

PLATFORM

FOR CHANGE

MLA

PLATFORM FOR CHANGE

**THE EDUCATIONAL POLICY
STATEMENT OF THE
MEDICAL LIBRARY ASSOCIATION**

INTRODUCTION

As society moves firmly into the information age, there is an increasing need for people who have a clear understanding of the many facets of the information process and the technical skills to support that process. While information handling was once almost entirely the province of librarians, that is no longer the case. Exponential growth in biomedical knowledge and new information technologies are redefining the infrastructure of health care, education, and research, spawning an array of professional specialties and reworking what was a well-defined arena of information service.

Though there is little doubt that changes in the health information environment presage significant change in the roles of health information professionals and in the knowledge and skills expected of them, librarians may be blindsided unless they understand the new environment's strategic impact on the profession. Already, according to the Council on Library Resources, "at the heart of many of the present problems facing librarians and library education is the failure to describe the profession and its present role in terms that are compelling, expansive, and accurate. The principles, the responsibilities, and the body of knowledge that shape the profession are real and of great importance...but they are either implicit or incompletely formed and are certainly not widely understood...."¹

Over the past fifteen years, the Medical Library Association (MLA) has cited the need for a coalition of expertise and resources within the profession to define the competencies needed for professional practice and to support their acquisition in graduate school and beyond. Still, the profession has yet to act decisively enough in preparing its members for a world that continues to change radically in response to the rapid growth of biomedical knowledge and technical power.

1. Information studies: a new CLR professional education program. Annual report of Council on Library Resources. Washington, DC: Council on Library Resources, 1989:26.

The current document seeks both to respond to the need for a clear and forward-looking statement of expectations for medical librarians and to provide an agenda for future action. Rather than a patchwork of novel notions and suggestions for improvement in graduate and continuing education, what follows builds on the noteworthy achievements of MLA and recent research to construct a platform for change in the health information professions.²

At one level, *Platform for Change* breaks new ground in its approach to and structure for education and professional development for health sciences librarianship, describing a collaborative, integrated, individual-centered response whereby information professionals in health-related environments may keep pace with change. On another and more specific level, the document provides concrete guidelines for graduate programs in health sciences librarianship, constructs a framework for all education programs and opportunities coordinated by MLA, and sets direction for those who are best positioned to address professional development needs as they occur throughout the career of a health information professional.

Written for immediate use by leaders and members of MLA, by providers of educational programs in health sciences librarianship and information management, and by health care professionals, *Platform for Change* looks beyond the short term and anticipates areas of emerging importance beyond the year 2000. As Estelle Brodman said over a decade ago, "We must educate for the problems of a generation hence, not for the problems of today...librarians must be imbued with the psychological ability to handle change and to live with ambiguity. Without this they will be performing tomorrow's tasks with yesterday's concepts."³

2. See appendix I for a description of a project to describe knowledge and skills, funded by MLA, the Council on Library Resources, and the University of South Carolina.

3. Brodman E. Keynote address: pragmatism and Intellection In medical library education. In: Allerton Invitational Conference on Education for Health Sciences Librarianship. Proceedings of conference held at Monticello, Illinois, April 2-4, 1979. Chicago: Medical Library Association, 1979:viii.

Platform for Change provides a foundation on which to develop a new consensus within the health information community on the knowledge and skills required to meet the needs—present and future—of health care, research, and education in technologically intensive, user-driven, and rapidly changing organizations.

MEDICAL LIBRARIANSHIP IN CONTEXT

The health sciences environment of the late twentieth century is inundated by information sources, products, and services. Libraries and the clients they serve are buffeted by rapid change on multiple fronts. Medical knowledge continues to grow exponentially. High technology and a growing reliance on the computer and other forms of telecommunications affect every aspect of life and work. Electronic access to information is commonplace, and the widespread availability of personal computers at once increases the demand for instant access, lessens reliance on librarian intermediaries, and affords the opportunity for innovative information service roles.

Libraries and librarians are in a unique position to become part of an information management solution, an integrated scheme for expanding and making optimal use of an institution's total information resources. To be sure, all branches of librarianship—and indeed many other professions—share a conviction that information professionals promote access to society's individual and collective wisdom. Health sciences librarianship stands apart, however, in striving to ensure that advances in science and the technology of health care are readily accessible to health care practitioners, educators, students, researchers and consumers.

While drawing heavily on general librarianship, a librarian in the intellectually and technologically sophisticated context of health care also requires expertise and values significantly different from those of colleagues in some other library services. Although the library remains the principal organizational conduit for biomedical and related information, the librarian's role in the institution is no longer restricted to the library.

The health sciences librarian is pivotal in the handling of biomedical information, combining the ability to use the knowledge bases of medicine and the technical expertise of librarianship with clearheaded problem solving, analytical competence, and well-honed interpersonal and organizational skills. Librarians

assume responsibility, transcending that of the library itself, for assessing the information needs of a diverse array of medical and health services professionals; managing health information resources; coordinating their location, selection, acquisition, analysis, and use; facilitating the integration of print, nonprint, and computing resources into the institution's information system; and helping clientele master the basic skills of information handling.

The health sciences librarian not only provides specific support to the institution by using new technologies to organize, synthesize, and filter information for scholarly, clinical, and institutional decision making, but also plays a critical role in the investigation and study of information storage, organization, use, and application in education, patient care, and the generation of new knowledge. In accomplishing these responsibilities, the medical librarian must forge alliances throughout the institution, eliciting strong support for the library's mission and outreach and collaborating with fellow professionals to meet identified information needs.

Today, the management of information and knowledge in a health care environment is a national priority. In fulfilling professional roles that support health care, librarians must reconsider and reshape the educational process that prepares new information professionals and continually enhances the skills and knowledge of current practitioners.

CONTINUUM OF LEARNING

Biomedical librarians will function over the next decade in ways shaped by a number of significant factors: changing elements and structure of medical knowledge; rapid introduction of new technologies and techniques for information processing and dissemination; altered patterns of institutional organization, management, and governance; and the drive to maintain excellence. Education for medical librarianship is uniquely challenged both because the gap it attempts to bridge is inherently unstable and defies efforts to span its expanse and because it cannot be limited to any phase of a professional's life. Furthermore, responsibility for its effective application in practice belongs to the individual professional rather than to any institutional provider of educational programs and services.

Continuing education and continuing learning are conditions of professional practice. **Education** comes into focus as the more formal, episodic, and visible expression of the drive for learning that pervades professional life. In graduate and continuing education, professionals are directed by others toward explicit sets of closely related learning goals.

Continuing learning, however, is not so reliant on the structured interventions that convey, refresh, and update baseline knowledge or bring in new knowledge, skills, and techniques. In continuing learning, professionals assume greater responsibility for directing themselves, usually informally, and often pursue several unrelated learning strategies simultaneously, to increase competence and improve professional performance. Such learning often takes place through an active network of individuals mentoring one another in the context of their work and often through the very activity of that work.

Structured education, then, is but one of the tactical options open to the professional. A larger frame of reference—a continuum of learning—is needed in order to influence professional performance for the twenty-first century.

In the continuum of learning, the single most important variable is the individual professional: his or her motivation, prior experience, sense of what is required by changing circumstances or conditions of employment, and quality of judgment in choosing learning experiences. The continuum moves from the didactic toward the self-directed, from a narrow band of specialized knowledge and skill toward a broader environment of cognitive and social complexity. Learning moves along a continuum from stable and consistent conditions toward those that confront learners with changing and less-structured but learner-important problems, close to actual work situations.

The continuum of learning has significance for all who hold a stake in the professional performance of health sciences librarians. As providers of educational programs and services use the continuum as a model for professional learning, new streams of programs may emerge, combining more complex, self-directed strategies with ongoing update and refresher activities. Answers to questions of quality, accessibility, and significance are tailored to individuals and groups with shared needs, goals, and arenas of practice. Roles of graduate schools, professional societies, commercial vendors of programs, and others are clarified. For employers, discovering, advancing, and tending **learning relationships** within and outside the organization is a key task. For professionals, learning plotted on the continuum can become intentional, undertaken with personal-professional, and institutional outcomes in view and mixing self-managed learning experiences with provider- or employer-directed programs.

Collaboration in developing a common learning and development agenda is a reasonable next step for universities, graduate colleges of library and information studies, MLA and other professional societies, commercial vendors and publishers, employers, and consumer-professionals. All who take a comprehensive approach to education and learning in health sciences librarianship must endorse fundamental career planning, knowledge and skills development, and collaboration. Competence assessment, professional mentoring, and the recognition of excellence in performance can serve the profession best through a combined effort.

HEALTH INFORMATION SCIENCE KNOWLEDGE AND SKILLS

Health sciences librarianship is multifaceted. The profession acknowledges the need for knowledge and skills that intersect equally important areas: the knowledge bases of the health sciences, the application of general information principles to the health sciences setting, specific health information systems, and management and personal skills.

Health information professionals will possess varying levels of knowledge and skills in seven broad areas.⁴ No one individual can achieve mastery of all knowledge and every skill, but every organization will require collective expertise in all areas. Individuals will emphasize different areas at different points in their career, with specific needs varying over time from assignment to assignment and by institutional setting. The knowledge and skills are not listed in priority order and may be applicable to more than one area.

Health Sciences Environment and Information Policies

Health sciences librarians must understand the contexts in which the need for biomedical and related information emerges and the unique ways of perceiving and interpreting those environments. Therefore, they should be alert to the changing information and health care environments and the major program and policy sources, including

- legal, ethical, economic, and legislative issues;

4. Developed as a reference for professionals throughout their career, the knowledge and skills have been grouped into seven categories. The categories reflect and elaborate on the core areas of essential knowledge of the Academy of Health Information Professionals, which were defined as the essential areas of knowledge that new professionals must master.

- health sciences professions: system and structure, terminology, education and training patterns, and associations and organizations; and
- purpose, programs, and activities of MLA, the National Library of Medicine (NLM), and related information associations and organizations.

Management of Information Services

Leadership in the application of library and information science to the handling of health sciences information resources in complex institutional environments requires specialized knowledge, skill, and understanding of management, including

- the institution's mission and the specific mission of the information resource center;
- institutional and functional planning processes;
- decision-making strategies;
- human resources management and labor relations;
- staff development;
- project and program management and evaluation;
- organizational structure and behavior;
- interinstitutional relations;
- numerical literacy and computational proficiency;
- finance and budgeting, cost analysis, and price setting;
- fund-raising and proposal writing;

- public relations and marketing;
- facilities planning and space allocation;
- oral and written communication; and
- interpersonal relations.

Health Sciences Information Services

Health sciences librarians require knowledge of the content of information resources and skills in using them. They must understand the principles and practices related to providing information to meet specific user needs and to ensure convenient access to information in all forms, including

- information needs of health practitioners, researchers, educators, students, and consumers;
- information-seeking and transfer characteristics of user groups and individuals;
- assessment of identified information needs;
- health sciences and other information resources and their relevance to specific information needs;
- retrieval strategies and techniques;
- analysis, evaluation, and synthesis of information for identified needs;
- methods of information delivery and access;
- development of services tailored to meet needs of individual and group users; and
- resource sharing.

Health Sciences Resource Management

Health sciences librarians must know the theory of, as well as have skills in, identifying, collecting, evaluating, and organizing resources and developing and providing databases, including

- identification and selection of materials and their sources;
- acquisition of materials;
- bibliometric techniques;
- thesauri construction;
- bibliographic tools;
- cataloging and classification theory;
- national and international standards and conventions, including cataloging and filing rules;
- indexing, abstracting, and classification systems;
- inventory control techniques;
- serial publications;
- resource conservation and preservation;
- publishing industry;
- trends in information formatting, production, packaging, and dissemination; and
- copyright issues.

Information Systems and Technology

Developments in technology have reshaped the goals and systems of health sciences librarianship and changed the way information professionals function. Health sciences librarians must be able to understand and use technology and systems to manage all forms of information, including

- basic principles of automated systems:
 - record and file construction,
 - computer hardware and software,
 - telecommunications and networking,
 - database management software,
 - systems analysis, and
 - artificial intelligence and expert systems;
- human behavior and technology;
- design, use, and evaluation of information systems;
- acquisition, use, and evaluation of information technologies; and
- integration of systems and technologies into the long-term information management needs and plans of the institution.

Instructional Support Systems

Teaching ways to access, organize, and use information to solve problems is an essential and ever-widening responsibility of the health sciences librarian. Effective instruction entails not only knowledge of the structure and content of specific courses and technology but also an understanding of and expertise in

- learning theory and cognitive psychology,
- curriculum and instructional development,
- instructional systems design,
- educational needs assessment and analysis,
- learning style appraisal,
- instructional methodologies, and
- evaluation of learning outcomes.

Research, Analysis, and Interpretation

Few dispute the library's responsibility to explore the "fundamental nature of biomedical information storage, organization, utilization, and application in learning, patient care, and the generation of new knowledge."⁵ In order to conduct and interpret research, the health sciences librarian is called upon to apply knowledge, skills, and understanding of

- theoretical bases of health sciences information, education, and clinical practice;
- information structure, transfer, and processing;

5. Matheson NW, Cooper JAD. Academic Information In the academic health sciences center: roles for the library in information management. *J Med Educ* 1982 Oct;57(10, pt. 2):49.

- analysis, evaluation, and application of research results;
- methods for evaluation of system effectiveness and efficiency;
- statistical theory; and
- research methodologies.

In the future, the profession is likely to need an array of knowledge and skills, not all of which are envisioned in this list. Developments in the field will require librarians to continue to acquire new knowledge and skills. At the same time, the profession will continue to define its mission and scope, reshaping the body of knowledge and skills—adding new ones and increasing and decreasing the importance of others.

RECOMMENDATIONS

Lifelong learning must be a cornerstone of every individual's professional development plan. Graduate programs of library and information science education, MLA and its chapters and sections, NLM, employers, commercial vendors and publishers, and other professional associations are all potential providers of educational opportunities, yet the ultimate responsibility for lifelong learning and professional development rests with the individual.

Today's health information professionals have varied educational backgrounds and experiential knowledge. Librarians currently employed in health sciences libraries are likely to remain active until well into the next century. They will require ready access to continuing education and training opportunities in order to incorporate into their practice new technological developments, knowledge bases, and information management techniques.

In light of the rate of environmental change, the specific knowledge and skills required of health sciences librarians, and the broad scope of the continuum of learning, it is clear that all who have a stake in the success of the profession need to take action. Therefore, this document sets forth some general recommendations, then outlines specific recommendations for those who play key roles in the professional development of health information professionals.

General Recommendations

- 1. Individuals must assume personal responsibility for aggressively seeking lifelong education and professional development opportunities from a variety of sources.**

The teaching-learning process is two-sided. Quality educational systems and programs are available from a variety of sources. Providers have responsibility for maintaining quality instruction. The individual, however, must actively pursue those sources that best provide the necessary learning. This mutual pursuit of quality education must continue throughout the length of a professional's career.

2. A coalition of interdisciplinary educational providers and consumers should be established to explore new opportunities in the continuum of learning.

Given the pace of change and the continuing arrival of new players in the information arena, it is imperative that this document not be viewed as definitive. The coalition would eliminate a stagnant approach to collaboration and would seek new ways to strengthen the continuum of learning. Fomenting broad discussion of controversial issues could challenge satisfaction with the status quo and stimulate creative responses to changing needs. The coalition would be charged with developing innovative, high-impact models for curriculum content, design, methodology, and assessment.

3. All instructional systems must provide the impetus and forum for continued education of the educators.

The success of professional learning depends on well-informed, forward-looking providers of education and training. Educators must be supported in continuing their personal professional development, acquiring new pedagogical skills, refreshing their awareness of developments in librarianship and related disciplines, and demonstrating command of the competencies needed by practicing librarians. Each of the organizations, singly and in concert, provides direction to the educators who alter the contour of professional performance.

- 4. Strategies must be developed to recruit bright, articulate, creative, and energetic individuals as health information professionals, including those who pursue formal training as librarians and those who pursue degrees in related disciplines.**

All partners in the educational process must actively forward strategies that ensure recruitment of promising individuals who demonstrate the basic skills and aptitude for achieving excellence in the field. Such candidates will evince analytic abilities, interpersonal skills, self-understanding, willingness to take risks, persuasiveness, keen intellect, and an unquenchable desire to learn.

Because of new technologies, increased specialization in health care, and the emergence of new roles for the health sciences library, the character of library staffing will change. Those with degrees in education, computer technology, medical informatics, and the like offer topical expertise that may be a necessary adjunct to traditional library and information science. Recruiting those with complementary training into an M.L.S. program or integrating them into library operations should be given full consideration in an expansive, interdisciplinary recruitment initiative.

- 5. Centers of excellence in health information should be identified, designated, and funded at strategic points across the country to provide opportunity for the acquisition of new knowledge and skills.**

Health sciences libraries are dramatically shaping a new electronic environment for knowledge acquisition, information management, and information transfer. Some are at the forefront of change and are well-suited to be training locations for health information professionals. Programs should be fostered that couple hands-on experience with practical problems and exposure to new paradigms for information access and knowledge transfer with opportunities to use the skills in a trainee's home institution.

Individual Health Information Professional

- 6. Every health sciences librarian must design and implement a plan for continuing professional development.**

Individuals bear the major responsibility for the enhancement of their own professional knowledge and skills. This document can be used as an outline to assess one's current level of mastery and to plan for further development. The Academy of Health Information Professionals is another way to help individuals chart, structure, and receive recognition for professional growth. Quality of performance can be increased by applying these professional skills to forward the mission and services of one's own institution, which ultimately also forwards one's own personal and professional growth.

- 7. All health information professionals must actively promote and contribute to the development of health sciences librarianship.**

If health sciences librarianship is not merely to survive but to be a force for improved health scholarship and research, all librarians must advocate for and contribute to the programs that produce new graduates, the learning opportunities that enhance skills, the environment that permits or blocks the fulfillment of new roles and services, and mentoring of other information professionals.

Medical Library Association

- 8. To assist employers in recruiting and retaining individuals who will be successful in the changing arena of health sciences librarianship, MLA must set the standards for professional competency and compensation.**

MLA must work with employers who are seeking to recruit individuals who are equipped to meet challenges in the changing technological arena of health information management. MLA can provide guidance to employers by developing standards for professional competence. Employers must also be made aware of the level of compensation required to recruit and retain such highly skilled staff.

9. MLA must take a leadership role in creating a vital and responsive professional development program and a dynamic set of coordinated education opportunities.

Members have traditionally looked to MLA for continuing education opportunities. To meet the expanding needs of its members, MLA must broaden its offerings; forge new coalitions and relationships; and examine new delivery systems, teaching/ learning strategies, and curricular options. MLA's professional development program must also include a program that assists members in the assessing their own professional growth. To ensure that the professional development program is meeting the current and future needs of the profession, an ongoing program evaluation component should be designed.

10. MLA must exercise leadership and work collaboratively with all participants in the educational arena.

The MLA Board of Directors, the executive director, MLA staff, various working committees and task forces, and MLA members must continually monitor and influence the range of educational programs. At times, MLA will wish to act independently to meet its members' needs. At other times, MLA will either collaborate with others or rely completely on the services or educational offerings of an outside agency. Such providers cover a broad spectrum, including universities or colleges, vendors, commercial trainers, individual entrepreneurs, and other professional associations.

11. MLA should foster staff development programs offered by employers.

MLA can assist employers by creating a model staff development policy that outlines the appropriate scope and content of an institution-specific policy. The model should be adaptable for use in augmenting the skills of all levels of personnel in the library.

12. MLA must establish a formal liaison with the schools of library and information science education.

MLA should be an active member of the Association for Library and Information Science Education. Likewise, MLA must maintain ongoing communication and collaboration with the deans or directors of library and information science programs, particularly those programs that offer specialized course work in health sciences librarianship.

13. MLA must design and implement a research agenda that advances the professional knowledge base.

In line with its strategic plan, MLA will need to lead the way in advancing the basic and applied knowledge of information management. Research will be necessary to measure the state of health sciences library practice, compare data to previous studies, and draw new action plans. A research agenda should outline all areas of importance to MLA and delineate those areas that will be appropriate for exploration by MLA and its subsets, NLM, individual researchers, or related information disciplines.

Employers

14. Employers should place a high priority on staff development.

A strong staff development program ensures that the institution will fulfill its mission and that staff will meet the demands of a changing environment. To be effective, a staff development program should balance institutional needs and the professional growth objectives of the individual. The employer should assist individuals in assessing their own professional development and in designing a program of learning experiences. The institution should have a well-articulated staff development policy that recognizes a broad array of formal and informal sources within and outside the institution, outlines institutional and individual responsibility, and commits resources to support the program.

15. Employers should provide institution-based training within the context of the broader educational experience.

The employer should accept the responsibility for providing high-quality on-the-job training in appropriate areas that complements education from other sources. The opportunity to acquire knowledge and skills and to teach other staff should be built into job descriptions. Trainers themselves must receive training and support. The employer must ensure that knowledge transfer and application takes place in the job setting. Governance and management strategies that support and contribute to learning within the organization should be devised.

16. Employers should recruit individuals of competence and promise, including those with unique educational and professional backgrounds, to meet the information needs of the institution.

Employers should articulate and practice high standards in recruiting individuals for their organizations. Recruitment practices should encourage diversity in the workplace. In addition, employers should develop strategies for influencing the profession as a whole to recruit persons with outstanding ability, motivation, and knowledge. These include providing feedback to

other educational providers on qualities contributing to success on the job and rewarding persons for exceptional performance.

Library and Information Science Education

- 17. Every graduate program in library and information science must lay a broad foundation that stresses theory over application, places librarianship in context with other related disciplines, fosters professional values, and prepares students to design their own learning program throughout the length of their careers.**

Every curriculum must provide a perspective on library and information science that is sufficiently broad to prepare students for a variety of possible job settings, both for now and in the future. Properly designed and executed, all library and information science education programs (not just those that offer a health sciences library specialization) lay the foundation on which a practicing librarian can build competent performance in a health science environment.

- 18. Educators should provide a range of programs and opportunities that meet needs throughout one's professional career, rather than focus solely on the master's degree.**

All practitioners experience a lifelong impetus for retooling of skills. All information professionals are expected to seek continuing education, and some will wish to acquire advanced certificates or doctoral degrees. Library and information science education programs have generally concentrated on new students and have not always recognized or responded to ongoing educational needs. Library educators, like their medical school counterparts who oversee continuing medical education programs, can coordinate a portfolio of courses, seminars, and

institutes using a variety of instructors and educational techniques to support this end.

19. Educators need to define the boundaries of their programs and develop effective relationships with other related information disciplines.

Increasingly, libraries will employ both librarians and other information professionals with different educational training and formal degrees. The ALA-accredited degree will be one of a number of possible acceptable degrees for health information professionals. Potential students and employers must have a way to compare and discriminate among programs.

National Library of Medicine

20. NLM should identify future directions and priorities for its activities in support of the educational needs of health sciences librarians.

As the only medical library in the country with a national mission, NLM has special responsibilities that transcend individual institutions and constituencies. It provides leadership for those engaged in direct service to health professionals and in research about the process of health information management and delivery. Its preeminence in health information services and its long-standing and mutually beneficial relationship with MLA argue for its direct involvement in meeting the educational needs of health information professionals.

21. NLM should convene a planning panel on education for health sciences librarianship.

NLM has long been involved in planning for and developing new information services and systems of access to biomedical

information. Its vision for the future describes a new information infrastructure in an electronic environment⁶ and foresees biomedical libraries throughout the country with "a substantial cadre of well-trained library professionals who are able to provide the information resources needed by health sciences professionals."⁷

If this vision is to become real, the need for professional leadership in medical librarianship is obvious. As in the past, NLM now has an opportunity to make immeasurable contributions to excellence in health information science by assuming a proactive and collaborative stance in planning and implementing programs of education and training for entry-level and career professionals.

November 20, 1991

6. Report of Panel 1: building and organizing the library collection. Long range plan. National Library of Medicine/National Institutes of Health. Dec 1986:7.

7. *Ibid.*, p. 27.

APPENDIX 1

Project Description

In May 1989, the MLA Task Force on Knowledge and Skills was appointed in response to a number of different initiatives. First was MLA's own strategic plan and the strategy that aims to influence curricula of academic institutions in the areas of design, development, and management of information systems. To achieve this, it was necessary to validate what it is that health information professionals do and then to determine what will be needed in the future. A second impetus, closely related to the first, was the current revision underway of the American Library Association (ALA) standards for accreditation of master's programs in library and information science. As a part of that revision process, each of the major library and information science associations was asked to provide the ALA Committee on Accreditation with educational and other policy statements pertinent to the needs of that organization so that they could be shared with the education programs.

The task force (see appendix 2 for list of members) determined that the best way to produce the desired results would be to survey a sample of the membership with two goals in mind: to define the knowledge and skills required for competent professional performance now and in the future, and to enable MLA to establish educational policies that would ensure the acquisition and maintenance of those activities throughout a professional career. When tabulated and analyzed, these data provided an inventory of knowledge and skills described in two major ways: scope—what are these skills, and setting—where is the learning most likely to be applied and most likely to occur.

Though there is little doubt that changes in the health information environment will call for significant changes in the knowledge and skills expected of health information professionals in the future, there had been little research on which to base judgments about what general areas of expertise are likely to be

required. Nor had research been conducted to assess the present level of specific knowledge and skill among health sciences librarians.

In January 1990, an application was submitted to the Council on Library Resources for assistance in funding the survey and other related activities. The task force received a grant of slightly more than \$9,300 from the council. Additional support was received from MLA and from the University of South Carolina.

Methodology

The task force identified an inventory of knowledge and skills with sixty-three topics grouped into seven knowledge bases:

- health sciences environment and information policies;
- health sciences information services;
- health sciences resource management;
- information systems and technology;
- management of information services;
- instructional support systems; and
- research, analysis, and interpretation.

A questionnaire was distributed to a structured sample of 704 individual members of MLA in July 1990, with follow-up conducted in August. Usable responses were received from 375 of the 704 personal members to whom questionnaires were sent (53%).

The basic objective of the study was to gather data that would provide answers to the following questions:

- To what extent do health sciences librarians consider identified areas of knowledge and skill important to effective professional performance now and in the environment of the future?
- To what extent do health sciences librarians perceive that they now possess these skills?
- Where do health sciences librarians tend to acquire knowledge in these areas?
- Where do health sciences librarians consider such knowledge is best acquired?

In addition to these questions, the study was designed to explore possible relationships between the answers to the foregoing questions and the health sciences librarian's institutional setting, level of responsibility, and years of experience in the field.

These responses and the conclusions drawn from them were subsequently discussed with outside experts, including library educators, hospital administrators, medical educators, health sciences library directors, medical informatics researchers, and academic library directors.

APPENDIX 2

MEDICAL LIBRARY ASSOCIATION TASK FORCE ON KNOWLEDGE AND SKILLS

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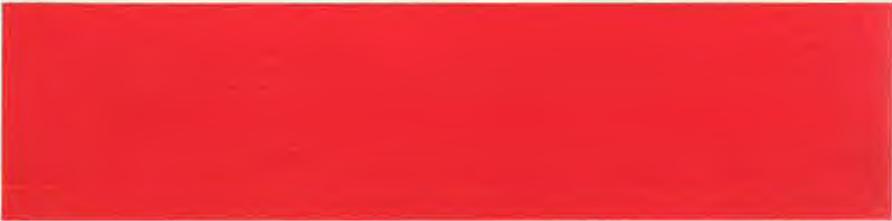
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