Medical education and faculty development: a new role for the health sciences librarian

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This paper describes the roles and responsibilities of the associate director for medical education at the Primary Care Resource Center (PCRC), School of Medicine and Biomedical Sciences, State University of New York at Buffalo (UB). The PCRC was established to increase the number of UB medical school graduates who selected graduate medical education in the generalist disciplines. The associate director, who is a health sciences librarian, has established collaborative working relationships with primary care physicians in the clinical departments of family medicine, pediatrics, and internal medicine with the goal of improving the teaching effectiveness of faculty and residents. Another goal is to incorporate the use of computerized information technologies into clinical practice by training physicians and residents, at specially equipped ambulatory training sites, in how to access and manage information for the purpose of providing quality medical care. This has been accomplished in part through the provision of highly personalized instruction to participants. In addition to describing these activities, this paper examines how the duties of the associate director reflect the potential for long-term change in the roles and responsibilities of health sciences librarians, whether they work in a traditional or nontraditional setting.

BACKGROUND

The State of New York parallels much of the nation in its critical need for primary care physicians, and in 1990 the New York State Council on Graduate Medical Education resolved that 50% of residency positions in the state would be in primary care by 1995. In response, the School of Medicine and Biomedical Sciences at the State University of New York at Buffalo (UB), in collaboration with the Graduate Medical Dental Education Consortium of Buffalo made a commitment to increase to 50% the number of medical school graduates who trained in the primary care medical disciplines of family medicine, general intern medicine, and general pediatrics. The consortium includes the medical school and its nine affiliated teaching hospitals that govern residency training in Buffalo.

To achieve this goal the medical school established the Primary Care Resource Center (PCRC) in September 1992. From the inception of the PCRC, it was agreed that a full-time position responsible for faculty development and medical education would be necessary. The PCRC's associate director for medical education has direct responsibility for the creation of continuing education and faculty development programs in teaching effectiveness, lifelong learning, and information access, management, and literacy for primary care physicians. The associate director is a health sciences librarian with twenty years of experience in the field.

Although librarians have engaged in instructional activities since the late 1960s [1], the skills taught back then were primarily bibliographic in nature, and teaching took place in the library [2]. By the mid-1980s...
library instruction was integrated into the curriculum, and both stand-alone and course-integrated instruction focused on teaching health sciences students and faculty how to access, retrieve, and manage information effectively [3–4]. Initially the term bibliographic instruction was applied to these activities, but as librarians’ duties broadened in scope, the jargon used to describe the instruction changed as well. User education, information management education, and information literacy [5] became popular and acceptable labels, especially within health sciences libraries, whose users increasingly found themselves overwhelmed by an expanding body of knowledge and information to be accessed and managed.

Despite the wide range of educational responsibilities that health sciences librarians have taken on, there is little evidence of their direct, formal participation in the design of continuing medical education or faculty development programs. Messerle described four areas in which librarians have participated related to continuing medical education: resources, content, educational, and information management support [6].

This paper describes the roles and responsibilities of the PCRC’s associate director for medical education. These include establishing a collaborative working environment, providing personalized instruction, and fostering the incorporation of the principles of evidence-based clinical practice into the training of physicians by teaching faculty and residents how to access and manage a variety of computerized information resources. In addition, the paper examines how the duties of the associate director reflect the potential for long-term change in the roles and responsibilities of health sciences librarians, whether they work in a traditional or nontraditional setting. As the health care environment in the United States changes, librarians need to adapt to the new paradigm, demonstrate their creativity and flexibility, and be willing to take on new roles that will help them succeed in an uncertain milieu.

THE PCRC

The PCRC has a small full-time staff that includes an executive director; a co-director for research and evaluation; an associate director for medical education; an associate director for recruitment; a business manager; several professional staff members who assist with program planning, evaluation, and development; and two secretaries.

Initially the PCRC was organized into six committees, or working groups, each chaired by a full-time primary care medical school faculty member. Committee membership included full-time, part-time, and voluntary faculty, as well as medical students and residents. The committees were Community Academic Practices (CAP), Teaching Effectiveness Program (TEP), Research Development, Recruitment, Leadership, and Student Development. After the first complete year of operation, a review and assessment of program accomplishments led to the incorporation of many of the goals of the Leadership Committee into the TEP and Student Development Committees.

**Associate director’s responsibilities**

The majority of the associate director’s time has been dedicated to working with two committees, TEP and CAP. These activities are the primary focus of this paper.

The associate director has two main areas of responsibility. The first set of duties follows the faculty model and includes designing, presenting, coordinating, and evaluating workshops intended to instruct full-time and community-based faculty and residents in how to be effective teachers. In addition, the associate director is expected to conduct research, prepare grant proposals, and write papers for publication. The second set of responsibilities is administrative and includes oversight of plans and logistical arrangements for workshops, pursuit of continuing medical education credits, and coordination of the visits of off-campus speakers.

**TEP RESPONSIBILITIES**

The TEP component was developed in part to address the lack of formal training in effective teaching techniques among the majority of faculty and residents. Because the setting for clinical education has been shifting from the inpatient hospital ward to the office and clinic, the range of physicians now involved in clinical teaching has widened significantly. As a result, it has become essential for full-time faculty, volunteer faculty, and residents to acquire the knowledge and skills needed to teach effectively [7].

The driving force behind the TEP has been the belief that the career decisions of medical students and residents are influenced by their clinical teachers. Primary care faculty and residents with excellent teaching skills will be outstanding preceptors, mentors, and role models [8–10], and as a result they will inspire more medical students to select graduate medical education in the primary care disciplines. As faculty members become more effective teachers, students will view the disciplines as more intellectually challenging, rewarding, and fun.

A strategic planning model was used to develop TEP goals and objectives. Two broad objectives were chosen:

- Maintain a resource base for teaching effectiveness in primary care.
- Plan, develop, and present instructional programs...
to enhance the teaching skills of primary care faculty and residents.

Outcomes

The most significant initial outcome of the TEP was the creation of a dialog among the three primary care clinical departments of family medicine, medicine, and pediatrics. To facilitate the development of teaching effectiveness workshops, faculty members agreed that the TEP committee would be organized into subcommittees, each charged with designing an original workshop. The role of the associate director was to collaborate with these faculty subcommittees to ensure that their work progressed in a timely manner, that the conceptual basis of each workshop was achieved, and that the faculty developed the creative skills needed to successfully present a new workshop. The associate director also was a working member of several subcommittees and independently designed three workshops, Techniques for Accessing Information, Traversing the Internet, and Medical Informatics for Internal Medicine Residents. A list of the TEP workshops offered from 1993 through March 1995 appears in Table 1.

TEP committee meetings are scheduled monthly, and the time is devoted to both business and learning new skills. For example, one hands-on session was devoted to problem-based learning, another introduced the standardized patient project, and a third taught committee members how to perform script tapping, a technique used to observe and evaluate instruction.

Another important outcome of the TEP was the collaboration that developed between faculty from the schools of medicine and education and the UB Office of Teaching Effectiveness. These groups, now colleagues, not only participate in all committee activities, but also provide guidance and direction in applying the fundamental principles of education and cognition to the field of medical education. The collaboration resulted in the preparation of a manuscript entitled “Feedback and Supervision in Educating Medical Students” (Table 2).

Additional outcomes resulted from the associate director’s training and experience in medical librarianship. For example, the associate director educated participants with respect to the value of using electronic mail (e-mail) and offered one-on-one, and small group training sessions in using e-mail as well as other resources available via the Hospitals and University at Buffalo Library Resource Network (HUBNET). The majority of TEP members now routinely use the network to communicate with one another, search MEDLINE, and read electronic versions of medical journals.

Evaluation

The TEP committee regularly assesses its workshops using a standardized evaluation form. During the first two years, ten different workshops were offered; seven were developed locally. Workshops consistently received high ratings from attendees (Table 1).

CAP RESPONSIBILITIES

The second major PCRC initiative for which the associate director has responsibility is the CAP program. The goal of CAP is to develop primary care education and research centers in community-based (i.e., ambulatory care) clinical practices. The underlying premise of CAP is that medical students and residents exposed to strong primary care role models at early stages of their careers, are more likely than they would be otherwise to become primary care

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### Table 1

<table>
<thead>
<tr>
<th>Workshop name</th>
<th>Date</th>
<th>No. of attendees</th>
<th>Overall evaluation*</th>
</tr>
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<tr>
<td>Miles physician-patient communication</td>
<td>2-16-93</td>
<td>26</td>
<td>4.5</td>
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<tr>
<td>*Accessing information</td>
<td>4-29-93</td>
<td>50</td>
<td>4.1</td>
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<tr>
<td>*Feedback in clinical medical education</td>
<td>5-13-93</td>
<td>26</td>
<td>4.3</td>
</tr>
<tr>
<td>*Learning styles: bridging the barriers to student success</td>
<td>6-10-93</td>
<td>27</td>
<td>4.1</td>
</tr>
<tr>
<td>The one minute preceptor</td>
<td>9-22-93</td>
<td>45</td>
<td>4.1</td>
</tr>
<tr>
<td>Miles physician-patient communication</td>
<td>12-7-93</td>
<td>21</td>
<td>4.5</td>
</tr>
<tr>
<td>*Traversing the internet and HUBNET</td>
<td>3-16-94</td>
<td>30</td>
<td>4.4</td>
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<tr>
<td>*Expanding the paradigm: the clinical teacher as role model and mentor</td>
<td>4-25-94</td>
<td>26</td>
<td>4.0</td>
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<tr>
<td>*Physician self-awareness: a key to becoming a more effective teacher</td>
<td>5-24-94</td>
<td>16</td>
<td>4.1</td>
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<tr>
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<td>6-1-94</td>
<td>15</td>
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<tr>
<td>Difficult physician-patient relationships</td>
<td>6-1-94</td>
<td>15</td>
<td>4.0</td>
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<td>*Stimulating critical thinking</td>
<td>6-22-94</td>
<td>12</td>
<td>3.5</td>
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<tr>
<td>*Medical informatics for internal medicine residents (Program A)</td>
<td>6-28-94</td>
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<tr>
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<td>17</td>
<td>4.0</td>
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<td>*The learning climate</td>
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<td>-</td>
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<td>Exploring teaching and learning in medical education</td>
<td>9-26-94</td>
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<td>*The learning climate</td>
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<td>Improving physician-patient communications</td>
<td>11-3-94</td>
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<td>*Science of listening</td>
<td>12-3-94</td>
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<tr>
<td>*Providing feedback: An essential component of clinical teaching</td>
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<td>The one minute preceptor</td>
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<td>Exploring ‘‘difficult’’ physician-patient relation</td>
<td>1-19-95</td>
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<tr>
<td>*Providing feedback: An essential component of clinical teaching</td>
<td>2-22-95</td>
<td>18</td>
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<tr>
<td>The one minute preceptor</td>
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<td>3</td>
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* Locally developed workshop.
practitioners. A mission statement, objectives, goals, and selection criteria for choosing CAP sites were among the first accomplishments of the committee, and the associate director was a major contributor to the preparation of those materials.

CAP objectives are to:
- select and develop CAP sites consistent with Residency Review Committee guidelines;
- develop an interdisciplinary core curriculum for training primary care physicians;
- provide access to state-of-the-art electronic information resources and ensure that CAP physicians, residents, and medical students are able to use the system effectively;
- stimulate participation in office-based research.

CAP sites were selected based in large part on their demonstrated commitment to teaching, nurturing, and supporting trainees over time. The intent was to build on the recommendations of the Project Panel on the General Professional Education of the Physician (GPEP Report) [11] and subsequent studies [12-14] to provide training in information science and the use of computer technology at each CAP site.

Medical informatics instruction at CAP sites

The CAP objectives stipulate that physicians and medical students be able to use computers to retrieve and manage information in order to provide quality, cost-effective patient care, conduct research, and engage in lifelong support for learning. This objective has been substantiated by Frisse, who noted that only when computer resources were readily available in all clinical settings would physicians be fully empowered by the tools [15]. Also, of the physicians Williamson surveyed, those who recently had completed their training and had academic appointments were more likely than others to use online search systems themselves [16].

A microcomputer workstation funded by the PCRC was installed at each CAP site, thereby providing participants with access to HUBNET, which includes MEDLINE via CD PLUS Ovid software, the Physician's Desk Reference, electronic textbooks, and full text of current journals such as New England Journal of Medicine, Pediatrics, and Family Physician. HUBNET, which supports e-mail and access to the Internet, allowed physicians at the various CAP sites to communicate with one another and with full-time faculty located at the medical school, which is as much as sixty miles away. As a result, e-mail became a very important and popular mode of interaction related to patient diagnosis, medical education, and research [17].

To ensure that all CAP physicians were able to use HUBNET effectively, the associate director and the PCRC staff presented small group training sessions in the doctors' offices. An important goal of this activity was to help CAP physicians, their students, and residents, feel at ease in using HUBNET to find information to solve clinical problems. The PCRC staff also sought to promote the use of evidence-based clin-
ical practice and to foster the development of lifelong learning skills [18]. Support in troubleshooting HUBNET hardware, software, and system problems also was provided.

The PCRC staff wanted to know if providing access to HUBNET changed physicians' attitudes toward computerized information resources and if it ultimately improved the quality of medical care the physicians offered. A study was initiated at the CAP sites to determine the following:

- users' prior familiarity with and expertise in computerized medical information systems;
- frequency of use, with a focus on learning, if the level and extent of use varied with an individual's status;
- effect of training on ability to use the system;
- impact of HUBNET access on the quality of patient care and clinical practice patterns;
- whether access to HUBNET changed the information-seeking and clinical behavior of physicians, medical students, and residents;
- obstacles to using HUBNET;
- strengths and weaknesses of the system.

Outcomes

One of the most important accomplishments of the CAP initiative was the development of unique linkages between the academic physicians in the generalist departments of the medical school and the local community of health care providers. Because each CAP site received an ample one-time stipend and an annual maintenance fee, the program has made strides in implementing a distinctive approach to primary care education. Feedback from CAP physicians, obtained in interviews by the associate director, indicates that the program reduced isolation among practitioners, especially those in rural settings, while opening new avenues for professional growth and development.

For example, CAP physicians regularly attend TEP workshops, where they have an opportunity to learn new teaching techniques and fine tune their skills as mentors and role models. The associate director has introduced these physicians to a new concept of their role as medical educator, going beyond a focus on precepting clinical skill development to emphasize medical information literacy, critical appraisal of the medical literature, and the use of evidence-based medicine to support clinical decision making [19]. Exposure to this dynamic educational environment is expected to inspire increased numbers of medical students and residents to select careers in primary care medicine. Clearly CAP physicians are eager to expand and develop their own professional skills, and they view the CAP program as a unique means of achieving that goal.

OTHER PCRC RESPONSIBILITIES

Focus groups

In collaboration with the associate director for recruitment, the PCRC conducts annual focus group sessions with fourth-year medical students at the time of the residency match. The objective is to determine the factors that influence UB medical student career decisions in general, and to identify those that would facilitate selection of a primary care residency at a hospital in Buffalo. The PCRC has completed three annual cycles of focus group interviews. As a result of the information gathered, specific changes have been implemented in the interviews with prospective residents. Significantly, the number of UB medical students obtaining residencies with consortium hospitals has increased.

Master's-degree program

In collaboration with Graduate School of Education faculty, a master's degree program in education for the health professions was developed. The goal of the program is to develop a cadre of physician instructors with a knowledge base in the field of education. These faculty members will become the medical education experts at UB. The course of study provides flexibility in scheduling. The program design accommodates the special needs and major time restrictions of physicians.

The first course, Psychology of Learning, was offered in fall 1994. An independent study on curriculum design was offered in the spring and summer of 1995. The associate director works with School of Education faculty to identify appropriate courses, schedule class sessions, select reading materials, and recruit interested physicians. Most participants are taking one course per semester.

Robert Wood Johnson initiative

In November 1992, UB received an eighteen-month planning grant from the Robert Wood Johnson (RWJ) Foundation, and in June 1994 the school was awarded a Generalist Physician Initiative award from the RWJ. The funds support the process of planning for change in the school's curriculum, programs, and services. The long-term goal is to orient the institution toward a new model for training the next generation of physicians—a model that de-emphasizes specialties and gives equal focus to primary care.

The associate director provided support for the planning process by defining educational strategies, contributing information gleaned from focus group interviews, and helping the faculty understand the critical factors that influenced career decisions of medical students and residents. The associate director is a member of the RWJ Executive Committee and
continues to serve as an advisor to the implementation team.

Other activities
At the local level, the associate director serves as a link between the PCRC and the medical school by serving on the curriculum, medical school Gopher, and Integrated Advanced Information Management System committees. In addition, regional and national activities serve to promote the accomplishments of the center. The associate director regularly attends the annual meetings of the Association of American Medical Colleges and the Medical Library Association. Recently the associate director taught a course on health sciences librarianship for the School of Information and Library Studies (SILS). Now she serves as an internship director for SILS graduate students.

DISCUSSION AND CONCLUSIONS
As academic medicine has focused the spotlight on the generalist physician as both instructor and service provider, medical schools have identified a need to develop enhanced techniques for improving the academic skills of these physicians. Not until the health care crisis in the United States reached its present proportions and the Clinton administration placed health care reform at the forefront of the national agenda, did the professional development needs of primary care physicians receive the present level of attention. These various market, political, and social forces converged, resulting in a renewed interest in and awareness of the contributions of generalist physicians.

Buffalo’s response was to create a new organizational unit, the PCRC, dedicated to changing the institutional climate of the UB School of Medicine from one that focused on specialty practice to a more even distribution in which at least 50% of graduate medical education trainees were in primary care. To help accomplish this goal, the position of associate director for medical education was created. A fundamental objective for the position was to bring together faculty from diverse disciplines to work together in a collaborative mode for the greater common good.

Selection of a health information professional for this position resulted in some unexpected, yet interesting outcomes. The associate director stimulated the use of e-mail and informed the faculty of its benefits, in a setting not previously accustomed to this means of communication. Within one year, most participants were communicating electronically. The transition was accomplished through personalized instruction, and educating physicians to understand the benefits that would accrue to them, their trainees, and colleagues as a result of electronic communication. Because nine hospitals function as the School of Medicine’s teaching hospitals (located throughout the greater Buffalo metropolitan area), e-mail facilitated interaction among the primary care departments and between faculty members located at these sites.

The associate director also educated primary care physicians about the importance of having the skills to access medical information, so they could provide outstanding care to their patients and state-of-the-art instruction to their residents and medical students. For most generalist physicians, whose professional lives had been dedicated primarily to clinical practice and teaching, this was seen as a logical connection but one that had not previously been articulated. The introduction of HUBNET in 1993 facilitated the process by providing ready access to current medical information.

For a health information professional with many years’ experience in information management education, the position of associate director mirrors in many respects the paradigm shift described by Moholt [20]. A librarian in this model has strong subject expertise and is trained in interpersonal and communication skills. The librarian is located in the library or spends the majority of work time outside it.

Such a professional helps patrons formulate information problems, interprets information resources, and independently assesses users' needs. As Moholt notes, "the most important aspect of the change process is having a vision—preferably one that has been jointly arrived at and is widely shared" [21]. The duties of the associate director not only mesh with Moholt’s model, but also portend some of the roles and responsibilities that health sciences librarians could undertake if they are willing to expand their mission in the health care enterprise. Librarians will need to acclimate to the changing environment. They will need to illustrate their flexibility and be amenable to taking on new venues for practice and participation if they are to succeed in the uncertain health care milieu. The PCRC goal is to increase the number of generalist physicians. To achieve that goal, the PCRC has launched a major faculty development and medical education program, among other activities. For some physicians, that program culminates in a graduate degree in education, thereby giving these instructors dual credentials and added skills that may help them succeed in the academic establishment.

One of the goals of the associate director is to promote understanding of the value of health information in making participants better physicians, teachers, and role models.

Quantitative results are frequently the bottom line in assessing the success of a program. Between 1992, when the center opened, and 1994 (the most recent year for which data were available), the number of
UB graduates selecting graduate medical education in primary care increased by 7%. In 1994, 44% of UB graduates chose primary care residencies. While the PCRC has not yet attained its goal of 50%, significant progress has been made.

During the 1994/95 academic year the PCRC will embark upon a comprehensive evaluation of its programs to determine whether they influenced residents’ and medical students’ career decisions. The information gathered in that effort will be used to shape future program development.

ACKNOWLEDGMENTS

The author wishes to thank colleagues Kimberly A. Crooks, M.Ed.; John Feather, Ph.D.; Paul James, M.D.; and Richard Sarkin, M.D., for their ongoing support for the development of PCRC programs.

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17. JENNETT, op. cit.
21. Ibid.

Received March 1995; accepted May 1995