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Employers' Perspectives on Future Roles and Skills Requirements for Australian Health Librarians

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Received: 15 May 2011

Accepted: 15 Oct 2011

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Abstract

Objective – This study, which comprises one stage of a larger project (ALIA/HLA Workforce and Education Research Project), aimed to discover employers' views on how (or whether) health librarians assist in achieving the mission-critical goals of their organizations; how health librarians contribute to the organization now and into the future; and what are the current and future skills requirements of health librarians.

Methods – Each member of the project group approached between one and five individuals known to them to generate a convenience sample of 22 employers of health librarians. There were 15 semi-structured interviews conducted between October and November 2010 with employers in the hospital, academic, government, private, consumer health and not-for-profit sectors. The interview schedule was sent to each interviewee prior to the interview so that they had time to consider their responses. The researchers wrote up the interview notes using the interview schedule and submitted them to the principal researcher, who combined the data into one document. Content analysis of the data was used to identify major themes.

Results – Employers expressed a clear sense of respect for the roles and responsibilities of library staff in their organizations. Areas of practice such as education and training, scientific research and clinical support were highlighted as critical for the future. Current areas of practice such as using technology and systems to manage information, providing information services to meet user needs and management of health information resources in a range of formats were identified as remaining highly relevant for the future. There was potential for health librarians to play a more active and strategic role in their organizations, and to repackage their traditional skill sets for anticipated future roles. Interpersonal skills and the role of health librarians as the interface between clinicians and information technology were also identified as critical for the future.

Conclusions – Interviews with employers provided valuable insights into the current and future roles and skills requirements of health librarians in Australia, enriching the findings of the earlier stages of the research project. The next step is to work with the stakeholder groups in this project and use the research project's findings as the evidence base on which to develop a structured, modular education framework comprising a postgraduate qualification in health librarianship and a continuing

professional development structure supporting a three-year cycle of certification and revalidation.

Introduction

In Australia, health librarians work in many different environments, including hospitals, research institutes, pharmaceutical companies, government departments, regional health services, professional colleges, universities, not-for-profit and community organizations, and parts of public library services and others. Entry to the profession is via completion of a course of study accredited by the Australian Library and Information Association (ALIA) (<http://www.alia.org.au/education/courses/recognition.html>). Currently, there is no Australian health library specialization and no mandatory requirement for professional registration or for the maintenance of professional skills. Therefore, health specific skills and knowledge are principally acquired informally in the workplace.

Recent national health reforms in Australia have included the creation of a single national compulsory registration body, the Australian Health Practitioner Regulation Agency (AHPRA), (<http://www.ahpra.gov.au>). From July 2010 this has assumed responsibility for the registration and regulation of 10 health professions, with four more to be added in 2012. Health librarians are not among these 14 professional groups. As health librarians are at present excluded from national health workforce registration and are thus without recognition as a health profession, they risk being classified in the clerical or administration streams.

The risk of not having nationally recognised qualifications and registration for health librarians with ongoing continuing professional development (CPD) requirements was articulated by Ritchie in 2008:

In the context of the Australian health workforce, in which national level registration with requirements for regular CPD are increasingly the

norm, health librarians will lose credibility and status if they don't have a structured and regulated CPD system. In addition, and perhaps more importantly, they risk losing competitiveness in the health information professional market. (Ritchie, 2008, p.103)

Advances in e-health in Australia are another important environmental driver for workforce planning and developing the skills of the health information professions as they will "precipitate the integration of patient care systems, such as the shared electronic health record, with clinical decision-support information tools, consumer health information and other knowledge resources, all requiring customisation at point-of-care. Implementation requires skills to consult with and train clinicians; information professionals will need to know how to manage the content as well as the technology which runs the systems" (Ritchie, 2008, p. 103f).

The research currently being conducted by the Health Libraries Australia (HLA) group of the Australian Library and Information Association (ALIA) is in response to growing awareness of the need to operate nationally as part of the e-health and health professional workforce initiatives discussed above. HLA is conducting the ALIA/HLA Workforce and Education Research Project, which takes an evidence based approach to identifying future skills requirements for health librarians in Australia, and to developing a structured, modular education framework to meet these requirements.

The first part of the project has been to establish future roles and skills requirements for health librarians in Australia. A literature review and environmental scan were carried out that identified the following main trends: current and future implementation of a national electronic health record; development

of web portals for consumers and health providers including purchasing and managing resources; national registration and compulsory ongoing professional development requirements for health professionals; emerging specialist roles for health librarians; expanding roles for librarians in user education including e-learning; and greater involvement in research, as part of a multi-disciplinary team. These trends informed subsequent online surveys of Australian health librarians and health library managers. Finally, semi-structured interviews with employers of health librarians across a range of sectors were conducted. As they comprise one of the main stakeholder groups, with a unique perspective on health workforce planning and future needs for the health professional workforce, it was considered critical to the research that this group was consulted. This paper reports on the third and final research phase of the project – the interviews with health librarian employers. The earlier stages of the research have been reported elsewhere (Hallam et al, 2010; Ritchie et al., 2011).

Objective

The objective of the interviews was to discover employers' views on how (or whether) librarians assist in achieving the mission-critical goals of their organizations, and how health librarians contribute to the organization now and into the future. The research team wished to explore the perspective of employers regarding the current and future skills requirements of health librarians, and specifically how these might be considered relevant to the anticipated directions of the parent organization.

Methods

An interview schedule, titled *Future Roles for Health Librarians*, was developed to form the basis of the semi-structured interviews. The schedule consisted of a brief introduction to the project, followed by open-ended questions in two parts: section one – “How health librarians assist you in doing your job and

achieving your goals”; and section two – “How health librarians contribute to your organization - now and possibilities for the future”. The schedule also contained prompts for several of the questions for the interviewers to probe or extend the subject's response if appropriate. See “Appendix A” for the full interview schedule.

The interview schedule was based on two pieces of research from the United States. The first was *Vital Pathways: the Hospital Libraries Project* established by the 2005/06 Medical Library Association under the leadership of Mary Joan Tooley, to review the status of hospital librarians and develop strategies to support the profession. The project culminated in a symposium reported in the *Journal of the Medical Library Association* (Tooley, 2009). *Vital Pathways*, in turn, built on the results of an earlier project which identified five “mission-critical” goals of hospital administrators, and related these to the librarian's role in helping to achieve these goals. These mission-critical goals were: clinical care; management of operations; education; innovation and research; and customer service (Holst et al., 2009, p. 285). It is important to note that these were the “mission-critical” goals as articulated by the hospital administrators, and in this way the study looked at how organizational needs could inform future development of the roles of hospital librarians.

The second piece of research used in developing the interview schedule was *The Value of the Hospital Library Study*, funded by the National Network of Libraries of Medicine, Middle Atlantic Region (Dunn, Brewer, Marshall, & Sollenberger, 2009). The two objectives of this study were: “to investigate the views of hospital administrators about librarians and library services in their institutions and how they make decisions around what services are provided and funded in their hospital”; and “to explore the views of health sciences librarians, informed by interviews with hospital administrators on the value of the hospital library” (Martin, 2008, p. 1). Accordingly, the librarians participating in

this project interviewed hospital administrators at their institutions and then participated in focus groups to explore their experiences of interviewing their employers and hearing their views on the value of the library to the organization. The ALIA/HLA Project Reference Group drew on *The Value of the Hospital Library Study* for several of the questions asked in the interviews with Australian health librarian employers.

The ALIA/HLA Project Reference Group consists of six health librarians and a principal researcher. Each member of the project group approached between one and five individuals known to them to generate a convenience sample of 22 employers of health librarians. Health librarians work in a broad range of contexts and the Reference Group aimed to reflect this range in the interview sample. There were 15 semi-structured interviews conducted between October and November 2010 with employers in the hospital, academic, government, private, consumer health and not-for-profit fields. The interview schedule was sent to each interviewee prior to the interview so that they had time to consider their responses. Interviews were conducted face-to-face or by telephone, and each lasted around one hour. By agreeing to be interviewed, the subjects consented to participate in the research. The researchers wrote up the interview notes using the interview schedule and submitted them to the principal researcher, who combined the data into one document and removed all information that could potentially identify the participants.

The interviews generated a considerable amount of qualitative data, which needed to be summarized to reveal the key ideas expressed by the interviewees. The process of content analysis was used to rigorously analyze, examine and verify the textual content of the interview data. Content analysis has been defined as “a detailed and systematic examination of the contents of a particular body of material for the purpose of identifying patterns, themes or biases” (Leedy & Ormrod, 2001, p. 155). It is commonly used

as “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (Krippendorff, 2004, p. 18). Content analysis involves identifying the characteristics or qualities of the text to be examined in precise terms. Specific codes are developed which are used as the units of analysis to facilitate the categorisation of the textual content. The qualitative dimensions of the process allow the categories of data to be compared and their interconnectedness examined, enabling key themes to emerge.

When the analytical judgments are entirely objective, such as locating the appearance of certain words in the text, a single ‘rater’ can perform the content analysis. However, in many situations the analytical judgments are likely to be more subjective, requiring two or three ‘raters’ to be involved, and a composite of their judgments used. In the present study, as the researchers anticipated that the textual data collected through the interviews would potentially have multiple meanings and interpretations, three raters undertook the categorisation of the interviews and the principal researcher critically reviewed and collated the coded interview data.

As a first step in the content analysis, one of the researchers undertook the initial review of the data and developed a non-hierarchical coding scheme. Suggestions for coding were based on three main sources. The first source was the project groups’ initial environmental scan and literature review (Hallam, et al., 2010). This work examined the Australian health care system and the health library sector, international trends in health libraries, and education and credentialing of health librarians.

The second source was the Medical Library Association’s *Competencies for Lifelong Learning and Professional Success* (Medical Library Association, 2007). The seven MLA competencies, plus an additional competency on continuing professional development, formed the basis of questions about current and future responsibilities and the knowledge

and skills required of health librarians in the two surveys conducted prior to the interviews. Much of the coding scheme for analysis of the interviews was based on these eight competencies (adapted as Competency 1 to Competency 8) which cover the following areas:

- C1 Understanding the health sciences and health care environment;
- C2 Providing information services to meet user needs;
- C3 Managing health information resources;
- C4 Leadership, finance, communication and management;
- C5 Using technology and systems to manage information;
- C6 Curricular design and instruction, including information literacy training;
- C7 Understanding scientific research methods; and
- C8 Maintaining currency of professional knowledge and practice.

The third source used in developing the coding scheme was the two pieces of research from the United States discussed above - *Vital Pathways: the Hospital Libraries Project* and *The Value of the Hospital Library Study*. The *Vital Pathways Project* used results from a previous research study by Abels, Cogdill and Zach (2002) who developed a taxonomy of five mission-critical goals and 15 organizational goals to which hospital librarians contributed. This taxonomy was a valuable resource in developing the coding scheme used for the ALIA/HLA study.

Once the first researcher had developed the initial coding scheme and categorised the data, two more researchers categorised the data independently. As a result, a number of additional codes were identified directly from the data in an iterative process. The three coders and the principal researcher met by teleconference to clarify definitions of existing codes and suggest new codes where thematic gaps were identified, and this process continued by email until no further new codes

or amendments to existing codes were identified. The final coding scheme consisted of 52 codes. Consistency of coding was an important aspect of the process to ensure a strong degree of inter-rater reliability. As the three researchers were employed in diverse health library contexts (hospital, academic and government department), it was feasible that there could be some degree of subjectivity in the interpretation of the textual material, resulting in potential inconsistencies in the allocation of the codes.

Results and Discussion

The findings are reported through a discussion of the content analysis process in general and thematically through the particular perspectives of the interviewees' mission-critical goals, the librarians' existing and anticipated contributions to the organization, and the future roles and skills that might be required by health librarians.

Characteristics of the Interview Subjects

The interview subjects represented a wide spectrum of the health sector from major urban, regional and rural areas of Australia, and a range of employer positions including medical directors, chief knowledge/information officers and senior academics.

Content Analysis of the Interview Data

The process of coding revealed that the views expressed by the interviewees were closely aligned with the conceptual ideas explored in the earlier stages of the research project, validating the selection of the sources used for the development of codes. While no statistical examination of the allocated codes was undertaken, all codes were utilised in the analysis of the interview data. Overall it was found that the direct involvement of the three raters over the life of the research project and their collaborative development of the coding schema resulted in a sound degree of consistency in the content analysis.

It was apparent that one rater brought a strong managerial perspective to the analysis, evident for example in the interpretation of the statement “Developing a corporate taxonomy for the organization”, which two raters coded as METADATA (‘manage cataloguing, classification, abstracting of resources’), but which the third allocated the code KNOWMAN to represent the knowledge management process. A Venn diagram illustrating the notion of “librarians intersecting with all” drafted by one interviewee was analysed by two raters as NETWORK, defined as ‘develop and maintain networks to meet users’ information needs’, but again as KNOWMAN by the third, implying that health librarians can play a role as knowledge managers to link the different elements of a health service. Beyond this, some discrepancies tended to be conceptual in nature, with raters showing their preferences for specific groups of codes. There was also some overlap between the codes INFOACCESS, ‘identify appropriate methods of information delivery and access, including for diverse populations’ and EACCESS, ‘use technology to enable permanent access to electronic information’, which highlights the digital nature of contemporary health information.

Mission-Critical Goals

The interview subjects were asked about their role in their organizations and the mission-critical goals associated with it. The range of responses to this question was broad, but still fitted within the five mission-critical goals identified by Abels et al. (2002) and adopted by the *Vital Pathways* project, namely: clinical care; management of operations; education; innovation and research; and customer service (Holst et al., 2009, p. 286). This was despite the fact that in the Abels study only administrators from hospitals and academic health sciences centres were interviewed, whereas the ALIA/HLA study involved interviews with a much wider range of health librarian employers. It is worth noting that for the ALIA/HLA study, the definition of the fifth mission-critical goal – customer service –

was expanded to include not only patients, carers and their families, but also students and academics in a university setting, staff of a government department, a non-government organization (NGO) or a private company.

Librarians: Contributions to the Organization and Future Roles and Skills

The open-ended questions posed in the interviews provided the interviewees with the scope to “demonstrate their unique way of looking at the world” (Cohen, Manion, & Morrison, 2007, p. 151), so as to provide very individual perspectives about the roles and skills of health librarians employed in a range of contexts, and to allow unanticipated issues to be raised. It was valuable to note, therefore, that the content analysis revealed that the employers, while distant from the operational dimension of the library itself, could confidently discuss the roles and skills of their staff in ways that reflected the MLA’s competency framework and the issues and challenges facing the profession that were identified in the literature review and environmental scan.

Coding of the data revealed groupings of commonly allocated codes, particularly in relation to the following questions:

- 1.3 Do your librarians assist you in achieving any of [your] goals?
- 2.1 What do you consider are the main ways that health librarians contribute to your organization now?
- 2.3 Are there one or two specific things your librarians offer that are especially useful to this organization?
- 2.4 Are there challenges or opportunities for your organization where your librarians could be involved in the future? and
- 2.6 What skills and qualities do you think health librarians will need in order to be able to contribute effectively to your organization in the future?

These groupings aligned closely with the MLA competencies for health librarians on which part of the coding scheme was based, and which is used as a framework to present the results of the data analysis and discuss major themes related to each group of codes (C1 to C8). In the following discussion, reference is made to the main findings of the earlier stages of the research, particularly the online

surveys. Figure 1 below shows the individual librarians' and library managers' perspectives of the areas of professional knowledge and responsibilities reported as currently applied 'often' or 'very often'; and Figure 2 shows the two groups' perspectives on the professional knowledge and responsibilities regarded as likely to 'increase to some extent' or 'increase significantly' in the next three to five years.

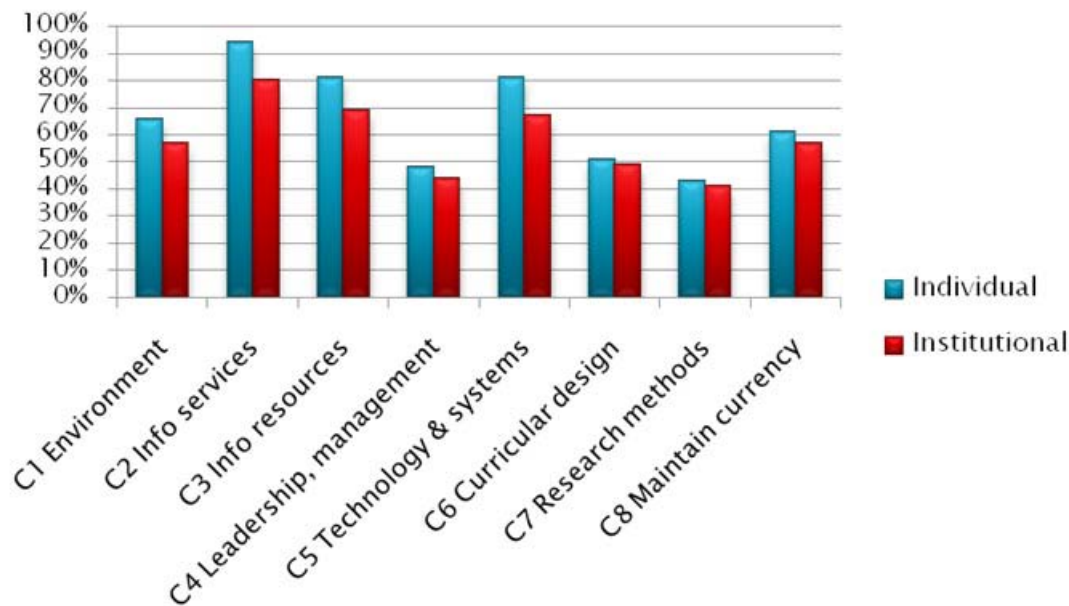


Figure 1
Current application of professional knowledge and responsibilities (competencies 1-8): individual librarian respondents and library manager (institutional) respondents.

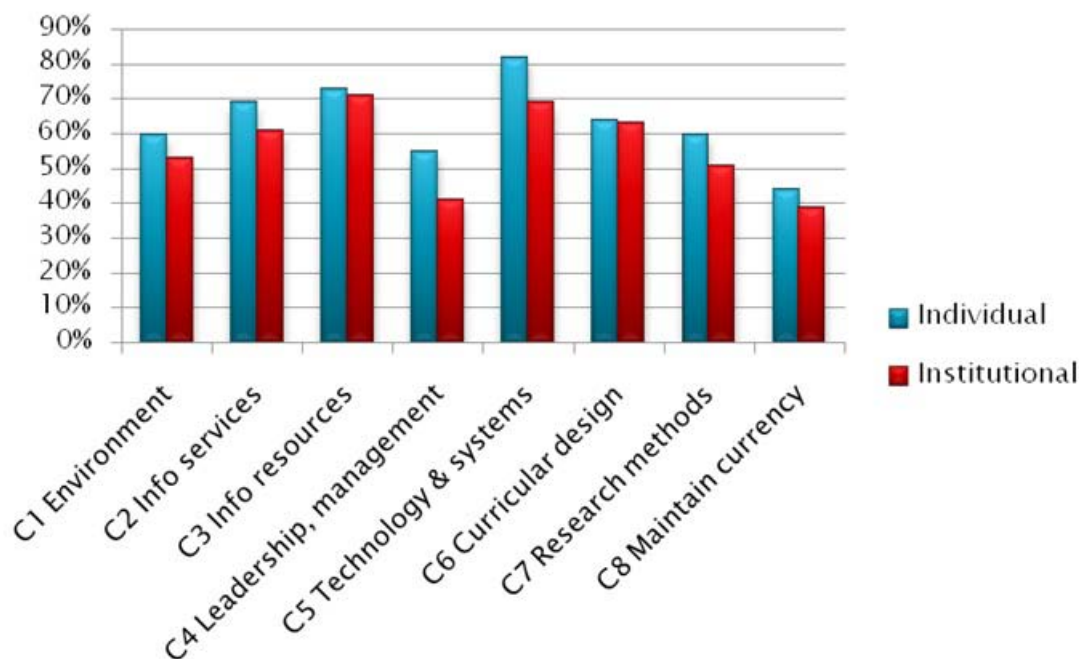


Figure 2
Future increase in professional knowledge and responsibilities: individual librarian respondents and library manager (institutional) respondents.

C1: Understanding the Health Sciences and Health Care Environment

One group of codes centered on knowledge of the library's parent organization and included understanding organizational policies, the clinical care / education / research environment, the economic and legal environment and the organization's role in the broader health environment. The interview subjects were specifically asked "Does your organization involve your librarians in strategic planning and / or organization-wide, mission-critical committees?" (question 2.5). Responses ranged from enthusiasm for librarians to become more involved with organizational strategic planning, to "it would depend on capacity of individuals", to "the library needs to become involved in such committees or be left behind", to concern about finding the balance between the health librarian's strategic role and immediate operational needs. The overall perception from responses to this question was that librarians are currently more involved in day-to-day operations rather than in strategic planning, but that this could change in the future. The theme of proactivity versus reactivity emerged strongly from the data in response to a number of current and potential roles for health librarians. There was a keen sense that health librarians could make a greater strategic contribution to their organizations by becoming involved in strategic planning, more embedded in teaching and research, or integrated into clinical systems. Concerns were expressed that library and information professionals were often more reactive than proactive, so there was considerable work to be done to ensure that they were not overlooked or sidelined in a fast-changing environment. Many respondents commented on the need for the librarians to be more proactive, "pushing out to survive".

C2: Providing Information Services to Meet User Needs

Not surprisingly, much of the interview data reflected the core role of health librarians in

providing services to meet users' information needs. In the surveys conducted prior to the interviews, this was the area of professional knowledge and responsibility cited as most often needed by both individual respondents and library managers (see Figure 1). It was also among the top four areas of professional knowledge and responsibilities regarded as likely to increase over the next three to five years (see Figure 2). Interview participants stressed the importance of this role for health librarians, particularly their skills in searching and locating information resources which saved their clients' time, their provision of alerting services to keep their clients up to date with the latest information in their specialty area, and support of evidence-based practice. Comments included: "supporting clinical staff [to] access knowledge and information are important and critical"; librarians are "the navigators", "compilers of information for busy clinicians"; and "their searching skills are critical". Most interview subjects regarded these roles as likely to increase in importance in the future, with the exception of one person who commented: "If it's just about accessing information, everyone will know how to do that, my five-year-old grabs my iPhone to find information..." (However the implication here may have been that it is more than 'just about accessing information' and librarians need to refine, extend and market their intermediary role in 'providing information services to meet user needs', as suggested by some of the other comments.) Generally, employers saw these roles transforming, with health librarians moving from finding knowledge to facilitating application of knowledge by integrating knowledge resources with clinical systems, and analysing and synthesising information to meet and anticipate particular user information needs. Transformation of current skills to fill new roles was a theme that emerged strongly from the data analysis in relation to this and many of the other competency areas.

C3: Managing Health Information Resources

Another core role of health librarians identified during the data analysis was managing information resources, including negotiating with vendors; selection, purchase and licensing of resources; managing copyright; managing cataloguing, classification and abstracting of resources; and managing conservation and archiving of resources. In the surveys, 81% of health librarians and 69% of health library managers responded that they or their staff often or very often needed this area of professional knowledge and responsibility (see Figure 1); in terms of the future, this area was second only to knowledge of technology and systems in terms of competencies predicted to increase (see Figure 2). The interview subjects also viewed the management of information resources as an important current and future role for health librarians. Several mentioned the need for skills in this area in a constrained fiscal environment: "opportunities to consolidate and share purchases need to be maximised"; "Some of the national procurement, packaging up of resources, getting some harmonisation of 'best buys', work with national librarians is important, better value for money". In response to "turmoil in the publishing arena" (escalating costs, publishers' "rearguard action ... in response to open access initiatives" and administrators' push to cut back on subscriptions), one subject wanted to see "pre-emptive strikes from librarians, not to accept the status quo, to challenge and push for new models of access to information". The same individual also commented that it is "essential to have seamless access to information whether at uni or in the hospital – licensing provisions are stupid". Two recurring themes can be identified from these comments: the need for health librarians to be proactive, and the repackaging of their traditional skills to adapt to a rapidly changing information environment.

C4: Leadership, Finance, Communication and Management

Analysis of the interview data relating to management roles for health librarians highlighted the theme of personal relationships. Respondents tended to focus on the marketing, public relations and interpersonal skills required of health librarians now and into the future. One employer commented: "A lot of the service's success is about personal relationships and visibility". Another noted: "We need to get closer to our academic or clinical role to 'sell' our skills to them in a better way". And another observed: "Technology has taken that personal interface away – a lot of it – but still, that face of the library, that personal touch There's plenty of opportunities". Despite many comments on the importance of online access to information resources, managing a physical library facility was also regarded as important: "I think the physical space has an important role in the hospital as a place where people can go and have a bit of time out and do some reading, a quiet place to work".

C5: Using Technology and Systems to Manage Information

Much of the interview data related to health librarians' knowledge of technology, not just in the traditional areas of information access and dissemination, but also in relation to e-learning, e-health, integration of clinical decision support tools with the electronic health record, website development and management, and use of Web 2.0 technology. In the surveys that preceded the interviews, 81% of individual respondents and 67% of library managers indicated that they or their staff 'often' or 'very often' needed to understand and use technology and systems to manage all forms of information (see Figure 1). In terms of the future, individual respondents expressed a stronger belief that the requirement for technological competencies would increase, with 82% indicating that there would be an increase 'to some extent' or 'significantly', compared with 69% of library managers (see Figure 2). The

comments provided stressed that it was critical for librarians to keep up with new technologies, especially mobile technologies.

These comments were echoed in the interviews with the employers, many of whom conceptualised health librarians as the interface between IT and clinicians. One interview subject predicted: "I can see a role with mobile technologies – bedside use in clinical environments.... [The librarians will be the] interface between the IT people, the clinicians and health informaticians. They can interpret the two worlds. I am thinking about the use of iPads, search engines, access to health records." Another commented: "Yes I really like the idea that the librarians are like warmware – able to help get the most out of our computer hardware and software". And a third observed: "librarians understand how people interact with systems and language". Clinical decision support was cited by several respondents as an area where health librarians could potentially have a much greater role: "the library has a big role to play because to be effective [decision support] needs to be targeted, relevant and how you integrate some of the decision support tools with the clinical apps is a big challenge, and we're not even in that space yet". The rate of change in this area was predicted to increase, and librarians should be aware that new roles could emerge very quickly: "The speed of change means great opportunities in the next 1-2 years. Information convergence – getting information rapidly and then incorporating patient data into the mix. On the fly with mobile devices".

C6: Curricular Design and Instruction, Including Information Literacy Training

Analysis of the interview data also highlighted the health librarian's role in education and training, including curriculum design, educational needs assessment, user education, evaluation of learning outcomes and use of technology in design and delivery of training. The one off/orientation role for new staff was also common. In the surveys, this was one of the top four areas of professional knowledge

and responsibility regarded as likely to increase over the next three to five years (see Figure 2). The interview subjects also saw this as an area in which health librarians are contributing now and where there is an opportunity for their contribution to increase in the future, particularly in the area of e-learning. Comments on librarians' roles in this area included: "training medical staff and students to be effective searchers"; "supporting the ... teaching and learning core business of the University"; "support[ing] continuing professional development for existing clinical staff"; and "pre-vocational training support for overseas trained doctors".

Interestingly, codes which the researchers interpreted as relating to the additional competency added by the project group ("Maintaining currency of professional knowledge and practice"), were in practice applied to the interview data describing librarians' role in supporting professional development of staff within the organizations. The employers interviewed did not refer to professional development specifically for health librarians, but when prompted by the interviewers, several respondents were enthusiastic about the idea of formal qualifications in health librarianship.

C7: Understanding Scientific Research Methods

Closely related to health librarians' role in education is their involvement in research. Survey respondents were fairly conservative in their thinking about this role, with only 43% of individual respondents and 49% of managers regarding this as an area where librarians often or very often required skills and knowledge (see Figure 1). With regard to the future, 60% of individuals and 51% of managers regarded this as a role likely to increase (see Figure 2). Many of the interview subjects were similarly conservative, describing the current and future role of health librarians in research mainly in terms of providing expertise at the literature review stage of research projects. However several of the employers interviewed predicted that

health librarian involvement in this area would and should increase substantially. One respondent commented at some length, citing “research skills [and] academic writing skills” being required, as well as “a new structure to move librarians out of the service/support roles and into academic pathways”, similar to the Canadian model of academic librarians with tenure.

Librarians are becoming research partners, they are co-authors of academic papers and reports. This is becoming an increasingly important role that they play. It's no longer just about searching for the information (librarian as handmaiden, unacknowledged service provider), it is about becoming a partner in the team. There's an expansion of their roles; a blurring of the margins.

Two interview subjects mentioned the importance of health librarians having skills in bibliometrics or citation analysis and predicted that this was a role that would increase in importance as librarians became more closely involved in research. Health librarians would need “Excellent knowledge of the various journal ranking systems and ability to compile data from these for a particular research area”.

Future Roles and Skills

In the interviews it appeared that health librarian employers were generally more ambitious than the librarians themselves when it came to envisaging future roles, skills and qualities for the profession. In the online surveys, respondents generally envisaged “more of the same”. In contrast, health librarian employers talked about “Repackaging traditional librarian skills – data management and curation, web development, citations and bibliometrics”, “extending skill sets” and “becoming partners”. One interview subject observed that “The important skill sets

are any of the hybrid of roles about how you apply information management in the health system, integrating the knowledge with the clinical systems so clinicians use it”.

Degree of Satisfaction

The responses to question 2.2 (“Are you satisfied with the role that your health librarians play in your organization now?”) reflected a high level of satisfaction with the services currently provided by health librarians – (“with cuts around here... if I had to die in a ditch [the library is] one service that I would do it for”) - but also some uneasiness about how to evaluate satisfaction with library services. One respondent commented: “Well I'm not dissatisfied, but I don't know how to measure the level of satisfaction.... I don't know what the utilisation is of the library [by] any of our staff to be honest with you.”

Overall there was a strong perception that the library service needed to be more visible, to create and maintain a higher profile within the organization; “a sense that librarians are too passive – like to see them more active and more proactive, less reactionary. Would like librarians to be more revolutionary”.

Limitations of the Research

The ALIA/HLA research team was sensitive to the risk of bias that could creep into the interview stage of the investigation. In the context of research, bias has been defined as “any influence, condition or set of conditions that singly or together distort the data” (Leedy & Ormrod, 2001, p. 221). One possible source of bias is the researchers' objective in conducting the ALIA/HLA Workforce and Education Research Project – to develop a postgraduate qualification and continuing professional development structure for health librarians in Australia. Mardis' warning about evidence-based library and information practice in school librarianship is relevant to all LIS researchers: “the use of EBL in school librarianship has been labeled as blurring the evidence based paradigm because research pursuits are often a response to a perceived

threat to the profession or a need to advocate for an aspect of practice" (Mardis, 2011, p. 7). As Lyons reminds EBLIP practitioners, "Advocacy has no place in EBP.... In fact, avoiding bias and prejudiced agendas is the main reason these practices developed in the first place" (Lyons, 2009, p. 65). The research group acknowledges that advocacy for the future of health librarianship in Australia may have influenced the conduct and results of this research. However the project group has made every attempt to conduct the research with rigor and objectivity, and has identified the limitations of the research.

The librarians who acted as interviewers knew their subjects and in many cases the relationship was that of employee/employer, which can arguably introduce the possibility of bias. The research team was also conscious of the fact that there were multiple interviewers, rather than a single interviewer, which meant it was not truly possible to control the potential bias that could emerge through the expectations, attitudes, preconceptions or opinions of multiple interviewers. The interviewers were all instructed to pose the questions directly as written on the interview schedule, with further guidance given through the stated examples for prompting the interviewee in order to elicit a more detailed response.

The sample size itself in the ALIA/HLA study (15 subjects) is equivalent to the sample size in both the Abels study (Abels, et al., 2002), and the *Value of the Hospital Library* study (Martin, 2008). The ALIA/HLA sample is weighted towards health librarian employers in hospitals and universities. Ideally, the sample could have been larger and included more than one representative from pharmaceutical companies, professional colleges, government departments and community organizations. The focus of the interview subjects was almost entirely medical, with nursing and allied health barely mentioned. This was an omission on the part of the research team and should be addressed if a second round of interviews is conducted.

In terms of the content analysis, it is acknowledged that distinctions in the coding of textual data by different raters are inevitable. Increased inter-rater reliability could potentially have been achieved if additional time had been spent on developing the skills of the three raters, to ensure that there was no confusion about the scope of the operational definitions and that reliable levels of objectivity were applied in the interpretation of the data. However, as a non-health librarian, the principal researcher played a role in ensuring that there was a strong degree of impartiality in reviewing and reporting the findings.

Conclusion

The interviews with employers provided further insights into the current and future skills of health librarians in Australia, augmenting the findings from the literature review, environmental scan and surveys of health librarians and health library managers (Hallam, et al., 2010; Ritchie, et al., 2011). Not all the interviewees were directly familiar with the library operations, but there was a clear sense of respect for the roles and responsibilities of library staff. It was found that, in the rapidly changing environment of health services, there were opportunities – indeed expectations – for health librarians to play a more active and strategic role in supporting and even driving the change process in their institutions, to be proactive rather than reactive. The employers' own areas of responsibility reflected the five mission-critical goals identified in earlier research in the United States and their understanding of the skills the librarians required could be mapped directly to the seven competencies promulgated by the MLA.

To remain viable in the future, however, health librarians need to extend their skill sets and become more embedded in their organizations and more directly aligned with their strategic goals. Employers were generally more adventurous than the librarians themselves when envisioning repackaging and extending the traditional skill sets of health

librarians. Areas of practice such as education and training, scientific research and clinical support were highlighted as critical domains of future activity, all requiring a high level of understanding and experience of ICT. These findings correspond to the new and emerging roles discussed in the environmental scan (Hallam, et al., 2010; Ritchie, et al., 2011), with an anticipated increase in knowledge and responsibilities in the areas of tailored reference services (such as the role of clinical librarians), advances in technology and systems (health informatics), and the teaching role (understanding curricula design and instruction). Employers tended to conceptualise health librarians in terms of the interface between clinicians and information technology, with librarians possessing the interpersonal skills to negotiate between people and technology in a rapidly changing health environment.

The ALIA/HLA Workforce and Education Research Project has adopted an evidence based approach to determining the future skills requirements for the health library workforce in Australia. Now that the research phase of the project is complete, the next step is to develop a structured, modular education framework to meet these requirements. Analysis of the information gathered through the project will be used to inform the development of education and training pathways. ALIA has approved the establishment of a working party that will work towards implementing a professional development scheme for Australian health librarians with a three-year cycle of certification and revalidation (Ritchie & Hallam, 2011). The working party will also explore with education providers the development of tailored professional development opportunities that may articulate into a postgraduate qualification in health librarianship. These initiatives will not only help ensure a strong future for those already employed in the sector, but also encourage a new generation of information professionals to consider a career in health librarianship.

Acknowledgements:

The authors acknowledge and thank their colleagues who conducted interviews – Laura Foley, Jill Buckley-Smith and Prue Deacon.

This paper is based on a paper first presented at the 6th International Evidence Based Library and Information Practice Conference EBLIP6, 27-30 June 2011, University of Salford, Salford, UK.

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