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The health sciences librarian in medical education: a vital pathways project task force

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Objectives: The Medical Education Task Force of the Task Force on Vital Pathways for Hospital Librarians reviewed current and future roles of health sciences librarians in medical education at the graduate and undergraduate levels and worked with national organizations to integrate library services, education, and staff into the requirements for training medical students and residents.

Methods: Standards for medical education accreditation programs were studied, and a literature search was conducted on the topic of the role of the health sciences librarian in medical education.

Results: Expectations for library and information services in current standards were documented, and a draft standard prepared. A comprehensive

bibliography on the role of the health sciences librarian in medical education was completed, and an analysis of the services provided by health sciences librarians was created.

Conclusion: An essential role and responsibility of the health sciences librarian will be to provide the health care professional with the skills needed to access, manage, and use library and information resources effectively. Validation and recognition of the health sciences librarian's contributions to medical education by accrediting agencies will be critical. The opportunity lies in health sciences librarians embracing the diverse roles that can be served in this vital activity, regardless of accrediting agency mandates.

In response to reported closings of and staff reductions at hospital libraries, the Medical Library Association (MLA) and the Hospital Libraries Section of MLA agreed to study the state of hospital libraries and librarians under the auspices of the Task Force on Vital Pathways for Hospital Librarians. The task force's Health Sciences Librarian in Medical Education Task Force (METF)* was charged with reviewing the accreditation standards regarding libraries for residency programs and with working with national organizations to integrate library services, education, and staff into the requirements for training medical students and residents.

METHODS

Standards review

The Accreditation Council on Graduate Medical Education (ACGME) accredits graduate medical education (GME) training programs in the United States and Canada. ACGME is responsible for establishing standards for residency and postgraduate fellowship programs in twenty-six specialties and approximately one hundred subspecialty programs [1]. The Residency Review Committees (RRCs) are a subset of the ACGME.

Medical librarians have always served a vital role in educating residents and medical students. So as libraries in teaching hospitals closed, questions regarding the impact of the closures on the accreditation of residency programs surfaced. In 2005, an METF member conducted an assessment and analysis of RRC requirements for libraries with the goal of understanding the impact of the closures on residency training programs. The 2004–2005 edition of the *Graduate Medical Education Directory (Green Book)* [2] published by the ACGME was the primary source for the review.

In the fall of 2006, an METF member conducted an analysis of library-related RRC requirements, using the ACGME website rather than the printed version of the *Green Book*. The analysis was compiled to identify the similarities and differences among the twenty-two medical specialties. Concurrently, the METF considered the work of the ACGME Outcome Project [3] and its "Minimum Program Requirements" that described the six competency skill sets expected of residents upon completion of the resident's training program. Other documents informed the METF's research, including "Standards for Hospital Libraries 2007" [4], the "Building on Success: Charting the Future of Knowledge Management within the Academic Health Sciences Center" by the Association of Academic Health Sciences Libraries (AAHSL) [5], and the Medical School Objectives Project (MSOP) of the Association of American Medical Colleges (AAMC) [6]. To ensure a comprehensive understanding of the issues, METF also reviewed standards for libraries issued by the American Osteopathic Association (AOA), the AAMC, and the American Medical



A supplemental appendix is available with the online version of this journal.

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Association's (AMA's) Liaison Committee on Medical Education (LCME). Each organization's website and publications related to accreditation standards were reviewed for statements concerning medical libraries or medical librarians.

Hospital librarian roles

To codify and document the changing array of services that are being performed by health sciences librarians, many of which go unreported and unrecognized, the METF created an initial list of services based on their own experiences and observations. The list was further augmented by searching the library science literature. Librarians participating in the MLA Hospital Libraries Section email discussion list also contributed to this list. The goal was to create a list of services that could be modified and updated over time to reflect changes occurring as the health care environment evolves.

The bibliography

A comprehensive but selective bibliography of materials related to the role of health sciences librarians and libraries in medical education was first prepared in 2006. An initial literature review produced an interesting array of articles on current and future roles for librarians. The list of articles was expanded with the writing of this article. Four databases were searched: Library, Information Science & Technology Abstracts (LISTA), Library Literature & Information Science, Ovid MEDLINE, and PubMed. The initial search strategy was

“librar* AND (health OR medical OR hospital) AND (future OR role* OR “21st century”)”

The bibliography covers the years 1987 through 2008.

RESULTS

Standards review

Accreditation Council on Graduate Medical Education. The results of the analysis of ACGME requirements were a cause for concern. In the preface to the *Green Book*, the “Institutional Requirements” section stated, “Residents must have access to adequate communication resources and technological support. This should include, at a minimum, computers and access to the Internet” [2]. No mention was made of the role of libraries. The RRCs followed the ACGME's lead (Table 1).

Most RRCs stipulated that a training program must provide access to a convenient library where residents could be trained or an onsite library; however, only one required a physical onsite library. The keyword in this statement is “or”; also significant is the word “convenient.” The *Green Book* did not define the meaning of “convenient” and did not require a professional health sciences librarian be available

onsite to participate in the educational programs being offered to residents. The following terms were used by the RRCs to describe acceptable library services: department or program-based library, hospital-based library, onsite or sponsoring institution library, arrangements with a convenient nearby institution, and electronic library. Most RRC statements focused on the library as a place and required access to a major medical library, either onsite or at a nearby institution. Only the Anesthesiology RRC required a department library.

Electronic library services were not required with the exception of database searching, although five residency programs also specified availability of Internet access. The majority of RRCs required night and weekend access, as well as access to electronic medical databases and reference tools, but did not specifically require the expertise of a professional librarian. The preventive medicine specialty was the only RRC to require an on-site reference librarian.

In 1999, all RRCs incorporated the six competencies into their program requirements: patient care, medical knowledge, practice-based learning, interpersonal communication skills, professionalism, and systems-based practice. The METF determined that “medical knowledge” and “practice-based learning” were two competencies that would benefit from educational intervention by health sciences librarians and the resources of medical libraries. Based on these findings, a draft “standard” library statement was prepared, based on ACGME standards:

- Faculty and residents must have ready access to adequate communication resources and technology supported by a health sciences librarian with an American Library Association-accredited degree.
- Residents must have twenty-four-hour, seven-day-a-week access to authoritative specialty- or subspecialty-specific knowledge-based information resources and reference materials at the hospital. Comprehensive electronic medical literature databases, including MEDLINE, and document delivery services must be available. A health sciences librarian holding an American Library Association-accredited degree must manage the library.

American Osteopathic Association. AOA accredits postdoctoral training programs in eighteen specialty areas, but graduates of osteopathic medical schools can also receive postgraduate training at allopathic hospital residency programs that are accredited by the ACGME. Standards set forth in AOA's *Accreditation Document for Osteopathic Training Institutions (OPTI)* and *The Basic Document for Postdoctoral Training Programs* were both substantive and extensive regarding expectations for library services and professional librarian support [7]. Table 2 shows standards for libraries from the AOA's *OPTI* and *The Basic Document for Postdoctoral Training Programs*, prepared in 2005.

Table 1
Residency standards

Residency program	Department library	Major medical library access	Onsite sponsored institutional library	Nearby institution	Electronic databases/ references	Night and weekend access	Internet	Onsite reference librarian
Allergy and immunology			X					
Anesthesiology	X	X	X	X-(secondary)	X	X		
Colon and rectal surgery		X	OR		X	X		
Dermatology		X	OR	OR	X			
Emergency medicine			OR		OR			
Family practice		X	OR	OR	X	X		
Internal medicine			OR		OR			
Neurological surgery		X	OR		OR	X		
Neurology			OR		OR	X		
Nuclear medicine		X	OR	OR	X	X	X	
Obstetrics-gynecology	OR		OR		OR	X		
Ophthalmology		X	OR	OR	X	X	X	
Orthopedic surgery		X	OR	OR	X	X	X	
Otolaryngology		X	OR	OR	X	X	X	
Pathology		X	OR	OR	X	X		
Pediatrics			OR		OR	X		
Physical medicine and rehabilitation					X	X	X	
Psychiatry		X	OR	OR				
Preventive medicine			OR	OR	X	X		X
Radiology		X	OR	OR	X			
Surgery		X	OR	OR	X	X		
Urology					X			

* OR means one or the other is required.

Roles of health sciences libraries and librarians in medical education

The final bibliography on the roles of health sciences libraries and librarians in medical education consisted of 329 references (Appendix, online). It was conceived

as a research resource and companion piece to the "Services Performed by Health Sciences Librarians" (Table 3). The long-term goal is to expand the bibliography over time so that the information contained in it can be used to create standards for libraries and the role of the professional librarian in the future.

Table 2
American Osteopathic Association (AOA) accreditation documents

Facilities standards

1.64 The [osteopathic postdoctoral training institution (OPTI)] must, at its own and at all affiliate institutions, assure the provision of access to appropriate learning resources necessary for the delivery of the postdoctoral curricula, including a professionally staffed library containing a wide selection of modern textbooks and current periodicals applicable to the medical services rendered by the OPTI.

1.65 The library resources of the OPTI-affiliated [college of osteopathic medicine (COM)] shall be made available to interns and residents at the OPTI-affiliated hospital, either through electronic means or via a delivery service arrangement when the COM is not in close physical proximity to the hospital.

Educational environment

2.102 The institution shall provide an appropriate medical library that is properly staffed and maintained by a qualified librarian.

2.103 The library should be physically located within or in close proximity to the hospital so it is readily available to trainees.

2.104 The library must be available after hours and on weekends for the trainees.

2.105 The library should be staffed for at least 35 hours per week by at least one person who holds a master's degree in library science, or the equivalent in related experience, or an equivalent combination of education and experience.

2.106 Additional library staff, as appropriate to the size and needs of the training program, should have sufficient training to assist interns with their information needs.

2.107 At least one computer with 24 hour Internet access must be available for trainee use. Trained staff should be available to assist trainees in accessing major indices/databases; i.e., Medline, Hospital Literature Index, HealthSTAR, CancerLit, etc.

2.108 To ensure authoritative, up-to-date resources for trainees, the hospital library collection should include at least those books and journals recommended for initial purchase on the most current edition of *The Selected List of Books and Journals for the Small Medical Library* (often called the Brandon-Hill List). Use of the Brandon-Hill List or the *Library for Internists* (published by the American College of Physicians) is encouraged for further collection development in subject areas of importance to the training programs.

2.109 The total number of books in the library should be sufficient in volume for the needs of the trainees and should include medical and standard dictionaries, major indexes/databases, current textbooks, current journal subscriptions, patient education information, audiovisual software, computer software, practice guidelines, and locator tools.

2.110 The library must include books, current journal subscriptions, and/or electronic access to materials about the relevant medical specialties within that hospital and for the residency training program subject areas for the programs offered.

2.111 The library must include books, current journal subscriptions, and/or electronic access to materials about osteopathic principles and practice, osteopathic manipulative medicine.

2.112 The library staff must develop a written plan for periodic assessment of the information needs of trainees that must be updated at least every other year. A prioritization of the information needs and service requirements for trainees must be included in this written plan.

2.113 An annual library budget or other annual source of financing must be available for the replacement and updating of the library's information resources.

From the AOA's *Accreditation Document for Osteopathic Training Institutions and the Basic Document for Postdoctoral Training Programs* [7].

Table 3

List of services performed by health sciences librarians

- Provide executive research services for senior hospital administrative staff
- Develop cyber-intelligent search systems or agents that improve search capabilities
- Create new learning tools using, among others, Web 2.0 technology
- Foster lifelong learning by:
 - developing new instructional modalities, such as experiential learning, supporting information literacy, while retaining personalized instruction that is based on an individual learner's unique needs
 - providing classroom-based instruction or education carried out as part of the clinical team
- Develop institution-wide knowledge management programs
- Create management training resources and programs for hospital managers
- Train health care professionals to understand the intrinsic value of information
- Provide knowledge advising and counseling services
- Create new approaches to searching for information, knowledge, wisdom:
 - train expert searchers (i.e., informationists, knowledgeists)
 - develop intelligent agents—intelligent search engines
- Deliver enhanced point-of-need delivery systems for library materials
- Provide writing, editorial, and bibliographic assistance
- Conduct ongoing needs assessment and marketing studies
- Serve on institutional committees including institutional review board, strategic planning, patient education, electronic medical record (EMR), etc.
- Contribute to continuing medical education (CME) programs by:
 - managing CME for the hospital or health system
 - serving on the CME committee
- Train health care professionals in cultural competency
- Provide professional education and mentoring of future health sciences librarians
- Collaborate with information systems and technology professionals to:
 - develop in depth knowledge of networks, system administration, and databases
 - serve on information systems and technology (IST) teams
 - merge some library services with the IST help desk
- Serve as a virtual educator by providing:
 - virtual reference assistance
 - virtual instruction
- Direct, oversee, and maintain hospital operations, such as:
 - archives
 - cancer registry
 - compliance/training
 - computer labs
 - electronic personal health record
 - graphic design
 - health stream
 - hospital orientation
 - institutional review board
 - intranet site and/or Internet site as web manager
 - Joint Commission coordination
 - medical photography
 - patient education/patient TV system
 - telephone system
 - policies, procedures, forms
 - room scheduling
 - telemedicine/telehealth
 - video conferencing
 - visitor's center/concierge services

DISCUSSION AND OUTCOMES

Health sciences librarians working in hospitals and academic medical centers have served an active role in educating medical students, residents, and attending physicians, as well as other health care professionals, over the years. Nevertheless, the standards issued by the agencies that accredit these training programs generally do not recognize the roles and contributions of health sciences librarians.

As the clinical practice environment becomes increasingly technology driven as the result of widespread implementation of electronic medical records, health care professionals will require information management and informatics knowledge and

skills to function effectively. In addition to the impact of technology on clinical decision making, professional development activities will also increasingly require knowledge and skill in using many different technological resources. Facilitating the advancement of these skills among health care provider trainees—whether at the undergraduate, graduate, or postgraduate level—will remain an essential role and responsibility of the health sciences librarian. Several accrediting organizations have provided leadership in delineating the role of the librarian in information management education and informatics skill development, including the AOA and the LCME.

In late 2006, MLA sent a letter to the executive director of the Institutional Review Committee of the ACGME, the group that sets the RRC standards. The letter requested that the RRCs consider adopting the proposed library standard statement created by METF when they update residency requirements, which is mandated every five years. In response, ACGME requested a more generic statement, one that would meet the needs of many different teaching hospitals. ACGME requested the change because they believed that small hospitals might not be able to afford a hospital library. As of early 2009, further action is pending regarding these activities with ACGME.

In fall 2006, MLA headquarters staff met with AOA representatives and discussed updates to AOAs health care facility accreditation standards. The standards were published in the AOA's *Accreditation Document for Osteopathic Training Institutions (OPTI) and The Basic Document for Postdoctoral Training Programs* [7]. A revised set of standards will be published in fall 2009. The standards include comprehensive support for the role of the health sciences librarian in the education of osteopathic physicians. Due to the scope and comprehensiveness of the AOA standards, it is clear that the standards could serve as a model that MLA could use as an advocacy tool for distribution to other accrediting agencies. While this was an important achievement, it was not directly a result of METF's work.

At the same time that these events were occurring, an AAHSL task force was charged with recommending changes and additions to "Section V—Educational Resource, Subsection D—Information Resources and Library Services" of the LCME self-study database [8]. The objective was to reflect digital and remote library resources and services. A revised document, based on input from AAHSL, was accepted in 2007. As a result of these efforts, AAHSL succeeded in changing the standards. The revision emphasized the role of the professional librarian in training medical students in information management skills rather than in the use of library resources and services [9].

As part of its work, METF conducted a thorough review of the literature on the role of health sciences librarians in medical education. The literature search demonstrated that librarians have wide-ranging roles and responsibilities in the area of education. Nevertheless, accrediting agencies have not recognized the contributions of the professional health sciences

librarian in this domain. For example, ACGME recognizes that all residents need to acquire information management skills during their graduate medical education training. However, no mention appears in ACGME's general competencies of the important role that librarians serve in achieving this goal. The standards for residency programs issued by each RRC vary greatly with regard to libraries. Some RRC standards require that residents have access to a library, while other RRCs do not mention the need for library services or the role of the professional librarian. Those RRC standards that do mention access to library materials or services do not provide either definitions or guidelines on how to meet the requirements. The AAMC also identified informatics skills as a core competency in its MSOP report II [6] and clearly delineated the skills that medical students should master by the time of graduation. A number of the objectives, such as information and knowledge management and informatics skills, are examples of the training that has traditionally been provided by librarians, but MSOP report II did not specify that the skills should be taught by health sciences librarians.

CONCLUSIONS

The health care environment continues to be one of the most rapidly changing sectors in society. The need to disseminate and use quality health information to support patient care, education, and research has never been greater, and the way in which information is stored and used will continue to change. Librarians have already developed new roles for themselves, as demonstrated by METF's "List of Services Performed by Health Sciences Librarians." With support from MLA, health sciences librarians must enhance their advocacy and communication activities with accrediting agencies to ensure that recognition of their roles, responsibilities, and contributions remains strong.

MLA should continue to partner with ACGME, AOA, and LCME to strengthen the library-related standards of these organizations. The outcome will be enhanced involvement of the professional health sciences librarian in medical education.

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