

Pharmacy Information Management: A Professional Challenge

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INTRODUCTION

Pharmacy, like other professions, is being transformed by the complex scientific, legislative, economic, social, professional, and market forces that incessantly and dynamically alter the face of professions. Hepler contends that "pharmacy can best respond to these forces by expanding the informational component of pharmacy practice and by returning to its fundamental relationship with society—that is, by accepting responsibility for drug-use control" (1). He postulates that the professional status of pharmacy and its practitioners' satisfaction may be dependent on the profession's self-renewal, which includes development in the areas of drug-use control and information management. Are pharmacy educators and practitioners willing to accept this as a challenge?

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INFORMATION MANAGEMENT: A CRUCIAL FACTOR

Drug use control as defined by Brodie is "the sum total of knowledge . . . skills . . . and ethics that assures optimal safety in the distribution and use of medicine" (2). This role historically evolved from the primary health care role of pharmacists: distributing prescription and nonprescription drugs. In a 1975 publication regarding the future of pharmacy, the Millis Commission redefined pharmacy as a

system which renders a health service by concerning itself with knowledge about drugs and their effects upon men and animals. Pharmacy generates knowledge about drugs, acquires knowledge from the biological, chemical, physical and behavioral sciences; it tests, organizes and applies that knowledge. (3)

Therefore, the domain of pharmacy, drug-use control, encompasses the knowledge about drugs.

Evidence of pharmacy's already expanding role became evident in the 1970s when more pharmacists began performing clinical functions, such as advising other health professionals on drug-related matters, monitoring drug therapies for therapeutic and/or adverse effects, and increasing patient counseling activities. During that transitional stage, the need for information and information skills grew at a phenomenal rate. Information about the physical/chemical properties of a drug or its commercial availability, which were the primary areas of interest early in this century, now comprised only a fraction of the knowledge pharmacists needed. As the information needs changed with the advent of clinical practice, practitioners were trained in retrieval, evaluation, and dissemination of drug information. Drug information centers were established to help provide current information about disease states and therapeutic management. The participants at the Hilton Head invitational conference later expressed a consensus view that provision of authoritative, useful drug information to other health professionals, to patients, and to the public should become a major focus of pharmacy practice (4).

The Millis Commission had asserted that the

system of pharmacy cannot be described as either effective or efficient in developing, organizing and distributing knowledge and information about drugs. When pharmacy is viewed as knowledge system, it must be judged as only partially successful in delivering its full potential as a health service to the members of society. (3)

Yet in the 14 years since the commission's report was published, this aspect of pharmacy practice has not been fully realized. Pharmacy colleges, for the most part, are aware of the need for students to access drug information addressing routine therapeutic issues. A more global approach to information management is now required. The challenge to pharmacy has taken on a vast new dimension.

SCOPE OF PHARMACY INFORMATION MANAGEMENT

The management of pharmacy information is concerned with information in all areas of pharmacy practice and research, not exclusively with drug information. Health professions have become increasingly information-intensive and need to access academic information resources such as published journals, texts, and instructional materials, as well as organizational information resources that include medical information systems for patient records, laboratory records, research data, and hospital logistical records. Cost-containment has fostered some of these needs, and it has been suggested that "developing information systems is a critical strategy under a prospective payment system" (5). Pharmacists will want to know the cost of providing therapy for a specific DRG (diagnosis related group), a specific physician's prescribing habits, whether or not a prescriber is using more medication than others in comparable situations, and the literature support available for alternative therapies.

The information explosion already evident in the medical literature is now occurring in organizational/administrative information

due, in part, to the ubiquitous computer. Computer technology allows on-line data base searching on personal computers and access to selected patient data from terminals in the institution and home. With proper organization, knowledge already available could be used in innovative ways to foster effective and efficient drug-use control and, subsequently, to contribute to a higher quality of education, research, and patient care. Pharmacists are using computer software to facilitate drug-use evaluation and to assist in evaluating drugs proposed for formulary addition (6). The rapid production or transmission of information as audiovisuals or other nonprint materials is directly linked to computer use. Future technological developments will expand possibilities for the discovery, transmittal, and use of knowledge.

STRATEGIES

What approach should pharmacy take to meet expanding information requirements while capitalizing on technological developments? Several major academic medical centers have adopted a unified view of information that currently serves as a prototype. The LAIMS (Integrated Academic Information Management System) concept integrates and develops interconnections between disparate files of academic and organizational information (7). Rather than having a collection of separate pieces of information, the goal is to extract and assimilate relevant information based on the specific needs of users and to present it in a coherent, interactive manner. Working within such a system would allow pharmacy to fully develop its own untapped information sources and to use other institutional sources. An initial positive step would be to integrate the information resources already present within the confines of the pharmacy. A wealth of patient-specific information that is useful in assessing appropriate therapy or compliances can also be compiled, along with cost data, to identify prescribing trends and expenses. A second step would be to combine pharmacy information with that from other divisions of the organization to support decision making by pharmacists and other members of the institution. Due to its

knowledge of drug utilization, pharmacy is a logical participant in several critical areas of decision making, including treatment strategy determination, tactical response to treatment decisions, and outcome evaluation. The availability of objective information on outcome measurement is essential in balancing the pressures on prescribers to use the most recent, technologically advanced treatment modality. Pharmacy's promotion of informed choices in prescribing would be greatly facilitated by optimal use of all such relevant information.

HUMAN RESOURCES: EDUCATIONAL PREPARATION

Current classified advertising for pharmacy positions includes requirements for in-depth knowledge of pharmacy combined with knowledge of information flow and handling within an organization. Indications are that the need for such combined expertise will increase in the future for a wide variety of organizations, including nursing homes, community pharmacies, research facilities, hospitals, and managed-care operations. Pharmacists who have an information technology background are in an ideal position to facilitate the movement of information within an organization because their professional education has shown them how drug and pharmacy information is used and needed not only by pharmacists but also by other health care professionals. It is important that pharmacists at the baccalaureate level and the Doctor of Pharmacy level have an understanding of information technology as it relates to their profession and health care delivery. An exposure to the basics of information science (selection, organization, retrieval, and transmission of information), computer science (technology for processing, accessing, and distributing information), and management science (efficient and effective design, operation, and performance evaluation of information systems) will assist pharmacists in defining their own unique contributions and in cooperating effectively with medical librarians, computer specialists, and other health professionals in the areas of integrated information management and decision support systems.

CONCLUSION

Progress toward integrated information management and decision support is constrained by the present knowledge and skills of pharmacy personnel. Schools of pharmacy can be instrumental in promoting awareness of the avenues for pharmacy participation in information management and in modifying their curriculum to address these areas. While general principles of information management should be introduced to all pharmacy students, opportunities should be developed for specialization in pharmacy information management. Regardless of the type of pharmacy practice chosen, access to academic information resources must be facilitated, and methods to retrieve and use the organizational information resources base must be developed to support optimal drug use control. Through pharmacy information management, a unique opportunity exists to use technological advances to add valued, complex, and specific services to those already provided, thereby enhancing pharmacy's professional standing. Will the profession avail itself of this opportunity or relinquish this drug-use control responsibility? It is up to pharmacy colleges and practitioners to accept this challenge.

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