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COLLABORATIVE RESEARCH TO DEVELOP A SPECIALIST, POST-GRADUATE, COMPETENCY-BASED EDUCATION CURRICULUM AND CONTINUING PROFESSIONAL DEVELOPMENT STRUCTURE FOR HEALTH LIBRARIANS IN AUSTRALIA.

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BIOGRAPHIES:

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Gillian Hallam is Adjunct Professor with Queensland University of Technology (QUT). She provides consultancy services to the library and information services sector, building on her research experience in the areas of workforce planning and evidence based practice. She serves on the Australian Library and Information Association (ALIA) Board of Directors and is Chair of ALIA's Education and Professional Development Standing Committee. She is also an executive member of the Education and Training Standing Committee and the eLearning Special Interest Group within IFLA. Gillian is a Fellow of ALIA.

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Patrick O'Connor is a librarian in the Toowoomba Clinical Library Service supporting clinicians in a large regional referral hospital in Queensland. Previously he has provided clinical library services in cardiac and paediatric units. His professional interests and research are centred on outcomes assessment for hospital libraries; improving literature searching skills and technologies; and competency-based practice. He is a past Secretary and member of the Health Libraries Australia executive.

Catherine Clark is the Manager of the Medical and Dental Library at The University of Western Australia. Her professional interests are in developing information literate health graduates and her Masters research examined the evaluation of medical students' information skills. Areas of current interest to Catherine are the library's role in evidence-based clinical practice and the provision of services that effectively support the measurement of research impact. She is a former Committee Member of the ALIA Academic and Research Libraries Group (WA).

ABSTRACT

Through a grant received from the Australian Library and Information Association (ALIA), members of Health Libraries Australia (HLA) are collaborating with a researcher/educator to conduct a twelve month research project with the goal of developing an educational framework for the Australian health librarianship workforce of the future. The collaboration comprises the principal researcher and a representative group of practitioners from different sectors of the health industry who are affiliated with ALIA in various committees, advisory groups and roles.

The research has two main aims: to determine the future skills requirements for the health librarian workforce in Australia; and to develop a structured, modular education framework for specialist post-graduate qualifications together with a structure for ongoing continuing professional development.

The paper highlights some of the major trends in the health sector and some of the main environmental influences that may act as drivers for change for health librarianship as a profession, and particularly for educating the future workforce. The research methodology is outlined and the main results are described; the findings are discussed with regard to their implications for the development of a structured, competency-based education framework.

INTRODUCTION

Education and workforce planning are related concepts. Education lays the foundations for the future workforce, and must do so in the context of current and likely future needs of employers. It is critical, therefore, that the two processes are linked through market research and consultation between education providers, employers and practitioners in the field. Sloan (2008:35) states: 'Strategic workforce development needs to be managed at all levels – professional associations, peak bodies, regional organisations and in the current workforce.' She also states that libraries will benefit from planning for the future by establishing supply templates that are relevant to the specific library sector, building in the critical time frames and demand projections. During the period 2006-2008, a major study of the Australian library sector was undertaken, referred to as the ALIA *neXus* study, to examine the demographic, educational and workforce characteristics of the sector, viewed from the perspectives of both the individual library professional and the institution as employer (Hallam, 2008; Hallam 2009).

The need for strategic workforce development and, more specifically, the requirement to engage the range of stakeholder groups who have an interest in the education and continuing professional development structures for the future health librarianship workforce are the main reasons for undertaking the current research. Until now, there has not been any concerted effort from the health library profession to map out and implement a structured education framework to develop the health librarian workforce of the future which could successfully facilitate system-wide consultation and collaboration amongst the stakeholder groups. The main stakeholder groups are librarians and the organisations in which they are employed, the professional association, educational institutions and other registered training providers.

Having identified the need to plan effectively for the future, stakeholders in the health library sector in Australia have undertaken a collaborative research project to examine the current position of the profession and the anticipated future workforce requirements. Health Libraries

Australia (HLA) received a small grant from the Australian Library and Information Association (ALIA) to undertake the research study. The collaborative project reference group comprises current and past practitioners representing various sectors of the health workforce and employment areas, and members of the relevant committees and advisory boards of the professional assocation. The project has two main aims: to determine the future skills needed by the health librarian workforce in Australia; and to develop the structure for a modular education framework for specialist post-graduate qualifications and for ongoing continuing professional development (CPD). The project to date has encompassed an environmental scan and review of the literature and the collection of data through two web-based questionnaires, an individual survey of health librarians and an institutional survey of health library managers.

This paper provides an overview of the HLA research project to inform the development and implementation of a system-wide approach to education for the future health workforce. The project is set against the background of some of the major trends in the health sector and the main environmental influences that may act as drivers or enablers for changes in health librarianship as a profession. The paper focuses on the research results from the survey of health library managers. Particular attention is paid to the areas of professional knowledge and responsibilities required for current and future practice, viewed from the perspective of library managers and individual health librarians. A full report on the HLA project will be released in late 2010.

RESEARCH METHODOLOGY

The first stage of the project was to conduct an extensive environmental scan and literature review to develop an understanding of the range of issues in the health sector in Australia and internationally that are likely to have an impact on the role of library professionals. This environmental scan and literature review, augmented by discussions with health librarians representing various sectors of the profession, informed the development of the research instruments. Two web-based questionnaires were developed, piloted and distributed to the target groups (health librarians, and health library managers) in the first quarter of 2010. Distribution strategies included a number of professional e-lists as well as email contacts extracted from the National Library of Australia database, Australian Libraries Gateway. This database included 418 self-described health/medical libraries. The first survey was conducted in February 2010, distributed by email to individual health librarians in Australia, with the second survey distributed in March 2010 seeking responses from health library managers about the library unit as a whole. In the latter part of 2010 a series of semi-structured interviews will be conducted with survey participants and employers to explore their perceptions of future roles for librarians in the health sector.

The surveys collected background demographic data about the sample population, including composition of the workforce, salaries and budgets, and approaches to staff development. Beyond this, the main focus of the questionnaires was to find out what professional knowledge and responsibilities are currently being required by staff, and to capture the perceptions of individuals and managers about any likely changes to future roles and responsibilities. The seven-point competency framework developed by the Medical Library Association (MLA) (2007) in the United States (US) was adapted for the questionnaires, with an extra competency area added to solicit information about participants' views about maintaining currency of professional knowledge and practice. Additional data were collected on the respondents' perceptions about the value of professional development, the preferred methods of delivery of educational courses

and programs, and the extent of support for and barriers to undertaking professional development activities.

ENVIRONMENTAL SCAN AND LITERATURE REVIEW

The environmental scan and literature review on the education and development of health librarians in Australia will be discussed in detail in the final report for the project. However, the principal national trends and influences in the Australian health sector are briefly summarised in this paper to highlight the issues associated with current developments in national health workforce planning, health and hospitals reform, and eHealth initiatives. These issues were reviewed to specifically determine their possible impact on the role of health librarians.

National health workforce planning and development

The establishment of a National Health Workforce Taskforce, and a National Clinical Training Authority, with the move towards national registration for all health professions, provide a model and stimulus for health librarians to follow this trend in strategic workforce planning. With ALIA and HLA already operating as the national professional association for librarians, there is an opportunity for health libraries to cooperate in an education inititiative that aligns with these national registration, education and training activities. One major challenge is for health librarians to be recognised in the professional streams, and attract commensurate levels of pay and conditions.

Currently, there is considerable debate occurring in the health information professions in general, and in the area of health informatics in particular, about the core competencies for the field, providing health librarians with an opportunity to engage in the discussions and to develop their knowledge and skills base in a complementary fashion (NHS Library Services, 2010; Australian College of Health Informatics, 2010; Australian Health Informatics Education Council, 2010). The 'intersection' between the two groups (health informatics and health science librarianship) has been described as an area to be exploited in order to generate new ideas (McKibbon, Eady & Walker-Dilks, 2005; Murphy, 2010). While there are two areas that differentiate health informatics – the focus on information and communications technologies to support and improve health care, and the knowledge base which comprises both health and patient information, Murphy (2010:77) suggests that 'the two communities have many shared interests and could benefit from closer collaboration'. There are obvious opportunities to claim or reclaim professional territories in explicitly identifying the 'scopes of practice' for which health librarians have the knowledge and skills to fulfil the role.

Health and hospitals reform

A recent Commonwealth Scientific and Industrial Research Organisation (CSIRO) report (2010) has identified five megatrends affecting Australia's future, highlighting the aging population, with concominant demands on healthcare resulting in increasing rates of healthcare expenditure, as a trend that is likely to continue, with Australians demanding more diversified health services. The report also identifies 'personalisation of services' as a megatrend, and suggests that innovations aimed at tailoring and targeting services will include technologies to help people manage their health information and cope with overload.

The Australian Government's plan to implement the National Health and Hospitals Reform Commission's blueprint for reform (based on the Commission's final report, *A Healthier Future for All Australians*) was published in July 2009, and agreed to, with some revisions, by the

Council Of Australian Governments (COAG) in April 2010 (Department of Health and Ageing, 2010). It remains to be seen how this plan will be implemented, but the intention is to exert more centralised control over the health care system with the Commonwealth assuming a greater proportion of hospital funding. It is clear, however, that the funding reforms that are likely to be introduced will affect decisions about the provision of clinical support services such as libraries in the hospital sector, where the greatest proportion of health librarians is employed.

eHealth

The implementation in Australia of the National eHealth Strategy (Australian Health Ministers' Conference, 2008) is a major driver which is likely to affect hospital and primary care librarians, as well as those who work with consumer health information as a primary responsibility. The integration of decision-support knowledge resources at point-of-care with the shared electronic health record will be a significant challenge for health librarians. It will have implications for the roles of librarians as part of multidisciplinary teams, impacting on the provision of expert reference services, with the associated liaison and training activities, as well as on the technical and collection development perspectives of library work. Ritchie (2008:103-104) states that eHealth '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.'

To date there has been no centrally coordinated federal government funding for health libraries in Australia, nor for making accessible their collections of health information resources. The National eHealth Strategy's plan to create National Health Knowledge Portals for consumers, health care providers and managers has provided an opportunity for an initiative led by the jurisdictions' network of health and hospital libraries. In 2008 the national Chief Health Librarians' Forum (CHLF) was formed to both represent and provide a national forum for the state/territory and federal governments' library/information centres, with representatives from the hospital library sector. One of the objectives of the Forum was 'to facilitate the work of the jurisdictions' Chief Information Officers in the implementation of the National eHealth Strategy 2008, particularly with regard to the development and provision of content for the National Health Knowledge Portals' (HLA News, 2010:11). The group has presented a strategy for the selection and procurement of knowledge resources to the principal information subcommittee of the Australian Health Ministers' Advisory Council (AHMAC), and has drafted a business case which supports national funding for such an initiative.

New and emerging roles for health librarians

International research reports point to health librarians having to develop new roles and skills as well as enhancing their existing, more traditional skills in response to, or as a result of, trends and issues which are similar to those highlighted in the environmental influences in healthcare service delivery and education in Australia. In the United Kingdom (UK) context, the new opportunities for health librarians are discussed in the report *Future Proofing the Profession*, prepared by the Health Executive Advisory Group to the Chartered Institute for Library and Information Professionals (CILIP) (2004). Opportunities include working beyond the traditional boundaries of the library and contributing to the development of evidence-based health care and services. The principal emerging areas of practice for health librarians are summarised as teaching and learning; adopting new roles outside of the library with multidisciplinary and cross-sectoral teams; managing knowledge (explicit and tacit) rather than information (documents and

data); developing new information technology strategies to enhance access to quality information (CILIP, 2004:21-23). A more recent review by Hill (2008), *Report of a National Review of NHS Health Library Services in England: From Knowledge to Health in the 21st Century*, envisages a significant expansion of the clinical librarian role and posits the need for around 800 clinical librarians plus a move to Knowledge Services librarians. The report highlights four key purposes for library and knowledge services in the National Health Service: to support clinical decision making; to drive health policy making; to undertake research; to encourage and support lifelong learning.

In her editorial to a special journal issue focusing on the evolving specialty of health sciences librarianship, Shipman (2004:9) stated that: 'Emerging roles are surfacing in all arenas served by health sciences libraries: educational, clinical, research, and administration. Librarians are meeting new skill demands by re-educating both on the job and through traditional coursework.' Opportunities in the various fields covered in the journal issue are summarised by Shipman: advances in technology and eHealth, and specifically the presence of electronic patient records 'afford the opportunity for direct information resource integration'; clinical research teams increasingly require additional librarian support to find information and to teach others; in the health care practice environment, there is an emerging role for a hybrid health professional dubbed an 'informationist' (having both clinical and librarian knowledge bases) with potential value to teach evidence-based medicine and to contribute to problem-based learning teams in a variety of contexts, such as education, research, public health, consumer health, as well as clinical settings.

In the academic context, LIS professionals need to be comfortable with research methodologies and to be health information specialists who are able to communicate effectively with researchers (Scherrer, 2004). It has been noted that health information professionals were teaching more, including eLearning programs (Bury, Martin & Roberts, 2006; Steyn and de Wee, 2007; Spooner, 2010); engaging in outreach through liaison initiatives, designing and managing electronic information systems, providing consumer health education, while continuing to provide traditional reference services. Beyond this, academic health librarians have always been concerned with how scholarly knowledge is communicated (Webb, Gannon-Leary and Bent 2007) and they are now also developing bibliometric services to measure the research output of their universities (Drummond and Wartho 2009) as part of the research funding processes.

Wilkinson, Papaioannou, Keen and Booth (2009) noted that in recent years, the roles of information specialists in three particular areas (the systematic review process, clinical librarianship, and dissemination of research findings) have been extended due to the demands on clinicians to ensure that their practice is evidence-based. They concluded that there is a role for information professionals in this area, with the opportunity to develop new skills to aid the knowledge transfer process. In discussing the establishment of the National electronic Library for Health (NeLH) in the UK, Turner, Fraser, Gray and Toth (2002:134) point to 'an obvious, if ill-defined, role for information professionals' in knowledge management. The authors note that the Pilot NeLH would be one of the main elements of the newly established National Knowledge Service, based around a central website (a core collection) with links to 'commissioned websites' (specialist resources), and that work has entailed 'procurement and licencing'. This establishes NeLH as a knowledge management tool in the domain of collection development and resources management responsibilities.

Clinical librarianship (Harrison & Beraquet, 2009), clinical education (McKibbon & Bayley, 2004) and clinical governance have all been identified as areas of specialist work, with the development and use of clinical guidelines to support evidence-based practice highlighted as

areas of increased activity in the future. Holst *et al* (2009) stress the importance of librarians helping hospitals achieve their 'mission-critical' goals related to clinical care, management of operations, education, innovation and research, and customer service.

> From saving hospitals thousands of dollars per year to saving patients' lives, hospital librarians fulfil many mission-critical roles in today's hospital. These roles include that of expert searcher, educator, community outreach provider, promoter of EBM, information disseminator, effective user of information technology, website manager, patient safey, information provider, and supporter of innovation and research.

Future roles are therefore anticipated in many areas of practice. The surveys of individual health librarians and health library managers in Australia sought to measure the extent to which the identified competencies were currently utilised in practice and to identify the degree of anticipated change.

RESULTS AND DISCUSSION

The summary of the literature has highlighted the need for health librarians to adopt a strong position within the national health professional workforce in order to ensure they are recognised as a professional group with specialist skills and knowledge. The HLA survey data present a picture of the current health library workforce in Australia and develops a clearer understanding about the competencies required by those delivering health library services. The present paper provides an overview of the results of the institutional survey, with health library managers as the target cohort of respondents. It should be noted that the preliminary findings from the individual survey have been reported in a separate paper (Hallam *et al*: in press).

Results of the institutional survey

Of the 77 research participants who accessed the institutional survey, 69 valid responses were collected. As a number of these respondents provided only partial responses, the analysis is based on 51 'useable' responses. Initial respondents were spread across all states (Table 1), with results approximating general population proportions. Other factors affecting spread are likely to be the degree of centralisation evident in Australia in the structures governing the state/territory health and hospital sectors, the mix of federal and state/territory government departments, and the presence (or absence) of medical schools in the various state/territory-based universities.

Table 1: Respondents by State/Territory

State/Territory	Number of libraries	Percentage
New South Wales (NSW)	15	19.5
Victoria (VIC)	11	14.3
Western Australia (WA)	8	10.4
Queensland (QLD)	7	9.1
South Australia (SA)	5	6.5
Australian Capital Territory (ACT)	4	5.2
Tasmania (TAS)	2	2.6
Northern Territory (NT)	1	1.3
No response	24	31.2
Total	77	100.0

Most respondents were from public sector agencies, with relatively few from the not-for-profit and private sectors (Table 2).

Table 2: Respondents by sector

Sector	Number of libraries	Percentage
Public sector, State/Territory	28	36.7
Public sector, Commonwealth (incl. universities)	11	14.3
Not-for-profit sector	8	10.4
Private sector	1	1.3
Other	4	5.2
No response	25	32.5
Total	77	100.0

In answering the question about the specific health area served by the library, respondents could nominate more than one area; a number of libraries indicated that they had multiple client groups. Overall, the proportions were similar to those found in the individual survey, with most libraries serving the hospital, academic/research, and government department sectors (Table 3).

Table 3: Respondents by client groups served

Client groups served	Number of respondents	Percent
Hospital	32	41.7
University	18	24.7
Research institute	13	16.9
Government department	10	13.0
Dentistry	7	9.1
Consumer/patient health organization	6	7.8
Health professional assn/college	5	6.5
Pharmacy/drug industry or company	5	6.5
Primary care (GPs, private practice)	4	5.2
Pathology	3	3.9
Health Informatics	2	2.6
Other	6	7.8
Total	112	[145.7]

In total, there were 112 selections from the 51 survey participants. The largest proportion served hospital clients (42 percent, 32 libraries) and universities (25 percent, 18 libraries), with 13 libraries serving both of these client groups. Research institutes represented 17 percent (13 libraries) of respondents and government department libraries 13 percent (10 libraries). Smaller groups of respondents included dentistry, consumer health, professional association/colleges, pharmacy/drug companies, primary care, pathology and health informatics. Respondents who selected the option 'other' stated that they served areas such as allied and community health, indigenous health, disability, administration, private complementary/alternative and health sciences education. It was found that there was considerable overlap and various combinations amongst all groups, indicating that, because most libraries serve multiple client groups, librarians have to be flexible with resources and services.

The highest proportion of respondents came from libraries with 2-5 paid staff (47 percent). It is also worth noting that 1 in 5 (20 percent) fell into the category of 'One person libraries' making the majority (67 percent) from libraries with 5 or less staff (Table 4).

Table 4: Number of paid library staff

Response	Number of staff	Percentage
No response	3	5.9
One person (or fraction of one person)	10	19.6
2-5	24	47.1
6-10	6	11.8
11-20	3	5.9
21-50	1	2.0
50+	4	7.8
Total	51	100.1

With regard to composition and diversity of the workforce, the majority (53 percent) had over 90 percent female staff, and less than half (39 percent) of those who responded had staff from culturally or linguistically diverse backgrounds. Only two percent of libraries had staff members who identified as coming from an Aboriginal/Torres Strait Islander background, while 15 percent (eight libraries) reported having one or two staff with a disability.

Almost 90 percent indicated that they used an official salary scale, and these were generally the public sector/local government awards and agreements. There was a higher proportion of respondents who disagreed (37 percent) rather than agreed (27 percent) with the statement that 'Professional LIS salaries are highly competitive with professional salaries in other disciplines', although 35 percent were either 'neutral' or did not respond to the question.

In terms of the proportion of the library's total budget allocated to staff salaries, 29 percent reported that they spent 26 to 50 percent of their budgets on salaries; 37 percent spent 51 to 75 percent of their budgets on salaries; six percent spent more than 76 percent of the budget on salaries.   Some of the comments provided by those who did not respond (22 percent) indicated that either the staffing salaries or the resources budget were controlled by another area or came from different budgets; in some cases figures were not available. Ten libraries (19 percent) reported that they had one or two staff positions funded by a source outside the library.

About half the respondents in the institutional survey (24 libraries) indicated that there was a specific staff development budget. Of these, more than half (19 libraries) allocated less that one percent of their library budget to staff development activities; the rest allocated between one percent and 2.5 percent of the budget.   Comments on this item varied, ranging from those library managers who indicated that they had some degree of autonomy over what is spent on staff development, to those who had no control at all over this budget item.

> *Although this is a budget line with a nominated budget it is flexible I can spend more or less as long as I don't exceed my bottom line. Accommodation/meals are not covered by the organisation. This covers registration/workshop costs only.*

> *Organisation has a staff development budget & using it is competitive. Continuing education IS supported, but.. it is carefully rationed.*

Special funding applications can be made but are not guaranteed to be approved. Study leave is available of up to 38 hours within a 2 month period but other financial support is not guaranteed.

Staff development costs come out of the Teams budget not the Library budget

Regarding the organisation's approach to staff development, just over a third (37 percent) responded that their 'organisation has an informal approach'. Nearly 22 percent reported that their organisation regards staff development as primarily the responsibility of individual staff members, while only 18 percent reported that their organisations had a planned staff development program (Table 5).

Table 5: Approaches to staff development

Response	Percentage
The organisation has a planned staff development program	17.7
The organisation has an informal approach to staff development	37.3
The organisation regards staff development as primarily the responsibility of individual staff members	21.6
No answer	23.6

Whether viewed as formal or not, comments suggested the existence of application processes (such as 'competitive applications for conference attendance, identifying individual needs in performance development discussion, and library wide initiatives'), 'performance development' frameworks and shared responsibilities: one respondent stated that professional development was formally recorded as part of a Performance Development Scheme, 'with obligations on both sides to see it is carried out', while another said that 'there is no dedicated budget for this and staff development tends to be ad hoc and informal, apart from those areas identified during the project planning and performance development cycles'.

Responses to the questions about the major themes and priorities in the library's staff development program for the coming year and for the next 2-3 years identified a number of common areas of attention including: Web 2.0, Library 2.0 and social networking skills; Learning Management Systems such as Moodle; leadership and management; new, mobile and flexible information technologies; evidence-based healthcare and health research skills.

When asked about new graduate, internship or traineeship programs, 57 percent of respondents believed these would be either valuable or very valuable as recruitment strategies in the health library sector. Only five libraries (10 percent) currently offered such a scheme, while 24 (47 percent) said they would consider offering one. Comments suggested that budget and the size of the library were important factors determining whether such a program was offered by their organisation or would be considered in the future.

A number of critical questions were posed about the level of support for formal programs of qualifications and continuing professional development (CPD) units. The first question asked 'If a formal post-graduate specialist course in health librarianship was developed and offered by a university or registered training provider, would your library be prepared to support staff gain the qualification?' Overall, almost half (47 percent) said 'yes', but 10 percent said 'no'; the rest either did not respond or were unsure (Figure 1). Comments indicated that it would depend on budget, the quality and content of the courses being offered, and delegation to approve such a request. This was summarised neatly by the following respondent:

Would depend on course content, relevance, cost and demonstrable outcomes - and it is beyond my level of responsibility to say.

Respondents were also asked 'If specialist CPD units in health librarianship were developed and offered by a university or registered training provider, would your library be prepared to support your health librarians to upgrade their skills?' In response, 61 percent said 'yes' but 14 percent were unsure. Only one respondent said 'no' (Figure 1).
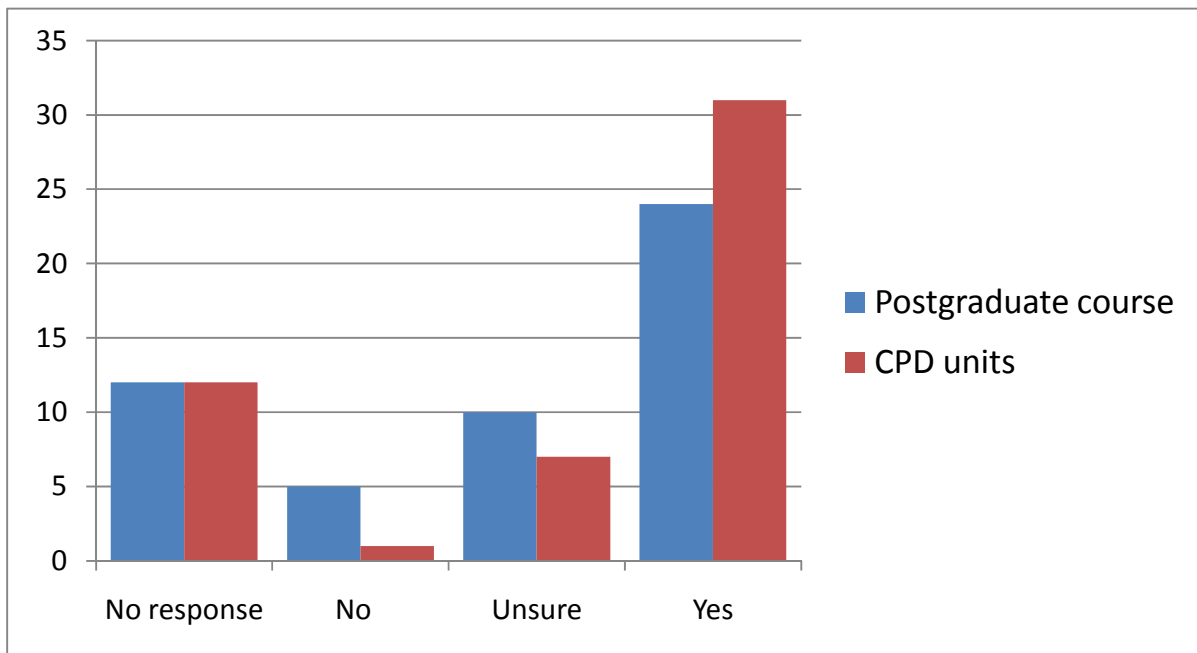

Figure 1: Support for specialist postgraduate and CPD units in health librarianship

The data revealed that there was slightly more support for CPD units than for a formal postgraduate course, and respondents commented:

This is more practical than a formal course - I would think it could include things like medical terminology, evidence-based medicine, critical appraisal?

These would be seen as an ongoing requirement and tied in with our formal Work Partnership Plans.

The relevancy of any future educational framework will naturally depend on the professional knowledge and skills required for successful practice in any future roles that health librarians undertake.

CURRENT AND FUTURE AREAS OF PROFESSIONAL KNOWLEDGE AND SKILLS

One of the main goals of the research study was to examine the professional knowledge and responsibilities of health librarians, to compare current and future perspectives. The questions in both the individual and institutional questionnaires drew on the US Medical Library Association's

seven-point competency framework, with an extra competency area added to solicit information about participants' views about maintaining the currency of their professional knowledge and practice. The analysis of the collected data is based on the 51 responses for the institutional survey and 162 responses for the individual survey.

The three largest groups of respondents in the individual survey were from hospital libraries (96 respondents), government department libraries (25 respondents) and university libraries (24 respondents), while smaller groups of respondents encompassed librarians working in research institutes, primary care, health professional association/colleges, consumer or patient health organisations, health informatics, pharmacy/drug companies, commercial publishers. Data from the three largest groups of individual respondents receive specific attention in the analysis. As the institutional survey revealed that health libraries often served multiple client groups, it was not possible to review this data from any client-specific perspective. The findings discussed therefore reflect the aggregated institutional data.

The research results presented in this section look at the perceptions of requirements for health librarians for each of the eight areas of the competency framework, both at the current time and how these might change in the future. Institutional respondents were asked to focus on the library as a whole unit and to rate how frequently the health librarians on their staff were involved with each of the competency areas. Respondents' comments from both surveys have been included to provide a richer picture of the data.

Competency 1. Understand the health sciences and health care environment and the policies, issues and trends that impact on that environment.

Overall, 67 percent of individual respondents, and 57 percent of institutional respondents reported that they or their staff were 'often' or 'very often' required to understand the health sciences and health care environment. The strongest figures were recorded for individual respondents in the government department category (88 percent) and the hospital category (67 percent), while only 43 percent of university respondents believed that this was the case. Whereas 19 percent of respondents from universities reported that they were 'never' or 'rarely' required to understand the health sciences and health care environment, no government department respondents and only five percent of hospital respondents answered 'never' or 'rarely' to the same competency. One respondent indicated that this is an integral part of their role:

> *Keep tabs on changes in health policy, issues to do with registration of health professions, government inquiries related to health, nursing, aged care, industrial relations etc. Check daily media for relevant news.*

Respondents in all categories expected that an understanding of the health sciences and health care environment would increase either 'to some extent' or 'significantly' in the future: 53 percent of institutional respondents and 60 percent of individual respondents reported that this was anticipated, with around 12 percent believing the increase would be 'significant'. In the individual survey the projected increase was more marked in hospitals (79 percent) and in government departments (58 percent), compared with universities (38 percent). Several respondents commented that funding opportunities will require them to be competent in this area:

> *Require greater understanding to initiate methods of revenue raising and grant submissions.*

Four percent of individual respondents in academic health libraries reported, however, that they expected this competency to decrease significantly in future. Comments provided by institutional respondents generally indicated that this area of professional knowledge and role was the library manager's responsibility. Nevertheless a number of respondents looking to likely future changes in the health sector noted the increasing need for all health librarians to understand the health care environment:

> *The complexity of the environment and likely changes make me think it is going to be even more important to keep abreast of developments.*

Competency 2. Understand the principles and practices related to providing information services to meet user needs.

More than 93 percent of all individual respondents reported that they 'often' or 'very often' needed to understand the principles and practices related to providing information services to meet user needs. Respondents working in hospital libraries (98 percent) and government department libraries (92 percent) recorded a higher response than those working in university libraries (81 percent). Comments indicated that respondents saw this as a core competency:

> *This knowledge is essential for the effective management of any library service – it should go without saying.*

> *These are core to our practice.*

The institutional perspective was similar, with 80 percent of respondents reporting that their staff were required to understand the principles and practices related to providing information services to meet user needs 'often' or 'very often'. Over half indicated that the competency was 'very often' applied. Comments provided again indicated that this is a core professional responsibility for health librarians:

> *All still very much key activities in our library.*

It was seen as an evolving domain:

> *All these areas have been heavily influenced by change with technology and so the knowledge and responsibilities of all staff have experienced considerable restructure and relearning.*

Almost 70 percent of individual respondents and 60 percent of institutional respondents believed that there would be an increase in the application of this competency in the future. Once again, the figures recorded were stronger amongst those working in hospital libraries and government department libraries, compared with those in university medical libraries. Respondents commented that they expected changes in a number of areas, including an increased number of information resources, a wider variety of delivery technologies in clinical and EBP settings, and more significant teaching roles.

Competency 3. Understand the management of health information resources in a broad range of formats.

This competency was widely acknowledged to be important, with 80 percent of individual and 70 percent of institutional respondents reporting that it was applied frequently. Individuals working in government departments (88 percent) reported the highest percentage of 'often' and 'very often' responses, followed by hospitals (84 percent) and universities (71 percent). The ratios recorded for these categories of institutional respondents were in the range of 70 to 75 percent. One individual respondent commented that it was the broad principles that were important in understanding this competency:

> *It is not so much the technicalities in these areas that are important as the ability to understand the principles and concepts involved, i.e. understanding what classification is about, how it works, why it's useful etc...*

Future knowledge and responsibility in understanding the management of health information resources in a broad range of formats was expected to increase 'to some extent' or 'significantly' for just over 70 percent of all respondents, with around three quarters of individuals working in hospitals highlighting the growing need for the competency. A number of comments noted that the shift from print to electronic resources, along with the associated issues of digital repositories, licensing, copyright, web publishing and the implementation of new standards, required a new range of skills within the competency area. The management of digital content was highlighted as an important and increasing area of professional responsibility for health librarians. Institutional respondents noted:

> *Some of these issues have required a much higher level of knowledge and responsibility and have resulted in recognition by reclassification to a higher grade reflecting that advanced scope of practice.*

> *Repository management for electronic publications is likely to increase for a number of librarian roles and resource formats and types e.g. managing policies and guidelines, managing the department's digital repository, managing an eLearning repository.*

Competency 4. Know and understand the application of leadership, finance, communication, and management theory and techniques.

The perceived application of this competency was notably lower, with just under half of individuals (48 percent) and institutional (43 percent) respondents reporting high frequency, highlighting the fact that this was perceived to fall under the responsibilities of managers rather than staff. While 24 percent of individual university respondents reported that they 'rarely' or 'never' needed to know and understand the application of leadership, finance, communication, and management theory and techniques, the results were lower for hospitals (14 percent) and government departments (13 percent). Nevertheless, some comments indicated that these skills were important:

> *I couldn't manage 2 libraries and lead a team without good skills in these areas. Obviously they are essential for any manager and, at some level, for any librarian.*

Over half of all individual respondents expected that their own knowledge and understanding in this competency was likely to increase. This was higher than the recorded views of the library managers, with only 42 percent believing that their staff would be required to apply these skills to a greater extent in the future and 37 percent indicating there was unlikely to be any change. Some respondents were aware of the strategic nature of the competency:

> *The library has to continually prove itself to be relevant; have to ensure fit with organisational priorities, and strive for better marketing opportunities.'*

Institutional respondents reported that this area of professional knowledge and responsibility was largely confined to library managers, while noting, however, that 'all staff are involved in strategic planning and projects' and therefore required leadership, finance, communication and management skills to a certain extent. Looking to the future, respondents commented:

> *In tough times marketing and public relations and review and evaluation are a high priority.*

> *Strategic approaches to collection development, financial management, evaluation, and policy are becoming increasingly important for these roles as budgets remain stable and student and faculty expectations increase.*

Competency 5. Understand and use technology and systems to manage all forms of information.

Overall, 81 percent of individual respondents and 67 percent of institutional respondents indicated that they 'often' or 'very often' needed to understand and use technology and systems to manage all forms of information. Comments noted the wide range of technologies used in libraries, including databases (creation, management and access), web technologies (e.g. RSS feeds) and learning management systems.

In terms of the future, individual respondents expressed a stronger belief that the requirement for technological competencies would increase, with 82 percent indicating that there would be an increase 'to some extent' or 'significantly', compared with 69 percent of library managers. No respondents identified this as an area where knowledge and responsibilities would decrease. The comments provided stressed that it was critical for libraries to keep up with new technologies, especially mobile technologies:

> *I expect that the reliance upon technology will continue to increase – especially mobile technology – and I hope to become more familiar with it and more aware of the possibilities.*

One respondent summed up the current and future roles of health librarians in relation to the use of technology to manage information as follows:

> *Everyone uses technology now as an information management tool. The focus on the subject content and providing access through high quality metadata needs to be reinforced, not allowing the technology to become the focus. Working with systems that allow collaboration with clients and interactivity will increase.*

Competency 6. Understand curricular design and instruction, and have the ability to teach ways to access, organise and use information.

When considering the current requirements for an understanding of curricular design and instruction, and the ability to teach ways to access, organise and use information, there were clear differences between the various categories of health library. Individual respondents working in the academic sector reported a higher response for 'often' or 'very often' (76 percent), compared with those in hospital libraries (55 percent) and government department libraries (33

percent). Indeed, almost one third of respondents in government departments reported that they 'rarely' or 'never' required this knowledge. Comments reflected the distinctive viewpoints of academic librarians and government department librarians:

> *[I have] responsibility for developing all information literacy programs and for delivering some of them.*

> *I do not engage in training/education of the wider hospital population. That is the responsibility of the network library system.*

Two thirds of individual librarians in academic libraries and hospital libraries reported that they expected future involvement in curricular design and teaching to increase 'to some extent' or 'significantly'. A typical comment was:

> *As clinicians do more of their own searching for information, they will need more instruction on searching effectively. I think there will be an increasing need for information literacy training.*

Half of all library managers reported that their staff were currently required to have professional knowledge and responsibilities in this competency area 'often' or 'very often'. There was a keen awareness that this was an area that would increase 'to some extent' or 'significantly', with around 63 percent of library managers reporting the anticipated growth. It was noted that the institutional respondents representing the smaller libraries were less likely to see any likely increase in this area.

Comments received highlighted the fact that most health librarians did not generally have formal training in teaching skills, despite the fact that information literacy training represents an increasingly significant part of the future professional skill set. One respondent observed:

> *This is an area that would benefit from a more focused and formal approach to learning from staff' and several identified eLearning as 'an emerging area of interest.*

Another respondent noted:

> *eLearning strategy implementation and the library's increased responsibilities in this functional area will require better understanding of formal teaching and learning processes, and increased skills, knowledge in this area. This will be not only regarding health information literacy skills, but also how to work in multidisciplinary eLearning development and delivery units, to ensure that the library's knowledge base is integrated with all teaching and learning programs.*

Competency 7. Understand scientific research methods and have the ability to critically examine and filter research literature from many related disciplines.

The competency encompassing the understanding of scientific research methods and the ability to critically examine and filter research literature from many related disciplines was reported as being 'often' or 'very often' required by around 40 percent of respondents in both the cohorts of individuals and library managers. Interestingly, the figure was lower for individuals in government department libraries (33 percent) than for library managers in government departments (60 percent). Current involvement was reported as 'rarely' or 'never' by 19 percent of university respondents, 23 percent of hospital respondents and 38 percent of government

department respondents. The comments were principally provided by individual respondents who felt confident about their skills in this area and emphasised the importance of evidence-based practice and research methodology training in developing these skills.

Generally, around 60 percent of individual respondents and 50 percent of institutional respondents believed there would be an increased demand for these research skills in the future. Two typical comments were:

> *Expect local research to increase significantly and therefore library involvement.*

> *Will need to become more proficient in these areas as library services become more clinical.*

Future likely decreases were reported at less than five percent across all categories. It is interesting to note that future involvement in this competency was less keenly anticipated in the more traditionally 'research' context of academic libraries than in government departments. Respondents' comments were divided between regarding an understanding of scientific research methods as essential to reference work in health libraries versus regarding critical appraisal as the responsibility of the clinician or researcher rather than the librarian. Looking to the future, one respondent noted:

> *Over the next 5-10 years libraries will continue to expand their role beyond that of gatekeepers or information providers, adding analysis, synopsis and evaluation of the literature to their services more than ever before. So an emphasis on quality will mean that evaluation skills are essential.*

Another respondent commented on the future requirement to apply critical appraisal skills to evaluation of the library and information science literature, stating that it would be necessary for health librarians 'to understand and implement qualitative and quantitative research methodologies for improving service delivery as well as measuring impact of library services'.

Competency 8. Maintain currency of professional knowledge and practice.

More than 60 percent of individual respondents in all categories reported that they were 'often' or 'very often' required to maintain currency of professional knowledge and practice. This was higher in government departments (71 percent) than in and universities (62 percent) and hospitals (59 percent). Slightly lower figures were captured for institutional respondents (57 percent). Around nine percent of individual academic library respondents reported that, for them, this was 'rarely' or 'never' a current requirement. Comments identified a wide range of different types of professional development (e.g. blogs, conferences, personal contacts, participation in professional organisations), while some commented on lack of funding and other limitations.

> *It is difficult to obtain approval to attend conferences and workshops due to costs of airfares. There are limited local opportunities.*

Around half of all individual and institutional respondents reported that they expected that the need to maintain currency of professional knowledge and practice would not change in the future, while an anticipated increase 'to some extent' or 'significantly' was reported by 56 percent of hospital respondents and 50 percent of government department respondents and university respondents.

Respondents' comments reflected the importance of maintaining currency of professional knowledge and practice, both now and in the next three to five years:

Will always be important.

Critical if we are to remain relevant.

DISCUSSION

Overall, results for survey sections 4 and 5 examining the current and likely future areas of professional knowledge and responsibilities were fairly homogeneous, with most institutional respondents believing that the involvement of their staff in these competency areas would increase. This can be interpreted as amounting to doing 'more of the same'. The comments provided by respondents revealed some interesting trends with regard to role development and emerging new roles, which are aligned with discussion presented in the environmental scan and literature review.

Regarding current knowledge and responsibilities, 66 percent or more of institutional respondents reported their health library staff were 'often' or 'very often' required to have professional knowledge and responsibility in three competency areas:

- C2: providing information services to meet user needs (80 percent)
- C3: managing health information resources in a broad range of formats (70 percent)
- C5: understanding and using technology and systems to manage information (67 percent)

Regarding likely future roles in the next three to five years, 60 percent or more of institutional respondents predicted that there would be an increase or a 'significant' increase in the knowledge and responsibilities of their health library staff in the same three areas as above (C2, C3 and C5), with the addition of a further area – understanding curricular design and instruction (C6) (Figure 2).
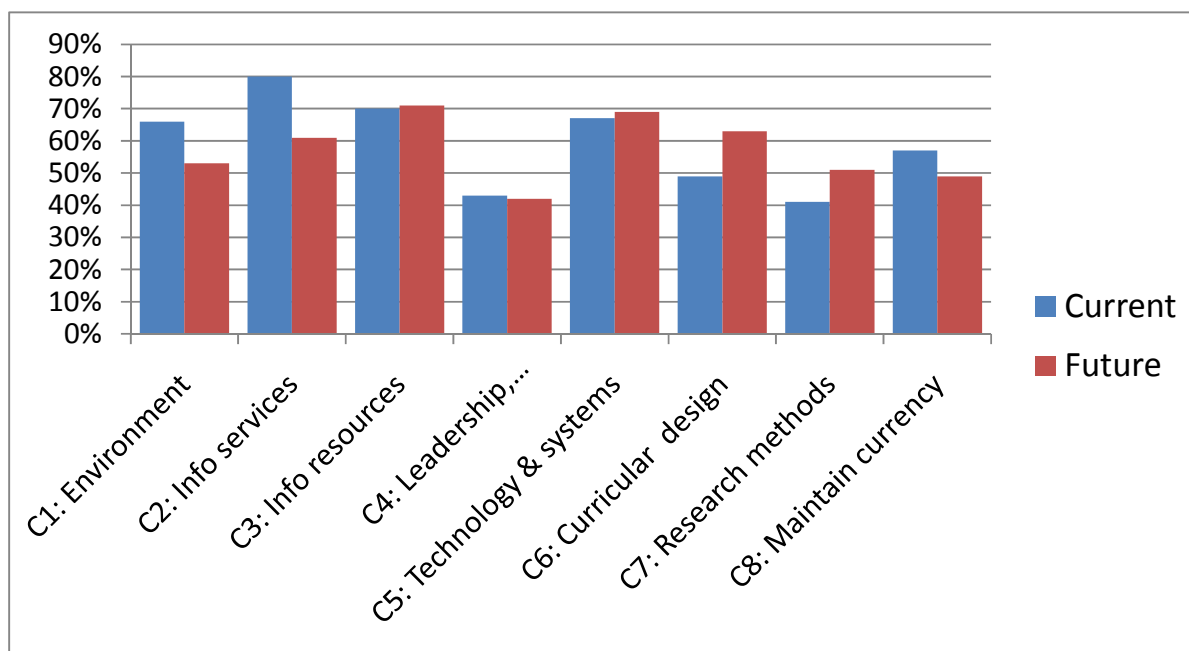
Figure 2: Areas of competency: current and future requirements (institutional respondents)

It is interesting to note that the literature review highlighted new and emerging roles in three of these four areas of competencies: tailored reference services, e.g. clinical librarian's role (providing information services to meet user needs) (C2); advances in technology and systems (C5); teaching role (understanding curricular design and instruction) (C6). The literature did not reveal any anticipated new roles in developing and managing collections i.e. 'managing health information resources in a broad range of formats' (C3), although this area may have been subsumed by an emphasis on electronic formats and a focus on the technology area (C5). These topics can be examined more extensively in the forthcoming semi-structured interviews with selected survey respondents and employers.

CONCLUSIONS

The picture of the health library workforce reveals a mature demographic engaged in a relatively stable profession, predominantly employed in small libraries (67 percent with five or less staff), with many of these in the hospital sector, while smaller proportions serve the academic/research and government department client groups. There is also a range of libraries serving quite diverse, but specialised, client groups. These smaller groups may also be involved in direct clinical care or public/community health care service delivery, as well as various health/medical education and research activities. It is acknowledged that this diversity will inevitably mean that there may be some differences in the requirements of these groups relating to the content of any future educational offerings.

In Australia it is not uncommon to know, or to know of, health librarians who hold science degrees or those who have transferred from a career in the health sciences, such as nursing or veterinary science, to that of librarianship, and who, therefore, bring contextual knowledge and skills to add to the professional knowledge and skills attained while completing their LIS

qualification. The survey of individual health librarians recorded 51 university qualifications and 10 vocational qualifications in the area of science/health/medicine, from undergraduate degrees (17 percent) through a range of post-graduate qualifications. It has been noted that between 60-70 percent of special librarians responding to the WILIS survey in the US indicated that libraries of the future are likely to hire more subject specialists with advanced degrees (Barreau, Rathbun-Grubb & Marshall, 2009), which can be feasibly be achieved through a Bachelor's degree in the field of science/health/medicine and Master's degree in LIS.

Respondents to the individual survey were asked to consider a range of issues relating to continuing professional development and these results have been reported in a separate article (Hallam *et al.*, in press). While 67 percent of respondents indicated that their employer supported professional development activities, only 15 percent agreed that their organisation offered financial incentives for such activities. The comments in the institutional survey generally concur with these observations about employer support presented in the institutional survey. One respondent noted that organisational support for professional development is limited to study leave only, with attendance costs to be met by the individual. Barriers to CPD participation included time, distance (particularly an issue for regional or rural health librarians in Australia) and cost. Nevertheless, the research has revealed a strong commitment to CPD (80 percent), with almost half of the respondents supporting the notion of compulsory CPD.

In general, the attitudes to and the level of support expressed in the institutional survey for a both a specialist course in health librarianship and an ongoing CPD program were fairly similar. The twin requirements for relevance and quality were emphasised, and it was noted that any potential support from the profession would also depend on what was offered, the applicability to the program to the workplace, and the cost. It was recognised that the framework for a specialist health librarian qualification and ongoing professional development program should encompass both generalist and specialist skills. Others have made similar discoveries with regard to the quality of course offerings and the barriers to participation in online learning programs. Some valuable work has been done in the UK which draws on the experiences of a group of health librarians from Sheffield University who have developed the FOLIO courses. Booth, Carroll, Papaioannou, Sutton, and Wong (2009) conducted a systematic review of workplace-based eLearning courses, finding that the barriers of 'lack of time and geographical isolation' were encountered by many in the health services. In designing online courses, the authors emphasised the importance of focusing on the quality of the learners' experience, which they characterised as relating to course presentation and design; flexibility; peer communication; support; and knowledge validation.

A large amount of data has been collected through the HLA research project. This paper has presented some of the initial findings from the institutional survey of library managers. The analysis of the data gathered in the core sections of the surveys has enabled the research team to gain insights into the current areas of professional knowledge and responsibilities that characterize the work undertaken by health librarians in Australia, and has provided some comparative information about the anticipated future competencies. This information will be enriched through the series of semi-structured interviews with stakeholders, which represents the next stage of the project. A comprehensive analysis of the project will be presented in the final research report, to form the basis for discussions between practitioners, educators and the professional bodies to design an educational program that will not only meet the immediate workforce needs for health librarianship, but also help strengthen the position of health librarians by preparing them for new roles in the sector.

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