of the Hub as both a physical space and corporate service. A physical space for the library and a collaborative space for selected project teams.

PP9. Development of a New Workshop on Demystifying Systematic Reviews

Andrea Quaiattini & Lucy Kiester
McGill University

Introduction: As the desire to conduct comprehensive knowledge synthesis projects continues to grow, librarians are called upon to provide a range of support to researchers for these projects. Health sciences librarians are taking different approaches to filling this knowledge gap; the 3-part course described by Lenton and Fuller in their 2019 JCHLA article varies from that described by Campbell et al., in their 2016 article. Health sciences librarians at Schulich Library at McGill University developed a workshop to provide an in-depth examination of the systematic and scoping review process. Our poster will present learning outcomes, our content choices, and our approach to targeted instructional design. **Description:** Designed for students and faculty, the workshop adopts a unique approach by guiding participants through the entire review process, from question development to publication. Competencies and resources are identified (but not taught) throughout the workshop so participants gain both an understanding of the review process itself and abilities they must develop in order to be successful. **Outcomes/Discussion:** The poster will present our thoughts and observations on the approach and development process, results from our "break our workshop" peer review exercise, and anticipated changes in response to our first delivery of the workshop in June 2019. We also hope to solicit feedback from our colleagues who offer similar courses at their institutions, while providing information and insight to those who are considering doing so. We hope this discussion will draw teachers of knowledge syntheses together, and that we will all leave with new ideas, renewed enthusiasm, and the knowledge that we are not alone in this endeavour.

PP10. Supporting Evidence-Informed Public Health: The Evolution of the Shared Library Services Partnership (SLSP)

Jane Beehler[1], Amy Faulkner[2], Tracey Zurich[3], Stephanie Commisso[3], Valentina Younge[4], Carolynne Gabriel[4], Melanie Dittburner[1] & Beata Pach[5]
[1]KFL&A Public Health, [2]Simcoe Muskoka District Health Unit, [3]Thunder Bay District Health Unit, [4]Middlesex-London Health Unit, [5]Public Health Ontario

Introduction: In April 2012, Public Health Ontario established the Shared Library Services Partnership (SLSP) to support public health research and evidence-informed decision-making at the public health unit level. **Description:** The Partnership is built on a pre-existing infrastructure of 17 public health unit libraries. Four libraries, or "Hubs," were selected to receive funding and a staff position to ensure all health units in the province benefit from equitable access to a library professional and a suite of resources. Now in its seventh year, the Partnership works collaboratively with 23 health units across the province to access public health resources, deliver comprehensive literature searches, and provide library-related training and research support. The SLSP cooperates to streamline library practices by facilitating peer review, developing standardized products, and purchasing and sharing resources to optimize value and reach. **Outcomes:** The formative evaluation conducted by the funding agency in 2016 demonstrated that the SLSP met its objectives and is highly cost effective. A recent scan of evidence review practices in public health units also supports this assessment and highlights the value and emerging role of the Partnership. **Discussion:** In 2018 the Partnership began an analysis of its services and procedures to inform a five-year strategic plan. The SLSP continues to evolve and adapt with the goal of strengthening EIDM practices across client health units.

PP11. Taking the Pulse of Our Clinicians

Janice Thompson, Anna Mann & Melissa Paladines
William Osler Health System

Introduction: Library surveys can demonstrate the value of your services, resources, and library as place. Creating a robust library survey and encouraging clinicians to complete it will determine how much 'food for thought' you receive. **Description:** After researching and reviewing other library surveys, we created our survey using SurveyMonkey. A link to our survey was sent with every email interaction along with paper copies by our library computers, or personally asking library users to complete the survey. In addition, we used the incentive of a draw for a gift card to encourage users to complete the survey. After reviewing the results an action plan was created. We disseminated the results through our library newsletter, social media, created an infographic, and used quotes from the comments on promotional material for National Medical Librarians Month. **Outcomes:** The survey identified several collection gaps, highlighted the need to increase our promotion for our e-books and how to access resources off-site. Our survey provided us with a clear picture of how our resources are being used, how the library as space is being used, and provided us with many stories about how the library has assisted our clinicians. **Discussion:** Our library survey provided insight on the use of our resources and services and provided us with a clear direction on where to concentrate our marketing efforts. This was our first major survey in 10 years and provided us with benchmark data and some lessons for our next survey.

PP12. Health Information Use After Graduation: Are We Preparing Our Students for Professional Practice?

Betsy Williams, Barbara Harvey & Christopher Kierkus
Grand Valley State University

Objective: This study aimed to determine what resources Grand Valley State University (GVSU) alumni, who have graduated from a health sciences program, utilize in clinical practice. The study also assessed alumni viewpoints about the quality and usefulness of those resources. A secondary goal of this study explored alumni opinions of their educational experiences at GVSU in relation to information literacy and library resources. **Methods:** The data for this study was obtained through the use of a questionnaire administered to alumni who had graduated with a degree in athletic training (BS), nursing (BS, MS, DNP), physical therapy (MPT and DPT), or physician assistant studies (MPAS). **Results:** We received 451 valid responses (12.8% response rate). PubMed, UpToDate, and CINAHL were most frequently used for professional information needs by all respondents, although there were variations across disciplines. More than 85% of respondents were confident in their skills in finding, evaluating, and applying published research to practice, with variations between those with undergraduate degrees and those with advanced degrees. Overall, 92.1% of the respondents felt GVSU prepared them for finding and using information in professional practice. Professors were most frequently cited in helping students prepare for their careers. **Conclusion:** This study provides insight into how resource utilization varies by discipline and graduates' perceptions of their preparation to become well-informed users of information in their profession. The data gleaned from this study will inform conversations with faculty members and decisions regarding resource acquisition to help students transition from the academic environment to professional practice.

PP13. One Question. Big Impact

Kimberley Aslett
Southlake Regional Health Centre

Introduction: This case study describes a program to collect quarterly responses from library clients with a single emailed question, then to present the results to management and email contacts, through graphic reports and email tags, in order to increase awareness of library services and impact. **Methods:** A series of client-feedback questions was developed from a review of hospital documents and the strategic plan. The questions were sent to clients from the previous quarter, via Outlook, using voting buttons for responses. The responses were compiled and presented in a graphic format to the Director and as a graphic email tag for use by the solo librarian. **Results:** The questions sent to users got a very good response, from 60-70%, and the graphics of the responses were received positively by management. The focus on only users is a limitation; however, this also means that non-users are not being sent surveys. No measure of awareness was done. **Discussion:** This community hospital library lacked feedback/statistics that are meaningful to stakeholders, most of whom are not familiar with library metrics. Limitations on time and an awareness of survey fatigue contributed to the decision to send a single question via email, using a voting button for responses, to library users on a quarterly basis. Questions were based on a review of the hospital strategic plan and other resources. Very positive responses were used in graphics for library promotion via email tag and to management.

PP14. Creating Best Practice LibGuides to Facilitate Students' Learning

Wendy Wu
Wayne State University

Introduction: The library subscribes to many e-textbooks, Q-bank tools, and clinical resources for a pharmacy program to facilitate students' learning and online examination practices. Because these resources are included in various packages, making them discoverable is crucial. This poster discusses on how to deliver the selected resources to the students at the point of need through LibGuides and collaboration with pharmacy educators. **Description**: The librarian identified required electronic textbooks, useful clinical drug databases, and NAPLEX preparation tools and created two LibGuides (Drug Information Timesaver and Pharmacy Timesaver) which provide a quick and easy access to the course-required or research-support materials. The Timesavers were designed to be simple, concise, up-to-date, and easy to find information. Resources were chunked and organized based on their categories, functionalities, and course objectives. Students use appropriate tools in Drug Information Timesaver to find answers to clinical scenario questions, and access required textbooks and databases along with Q-bank questions, etc. through Pharmacy Timesaver. Short video tutorials on database searching were created to facilitate self-study at the point of need. In addition, board exam questions based on pharmacy education competencies were sent to students who signed up the topics for their online practice. **Outcomes**: The two LibGuides were viewed more than 46 000 annually. The access to the NAPLEX Online Question Bank increased four times. Students expressed their appreciation for the librarian’s support. **Discussion**: The LibGuides facilitate student learning and increase the usage of library resources. The librarian will improve the Guides using LibGuides statistics and Google Analytics.

PP15. Teaching Drug Literature Searching Using YouTube Videos, Mini-Lecture and Team-based Learning

Wendy Wu
Wayne State University

Introduction: This poster will discuss the efforts of a liaison librarian to deliver a flipped class on drug literature and PubMed searching collaboratively with faculty so as to strengthen students' ability to answer drug related inquiries and find scientific research and clinical literature efficiently and effectively, to develop core information competencies, and to actively engage students in classroom for better learning outcomes. **Description:** A lecture-based Medical Informatics course to about 100 new pharmacy students was switched to a flipped class based on students' course evaluation and preference. The lecture that focused on drug monograph databases, PICO method, and effective search skills were converted into mobile friendly videos and LibGuides. The clinical-scenario-based homework became in-class group activities. Students' comprehension of video content was evaluated through an online quiz at the beginning of the class. Then a mini lecture on literature searching and drug resources was given prior to class activities to reinforce important concepts. Applying the skills obtained, students scaffolded class activities and submitted their group answers to Canvas. Finding answers to clinical inquiries in drug databases and scientific medical literature fosters students' critical thinking and encourages them to apply the knowledge and information in clinical settings. Retention of knowledge was examined, and effectiveness of the course was assessed using university assessment tools and an online survey.

PP16. Office Hours in Academic Libraries

Katherine Miller & Melissa Smith
University of British Columbia

In an effort to find time-saving strategies and other efficiencies, and to support more students/researchers, this poster will share some experiences of two liaison librarians who are supporting midwifery, nursing, and pediatrics offering consults via office hours. Office hours are defined as a research consultation session which is open to multiple researchers with various research questions to meet with their liaison librarian. These office hours include graduate students and researchers from multiple health research areas conducting different levels of comprehensive searching from class assignments to scoping reviews. The office hours are available both in-person and virtually. Best practices and lessons learned will be discussed.

CHAPTER HIGHLIGHTS / FAITS SAILLANTS DES CHAPITRES

CHLA/ABSC Chapter and SIG Updates

Chapter Updates

Manitoba Association of Health Information Providers' (MAHIP)

2018-19 was a busy year for the Manitoba Association of Health Information Providers (MAHIP). In November 2018, MAHIP presented Ada Ducas an honourary lifetime membership during her retirement event. Ms. Ducas exemplifies what it means to be a health information professional and we are proud to have her as an honourary lifetime member. In December 2018, MAHIP, along with the University of Manitoba Libraries, offered an online webinar from the Medical Library Association, “Why Do We Lead? An Introduction to Values-Based Leadership.” Our Spring CE was held in May 2019 and saw MAHIP members present their current research and issues in health sciences librarianship research. Over the past year, MAHIP held four journal clubs, two in-person and two online. We look forward to another busy year in 2019-20, as we prepare to host the 2021 CHLA/ABSC Annual Conference!

Health Libraries Association of British Columbia (HLABC)

HLABC is a thriving chapter that promotes effective library service in the health sciences within British Columbia. The association identified three main objectives this past year: increasing student membership; identifying and promoting continuing education with a focus on indigeneity; and finally, continually working to improve remote membership access.

In the fall of 2018, HLABC held a special panel/speed dating event designed for MLIS students who held an interest in health librarianship called “Getting Hired in Health Libraries.” The panel consisted of one academic, one hospital, and one association librarian and each described their path of entry to the profession. After the panel, the event parsed out into a speed dating activity where students could speak with professional health librarians from within the association. The event was held during the LIBR534 (Health Information Sources and Services) course timeslot and reached a dynamic group of students.

HLABC also held a Winter Continuing Education event with programming from a variety of excellent facilitators. The sessions were a PRESS Checklist workshop presented by Douglas M. Salzwedel MLIS, Information Specialist & Assistant Managing Editor at Cochrane Hypertension; a special talk on The Value of Participant Engagement in Research by Linda Warner, Clinical Research Coordinator for the CHILD Study & Maureen Mooney, Research Nurse for CHILD Study; a presentation on the validation of several filters for retrieval of two types of study designs: "overviews of systematic reviews" and clinical practice guidelines by Carole Lunny, MPH, PhD, Postdoctoral Fellow, Methodology and Research Synthesis, Cochrane Hypertension Group and the Therapeutics Initiative; and finally, a special roundtable between UBC’s School of Library, Archival & Information Studies (SLAIS) Students and HLABC members entitled "This Changed my Practice." One highlight of this session was a lightning talk given by LIBR534 student Eleri Staiger who presented her paper on Indigenous cultural safety for health librarians. Her paper went on to win the 2019 JCHLA Student Paper Prize.

Northern Alberta Health Libraries (NAHLA) Chapter Update

NAHLA has been focused on our chapter’s sustainability and on meeting the needs of our membership this past year. We surveyed members about the types of event they would like to see offered by NAHLA and the best locations and times for these events. We are in the process of exploring reducing the size of our executive which currently has seven

positions and will present options at our upcoming Annual General Meeting (AGM) in the fall. This year, following a discussion at our AGM, we decided to cancel our annual half day conference and instead are offering an extra professional development session in the evening. We have held a number of professional development events. These included events and workshops on: workplace communication, consumer health information, and the role of clinical librarians. We held our annual project exhibition in March, where NAHLA members shared information into a variety of work-related projects they are involved in. And for fun, we had our holiday luncheon in December and our summer social that involved cocktails and a sunny patio in July.

Maritimes Health Libraries Association (MHLA) / Association des Bibliothèques de la Santé des Maritimes (ABSM)

The Maritimes Health Libraries Association/ Association des bibliothèques de la santé des Maritimes (MHLA/ABSM) has had an engaging 2018-2019. Continuing education is very important to the chapter and we regularly offer virtual journal clubs throughout the year, and also provide CE at our annual meetings. This year, Sandra Toze from Dalhousie's School of Information Management presented on library assessment/evaluation, Cynthia Holt from the Council of Atlantic University Libraries spoke about the recent Atlantic-wide licensing of The Cochrane Library using IP geolocation, and we held our usual lightning talks and conference round-up presentations from members. The Executive has also been busy surveying members to determine updates for our chapter website and our future social media presence, as well as starting to plan for hosting CHLA 2022 in Halifax by electing conference co-chairs. We also had a first for our chapter this year by applying for a practicum student through Dalhousie's School of Information Management. The student created a database and reports listing the major health information resources available at MHLA/ABSM member libraries. These reports will enable members to identify resource-sharing opportunities, encourage cross-training, and know what resources are best serving our field. The reports will be updated annually by the Executive, with members submitting changes at our Spring meeting.

Section Santé et services sociaux de l'ASTED (3S) (ASTED3S)

Le conseil exécutif de l'ASTED3S fait peau neuve depuis septembre 2018, ce qui insuffle un vent de renouveau sur nos activités. Le comité formation prépare déjà notre Journée annuelle de formation qui aura lieu le 27 septembre 2019 sous le thème "Dynamiser l'accès : information en mouvement." Qu'il s'agisse d'intervenants ou de patients de nos milieux, la liberté d'accès à l'information est une valeur fondamentale et nous devons nous assurer qu'elle soit possible in situ ou hors les murs. Autre changement important, notre association-mère se transforme peu à peu. Le nom "Fédération des milieux documentaires" (FMD) remplace depuis janvier 2019 celui "d'Association pour l'avancement des sciences et des techniques de la documentation" (ASTED). Il s'agit d'une année de transition et nous serons fixés sur la viabilité de celle-ci lors de l'Assemblée Générale annuelle en octobre 2019. Entre-temps, étant le chapitre santé services sociaux, nous devons revoir notre nom ainsi que travailler de concert avec le nouveau CA de la FMD pour s'assurer que nos acquis demeurent les mêmes, voir se bonifient pour nos membres. Nous avons finalement participé en janvier de cette année à titre de consultant à la réflexion sur la révision des règlements de la Loi sur le développement des entreprises québécoises dans le domaine du livre (Loi du livre) menée par le ministère de la Culture et des Communications du Québec. Plus particulièrement sur L'article 8 du "Règlement sur l'acquisition de livres par certaines personnes dans les librairies agréées" (R.R.Q., 1981, c. D-8.1, r. 1, a. 8.).

ASTED3S' executive committee has welcomed many new members since September 2018 bringing with them new vision and energy and the Continuing Education Committee is already preparing our annual full day of training. It will take place the 27th of September and center around the theme 'Dynamic access: information on the move". Be it the health care providers or patients in our respective environments, having access to information is a fundamental value and we must assure that it is possible on site and off. Other important changes include the transformation of our parent association. Since January 2019, the "Association pour l'avancement des sciences et des techniques de la documentation" (ASTED**)** has been replaced by the "Fédération des milieux documentaires" (FMD). The current year is one of transition and we will know more about the long-term feasibility of the new structure at the October 2019

general assembly. Until then, and as the health and social services chapter of what was ASTED, we will have to reevaluate and reconsider our current name as well as work with the FMD's new Administrative Council to ensure that we can continue to operate as before and that our members will maintain and hopefully gain benefits. Most recently, in January of this year, we participated in an advisory capacity during the reflection process on the revision of the regulations for the Act respecting the development of Québec firms in the book industry (Book law) lead by the Ministry of Culture and Communications of Quebec. More specifically, on Article 8 "Regulation respecting the acquisition of books by certain persons from accredited bookstores" (R.R.Q., 1981, c. D-8.1, r. 1, a. 8.).

Southwestern Ontario Health Libraries Information Network (SOHLIN)

The Southwestern Ontario Health Libraries Information Network (SOHLIN) held our annual CE in March. Western University kindly hosted the workshop, and we had several librarians from Western attend as well. The workshop, entitled "Fields, Filters, and Fun: Incorporating Creativity and Craft into Database Literature Searches," was delivered by CADTH staff, David Kaunelis and Kelly Farrah. It was very well received by the SOHLIN membership. In early 2019, the SOHLIN executive surveyed the membership to ask for feedback on members' commitment to the association moving forward. The survey results indicated that members felt the formality of SOHLIN was no longer meeting their needs. Members are however, very interested in finding other ways of meeting together, sharing knowledge and networking. As such, a decision was made to dissolve SOHLIN. The process is currently underway.

SIG Updates

Canadian Academic Medical Education Librarians Special Interest Group (CAMEL – SIG) / Groupe d'intérêt des bibliothécaires académiques canadiens en éducation médicale (GI – BACEM)

It's been a busy year for the CAMEL – SIG. In order to determine meeting topics for 2018/2019, a survey was created and distributed to the CAMEL – SIG. As a result of this survey the CAMEL – SIG meeting topics for 2018/2019 were: education (with two 2018 CHLA presentations identified as potential guest speakers), research, as well as a Postgraduate Medical Education (PGME) focused discussion.

The CAMEL – SIG held 4 meetings (3 online and 1 in-person) between June 2018 and May 2019, and regularly has nine to ten members in attendance. The in-person meeting took place at the CHLA Annual Meeting in June 2018 and focused on providing medical education-related updates. The online meetings consisted of PGME updates, research support and personal research projects discussions, as well as medical education related presentations by guest speakers. Those speakers were: Kelly Thormodson, who presented on "Core Entrustable Professional Activities (EPAs) and Librarian Involvement in Competency-based Medical Education" and Lisa Demczuk who presented on "Student Success: Undergraduate Engagement on a Systematic Review."

The CAMEL – SIG created a working group of five members to complete the 2018/2019 Undergraduate Medical Education (UME) common curriculum project in collaboration with the AFMC NoL.

The outgoing co-chairs are Zahra Premji from the University of Calgary and Kaitlin Fuller from the University of Toronto. The incoming co-chairs are Lucy Kiester and Andrea Quaiattini who are both from McGill University.

Oral Health Interest Group (OHIG)

We currently have 16 members.

Adapting the ACRL Information Competencies Framework to Dentistry

The goal for this group, which currently includes 2 OHIG members, is to produce a document that will map the knowledge practices and dispositions from the 6 ACRL IL frames to competencies listed in the Association of Canadian Faculties of Dentistry's Conceptual Education Framework, in order to facilitate teaching collaborations with faculty. Members of the group presented a poster at South Central Chapter MLA Annual Meeting and a lighting talk at the 2018 Mid-Continental MLA Virtual Meeting, both highlighting current developments. A proposal for an educational workshop has been submitted for the ADEA 2020 meeting.

Webinar: Peer Review of Systematic Review Searches

On December 3, 2018, Kaithryn Campbell and David Kaunelis from CADTH provided a 1-hour online presentation on peer reviewing of systematic review search strategies. In addition to OHIG members, the invitation was also extended to MLA's Dental Section members, so we a had a great attendance of 20 people.

The presentation included a review of the PRESS tool's components, as well as useful hands-on advice on how to find a peer reviewer and how to execute a peer review. Example of recommendations include:

- Peer review should be relatively short (1 to 2 hrs).
- The review will usually be limited to the MEDLINE search.
- Good usage is to keep MeSH and keywords on separate lines in the search strategy.
- A contractor could charge 80 to 175$ per hour; a trading system is also a good idea.
- Provide formal feedback in the PRESS checklist rather than in an email only.

Virtual Journal Club

A virtual meeting was scheduled on March 6th in collaboration with Liz Stellrecht, from MLA's Dental Section. Fourteen people attended, including 4 OHIG/GISB members. We discussed the following paper in an informal manner:

Stone, S., Quirke, M., & Lowe, M. S. (2018). Opportunities for faculty-librarian collaboration in an expanded dentistry curriculum. Health Information & Libraries Journal, 35(2), 170-176. doi:10.1111/hir.12211

We had the chance to discuss the paper with its first author, Sean Stone. Questions focused on the particulars and sustainability of the information literacy program that was developed. Participants noted that the scaffolding of information literacy competencies throughout a given curriculum is difficult to attain unless there is program remodeling. We also talked about the opportunity to get involved in Dental Research Day at our institutions.

Knowledge Synthesis Interest Group (KSIG)

The Knowledge Synthesis Interest Group continues to provide opportunities for librarians and other Canadian health information professionals to discuss methodological issues and to provide mutual support related to topics in knowledge synthesis.

Webinars: In March 2019, we held the webinar Peer Reviewing Search Strategies using PRESS: An Introduction with Margaret Sampson, which had approximately 100 participants from various sectors of health sciences librarianship. Our July webinar featured an introduction to the 2D search tool with Farhad Shokraneh from the University of Nottingham.

Online Journal Club: We hosted two journal club sessions in 2018-2019. The first, led by Rachel Couban (McMaster University) in September 2018 examined supplementary search methods vs. bibliographic database searching and the second, facilitated by Carolyn Ziegler (St. Michael's Hospital) in January 2019, looked at RAMSES publication standard for realist reviews. Thank you to both Rachel and Carolyn for leading such thoughtful and engaging discussions!

Upcoming Events: Did you miss the CHLA conference in Ottawa this year? Stay tuned for our post-conference CHLA webinar where we will feature mini sessions from conference presenters on topics related to knowledge synthesis.

Interested in becoming more involved with KSIG? Why not join our listserv to learn more about upcoming events and activities related to knowledge synthesis. If you have any questions about KSIG or suggestions, please feel free to contact Lydia Thorne (lydia.thorne@uoit.ca).

Bibliotherapy Interest Group (BIG)

The Bibliotherapy Interest Group was begun a few years ago by a small group of health information professionals with a shared interest in bibliotherapeutic interventions. The goal of the group was to facilitate a discussion and educate health information professionals, health practitioners, non-clinical professionals and community members who wish to learn more or implement bibliotherapy practices in their work or community. To date, the interest group has successfully managed to produce a website that provides a good starting point for understanding bibliotherapy and links to some good resources. Unfortunately, our work has stalled (for the time being) due to the fact that the conveners of the interest group have been pulled in other directions. The interest group continues to monitor its email account and respond to any CHLA/ABSC members who are interested in bibliotherapy and would welcome any interested member who wished to work to enhance the website. In particular, we would be most interested in assistance with expanding the Resources section of the site. See: http://big.chla-absc.ca

Wellington-Waterloo-Dufferin Health Library Network (WWDKLN)

WWDHLN enjoys representation from Academic, Medical, Public and Public Health libraries and meets on a quarterly basis. Occasionally members gather informally in smaller groups to discuss issues affecting specific libraries or librarians. This year the decision was made to include the hosting institution's land acknowledgement at the beginning of our meetings,

allowing for fluidity from meeting to meeting. Continuing education is a standing item on our agendas. At our meeting in October 2018 we welcomed guest speaker, Zack Osborne, team leader at St. Michael's Hospital Health Sciences Library. Zach spoke about some of the innovative library services he and his team provide to their clientele. At our recent April meeting, guest speakers Kaitlyn Lenton and Erica Fuller from Gerstein Science Information Centre gave a presentation on providing scoping review workshops to graduate students. Our annual general meeting, and executive election is held every June.