



*“The 1980s is a decade of rapid change
in the financing of hospital care.”*

WILLIAM E. SMITH

(1982)

At the time he received this award, William E. Smith was the Director of Pharmacy and Central Services and Assistant Administrator at the Memorial Hospital Medical Center of Long Beach, Long Beach, California; Clinical Professor at the School of Pharmacy, University of Southern California; and Assistant Dean and Associate Clinical Professor at the University of California School of Pharmacy.

Clinical Pharmacy in the 1980s

Will clinical pharmacy services in hospitals survive the 1980s? My answer to that question is “yes.” I would like to share with you some aspects of my yes answer and identify what hospital pharmacy practitioners and pharmacy educators need to do differently in the 1980s to ensure that clinical pharmacy services will survive and thrive.

Beginning in the mid-1960s, patient drug history interviews, pharmacist participation in patient care rounds, adverse drug reaction reporting, patient drug therapy monitoring, answering drug information requests, and patient discharge drug counseling interviews provide specific examples of pharmacists’ clinical activities. Will these services continue to be provided and supported financially in the remaining

years of this decade? Current rapid changes within hospital care, catalyzed by the continually increasing costs of that care, make it mandatory that hospital pharmacists assess the past and the present to plan for the future of clinical pharmacy services.

What has been learned since the beginning of the clinical pharmacy movement in its modern context? The hopes and aspirations of the pioneers of pharmacists' clinical services focused on a desire to contribute to quality patient care by using their drug knowledge, to be respected professional colleagues of physicians and nurses, to be respected health care professionals, and to achieve a high level of personal satisfaction with their chosen profession.

The professional literature of the mid-1960s documented many patient drug-related problems in hospitals. The problems included medication errors,^{1,2} adverse drug reactions,³⁻⁵ prolonged hospitalization as a result of adverse drug reactions,³⁻⁵ drug-drug interactions,⁶ drug-laboratory test interactions,⁷ IV admixture incompatibilities,⁸ and drug-induced diseases.⁹ The pioneers of clinical pharmacy reasoned that, given an opportunity, pharmacists located in patient care areas could reduce and prevent many of these drug-related problems. Fortunately, there were some physicians, nurses, and hospital administrators who were interested in improving drug-related services and expanding the role of pharmacists, and they allocated resources to pharmacists to let them demonstrate what they could do. From the beginning, pharmacists were confronted with the challenges to justify their performance, determine costs, and prove the benefits. Skeptics and critics were plentiful and included physicians, hospital administrators, and hospital pharmacists.

What has been accomplished? What can be stated with confidence in 1982? More pharmacists are providing clinical services than ever before in university hospitals and large and small community hospitals. Even so, clinical services are not provided to patients and physicians in even a majority, let alone all, of U.S. hospitals.¹⁰ More pharmacy students are provided clinical clerkship learning experiences than ever before. Even so, too many students question the future use of their clinical education. Postgraduate educational programs on clinical subjects are plentiful, and the number of postgraduate clinical residency programs increases each year. Pharmacist participation in clinical drug research is increasing. International interest in clinical pharmacy continues at a high level. Clinical services, education, and research by pharmacists are at the highest level ever.

What are the principles, the givens, the truths of the past 15 years that will be the basis for expansion in the 1980s? Each of these will be discussed in turn.

Pharmacists can provide effective clinical services if given the time, opportunity, and drug information support. Performance requires knowledge of drugs and their effects on people. It also requires the skill to apply knowledge and the ability to communicate and to work well with others. A desire to perform and a commitment to serve the drug-related needs of patients, physicians, and nurses whenever required are essential. Drug information support gives the clinical staff more time to provide services and also helps expand the scope of clinical practice.

Physicians will support and use the pharmacist's clinical services.¹¹⁻¹⁴ Drug knowledge and skill are the basis for a good working relationship with physicians. Knowl-

edge must be specific and accurate; the information must be available and reliable. Physicians must believe that the pharmacist's knowledge and skill will assist them and benefit their patients. Pharmacists and physicians must respect each other's roles and responsibilities.

Nurses will support and use the pharmacist's clinical services.^{11,12} Knowledge and skill also are the basis for a good working relationship with nurses. They, too, must believe that the pharmacist's services will assist them and benefit their patients. As is the case with physicians, these professionals must respect each other's roles and responsibilities.

Clinical services provided by pharmacists are accepted as appropriate for reimbursement by private and government third-party payers. Precedence has been set in many different parts of the country for pharmacists to be paid for clinical services by third-party payers, and various methods have been developed for the payment of clinical services.^{15,16}

Patients do benefit from the pharmacist's clinical services. Reduction of drug toxicity, drug incompatibilities, inappropriate use, interactions, and adverse reactions occur daily in clinical programs.¹² Specific examples of pharmacist-regulated therapy that have been documented and evaluated include lower rate of bleeding complications with heparin therapy, lower incidence of nephrotoxicity from the use of aminoglycosides, reduction in serum drug concentrations of no useful clinical value, and reduction in IV aminophylline toxicity.^a

Well-planned and managed clinical pharmacy services are cost effective. Studies that have included the costs for both clinical pharmacy services and drug distribution have resulted in lower patient per day costs.¹¹ Reduction in drug-related problems results in lower patient costs.

Other things we have learned include the following:

- ▶ Pharmacists' activities for a comprehensive clinical service are greater than can be provided by a pharmacist in a regular workday. Supplying the combination of all clinical opportunities described in the literature exceeds an 8-, 10-, or 12-hour workday. Priorities must be established so that the most essential clinical activities are provided.
- ▶ Financial resources are limited. No pharmacy department will receive all the financial support desired for personnel. Again, service priorities must be established.
- ▶ Many hospitals cannot support decentralized pharmaceutical services; space for satellite pharmacies in the patient care areas may not be available. More often, the number of patients per nursing unit may be too small to support a decentralized service. For those hospitals, a centralized drug system with pharmacists in the patient care area only for selected clinical services will result.
- ▶ Use of pharmacy technicians to perform many of the drug distribu-

tion tasks is essential to help free pharmacists for clinical services. Financial resources will not support one group of pharmacists for clinical services plus another group for drug distribution services.

- ▶ A centralized drug information service and a pharmacokinetics service are necessary to support and extend pharmacists' clinical services; these areas require specialists and specific reference resources.
- ▶ Computer technology is of great assistance for drug distribution services. Maximum benefit of this technology has not yet been demonstrated and achieved for pharmacists' clinical services.
- ▶ The demands on pharmacy management are greater for a clinical pharmacy program than for a traditional one. Requests for resources are greater and more complex. Pharmacist and physician interactions are frequent, and conflict can occur. Pharmacists in clinical practice need and request greater support to achieve their needs and expectations. The management decision-making process of the hospital or hospital system needs to be thoroughly understood; methods must be developed by the pharmacy director to substantiate requests for needed resources.

In summary, we have demonstrated that a clinical pharmacy program will improve the quality of patient care in hospitals by reducing patient drug-related problems. We have demonstrated that clinical pharmacy services can be provided on a cost-effective basis. We have demonstrated that physicians and nurses will support the clinical pharmacy program and use the pharmacist for drug information. We have learned that the implementation of a successful clinical program needs well-educated and committed pharmacists and competent managers. Together, staff and managers can successfully implement cost-effective services to the benefit of patients, physicians, nurses, and pharmacists. It has been a challenging and exciting period for the profession of pharmacy.

The development of clinical pharmacy coincided with a massive influx of dollars into hospital care. Government expenditures through Medicare and Medicaid plus private health insurance have resulted in unparalleled growth of inpatient services in U.S. hospitals. Many hospital management decisions for resource allocations before 1980 included revenue generation as an important part of decisions to implement new services, and revenue generation was used as an essential part of requests for approval to implement clinical pharmacy services. Revenue generation is no longer the dominant factor of the hospital decision-making process in 1982. Expense management, the operational cost for doing business, is the dominant factor. Business, labor, and government have made it clear that they will no longer support the continually high annual increases in hospital charges and costs regardless of the perceived benefits.

The implementation and expansion of clinical pharmacy services in the 1980s will be challenged by six external forces bearing down on the hospital. These include: (1) federal and state government regulations and amount of payment for providing care to Medicare and Medicaid patients, (2) price competition for government and privately insured patients, (3) extension of cost limits to ancillary departments, (4) a physician surplus, (5) medical liability and risk-management requirements, and (6) accreditation and licensing requirements. Hospital pharmacy managers must develop a complete understanding of these external forces and their probable impact on hospital financial activities. Hospital pharmacy departments have already experienced reduction in staff and service programs, denial of requests to implement or expand clinical services, and freezing of institute, education, and other budget items. These negative experiences—and I suspect more are yet to come—will test pharmacists' belief in and commitment to providing clinical services for patients.

Four components of this new financial management era that will affect hospital pharmacy services most directly, in my opinion, are cost control, new technology, physician surplus, and new drugs.

In many states, hospital budgets are being controlled by governmental rate-setting commissions. Other states are experimenting with price competition and contract bidding for patients with the goal of reducing hospitalization costs. It is clear that the increase in hospital budgets from year to year will be less than what has occurred in the past decade. At the same time, the desires, wants, and needs of the medical staff and each hospital department for financial support for personnel, capital equipment, supplies, and services will far exceed available resources. The hospital pharmacy department will be forced to "compete" more effectively for limited resources with the medical staff and departments of pathology, radiology, nursing, information systems, and others.

The pressure to control and reduce costs has accelerated the need for changes in hospital organizational structures and relationships. Corporate reorganization, multi-hospital relationships, and group purchasing programs are examples of such changes. Patient enrollments in HMOs are increasing, and the number of patients with private health insurance will decrease. How these changes will affect hospital pharmacy in total is not yet clear. It is certain that physicians and patients who have a financial stake in limiting use of health care services will lead efforts to reduce use of drugs, as well as other diagnostic and therapeutic services.

Cost controls will have a particular impact on those hospital departments that have a substantial supply cost component in reimbursement formulas; pharmacy is such a department because of the cost of drug products. Dollar limits will be imposed on ancillary departments. Pharmacy department funds are allocated for net revenue, cost of drug products, and services provided by personnel. The greater the increase in the cost of drugs, the less money will be available for personnel, unless the hospital decides to reduce net revenue. Thus, as drug product costs go up, clinical services personnel drop. The cost of drugs in U.S. hospitals is increasing each year. Successful strategies by hospital pharmacy managers to limit the increase in the cost of drugs are essential for the continued development of clinical services, despite promotional ef-

forts and tactics by pharmaceutical companies. Decisions about drugs to be used in the hospital must be based on the best scientific information available. Efforts to block or undermine objective drug formulary decisions of a hospital and medical staff must be resisted vigorously.

Pharmacy managers must identify and explain the differences between financial resources required for drug product costs and those for clinical services. We must help hospital management, third-party payers, and government agencies understand the difference between these two components as dollar limits are applied to the pharmacy department. Without pharmacists' clinical services, total patient costs will be greater.¹¹

Organ transplant surgery, CAT scanners, automated laboratory systems, and hospital information systems are examples of expensive technology developed during the past several years. New forms of technology—expensive technology—will continue to be developed and financially supported. Some examples include nuclear magnetic resonance to eliminate the traditional roentgenogram, additional automation of the laboratory, hyperthermia controlled by computers for selected oncologic conditions, and CAT scanners for interventional procedures in neurosurgery.

These technologies should result in better patient care; they will require substantial capital allocations. How hospital management decides to support particular technologies, or how much technology can achieve the same objective, will influence resource allocation decisions for all hospital departments. You may be certain the pharmacy department will be affected.

The pharmaceutical industry has predicted a “new era” in drug therapy with many important advances in new drugs and drug delivery systems. There were more than 25 new drug entities approved in both 1981 and 1982. Over 160 drugs were in the FDA approval process as 1982 drew to a close.

Initial experiences with recent new drugs include the following three factors: (1) costs are three to five times more than existing similar products; (2) pharmaceutical manufacturers used aggressive and extensive promotional practices; and (3) physicians, nurses, and pharmacists have difficulty in keeping up with the new information. To illustrate these factors, pharmacy and therapeutics committees are strained to decide which new drugs should be added to the formulary, drug product costs per patient day are increasing at rates exceeding 20%, and prescribers are confused about which new drug to use because of the amount and type of new information.

Patient needs for safe and effective drug therapy have not changed. The drug-related problems identified in the mid-1960s exist today in too many U.S. hospitals. For example, in recent years articles have identified problems of inaccurate dosage calculations in pediatrics by physicians and nurses,¹⁷ a high rate of medication errors,¹⁸ theophylline-induced seizures in accidentally overdosed neonates,¹⁹ and nosocomial bacteremias.^{20,21} The new drugs add complexity to drug use in hospitals. Traditional drug systems and interprofessional relationships must be modified to meet patient needs. In my opinion, new drugs will accelerate the implementation of clinical pharmacy services; safer and more effective patient drug therapy will result.

Many more physicians will be in practice by 1990 than at present. Authors on the subject of physician surplus predict and describe how the relationships—including financial—among physicians, as well as between physicians and hospitals, will change. Economics of health care, income, and consultation fees will dominate the discussions and decisions associated with these relationships. The physician surplus will contribute to hospital and medical price competition and to the deregulation of the health care industry.

Physicians exert a strong influence on hospital operations and resource allocation decisions. More physicians are expressing concerns about costs for each line item charged in the hospital, including drugs and pharmaceutical services. Questions are being asked about pharmacy department costs and patient charges and how these charges can be reduced. Pharmacy's answers must candidly include the point that changing physician demands can help reduce pharmacy operational costs. The reduction of inappropriate prescribing, prescribing of high-cost drugs that are not more effective than less expensive drugs, and widespread use of orders for p.r.n. drugs by physicians would lower pharmacy operational costs.

A physician surplus could have an impact on clinical pharmacy services. Drug therapy monitoring and patient assessment by pharmacists could revert back to the physician. As more physicians become available and there is less work for them to do in direct patient care, conflicts for drug therapy consultations and associated fees could develop. More physicians could resist the development of the pharmacist's clinical role.

In summary, the financing of hospital care is in the initial stages of a revolution. Patients, government, business, and labor have made their message clear: reduce the spiraling costs of hospital care. Patients' needs for quality clinical services must not get lost in this financial revolution. The needs of patients, physicians, and nurses for clinical drug information and safe medication systems will be greater in the 1980s than ever before, but we have to document this. Experience and personal opinion will not protect the progress we have made.

The expansion of clinical pharmacy services to all hospital patients who need them in this era of price competition, coupled with new drugs and technology, presents unique challenges and opportunities to pharmacists and pharmacy educators. How well hospital pharmacy practitioners and educators recognize the opportunities and develop specific methods and strategies to prepare, perform, and defend cost-effective clinical services will determine how many patients in U.S. hospitals will receive the benefits in this decade. To help ensure success, I offer the following comments for your consideration and appropriate action.

Hospital pharmacy societies exist to promote the interests of their members. I suggest a more important reason for their existence is the development and expansion of clinical pharmacy services for patients in hospitals. I challenge each and every organized hospital pharmacy society to develop a strategic plan committed to the implementation of clinical services for patients in all hospitals within its specific geographical area. This strategic plan would include (1) identification of patients who

need clinical services; (2) the best method to provide and document the services; (3) resolution of the technician-use question; (4) recognition of the political, legal, and economic hurdles to overcome; (5) identification of educational programs needed for both staff and managers; and (6) active solicitation of physician, nurse, and hospital management involvement and support to achieve the objectives.

I do not believe the standard method of society operations of councils, houses of delegates, and boards of directors can be successful in meeting this challenge. The subject is too big and complex to tolerate the slowness of usual society program development. What I am recommending is for each society to develop a special study group or task force of pharmacy managers and clinical staff who will meet several times a year for the 2–4 years required to develop a comprehensive strategic plan. If hospital pharmacy societies at all levels accept this challenge, state societies could use the findings of each local society and the ASHP could use the findings of each state to develop an overall national strategic plan.

As each society makes such a commitment, many aspects of society operations will be clarified. Programs for continuing education, residencies, and pharmacy student teaching will be clarified. The needs of the membership will be better met by the society. I hear over and over again that hospital pharmacy societies do not meet the needs of the members. What is more important than helping the members cope with their daily practice and prepare for the future?

Without competent and effective management, clinical services will not be successfully developed, implemented, and maintained. To ensure that adequate resources are allocated for clinical services is a pharmacy management task. It is unfortunate that the Board of Specialties of the American Pharmaceutical Association and self-proclaimed clinical expert groups exclude hospital pharmacy management from their ranks. Hospital pharmacy management is a specialty within pharmacy; it has a unique body of knowledge and skill requirements to contribute.

Schools of pharmacy are not preparing graduates for management positions. At the minimum, schools need to identify students with the aptitude and potential for leadership and provide them with principles of management in their educational program.

The profession's rush to clinical practice has also decreased the number of residencies with management emphasis. The American Society of Hospital Pharmacists needs to accelerate the development of standards for an advanced residency in management.

Six specific areas of clinical pharmacy management need study and review; these areas are the following:

1. The hospital management's decisionmaking process, including how decisions are made and by whom and what data and justification are required for a program proposal.
2. The working relationship between the director of pharmacy and immediate supervisor, including the requirements for a good working relationship.

3. The proper location of the pharmacy department in the hospital's organizational structure, specifically determining if pharmacy is a clinical or material department and to what level of management the pharmacy director reports.
4. Management methods to produce both financial and clinical results, including a good work measurement system.
5. Methods to increase productivity of the staff, including how computer technology and other techniques can be used most effectively for clinical services and drug distribution systems.
6. Developing essential skills to function effectively in interdisciplinary situations.

Hospital pharmacy societies must play an important role in developing and fostering greater management expertise within hospital pharmacy. In my judgment, this demands a high priority of attention by society leadership.

The first step for successful implementation of a clinical pharmacy program is a definition of the services to be provided. This definition must be made by the pharmacy staff. If the pharmacy staff does not know what it wants to do and why, how can hospital management, medical, and nursing staffs be expected to support the proposed changes? The definition will include each clinical activity to be provided by pharmacists, as well as the expected benefits for patients, physicians, and nurses. With these definitions and a personal commitment to succeed, pharmacy managers and staff can be successful.

“How to study your own hospital” and “what patients need clinical services” are two questions that need better answers before clinical services will expand in hospitals. It is important to realize that hospital specificity determines what and how services are provided. People in key management positions (administration, nursing, pharmacy, and medical staff leadership) and hospital goals, objectives, and facilities are all important factors to be considered in the design of cost-effective services for a hospital. As a result, pharmacy management must develop methods for studying any hospital that will produce the best program design for that hospital. Data to be collected and analyzed will include (1) patient types and number of patients per service, (2) number of hospital service areas, (3) systems for the delivery of drugs and number of doses administered per patient day by dosage form and by time of day, (4) medical staff visit patterns to the hospital, and (5) pharmacy department workload and facilities. These data will translate into decisions of centralized versus decentralized systems, scope of unit dose drug packaging programs, personnel requirements, and impact on nursing time and that of other hospital personnel. This is an excellent topic for seminars, resident projects, and graduate student research.

Inherent in the question of which patients need clinical services is the suggestion that not all patients need pharmacists' clinical services. Those who do need clinical services need to be identified; knowing the number and type of patients will determine a reasonable staffing requirement and, therefore, costs for services. This is a

selective approach that fits well with the era of cost limits, and it is an approach that I believe hospital management will support. A study of a hospital patient population should focus on selected drugs: drugs in which dosage is affected by quick changes in patient status, drugs that require serum concentrations, drugs that interact with other drugs, and drugs that could have a toxic effect on blood, kidneys, or liver.

Comprehensive and cost-effective clinical pharmacy services require extensive use of pharmacy technicians. Quality patient care and the vested self-interest of our profession can no longer tolerate failure to resolve the use and training of technicians. Hospital pharmacists cannot let the archaic attitudes and thinking of many community and hospital pharmacists, state boards of pharmacy, pharmacy organizations, and employee pharmacist organizations block the proper and necessary use of pharmacy technicians in hospitals. Every industrialized country in the world uses pharmacy technicians in providing pharmacy services. Technicians are used extensively in the manufacture of drugs and intravenous solutions. Yet, as soon as the drug product passes through the door of a pharmacy, only a pharmacist can look at, handle, count, and package the drug products. Restrictive ratios of one technician and one pharmacist for inpatient services must be resisted. Flexibility is needed to determine pharmacy department staffing in the 1980s and to ensure the growth and development of our profession in clinical practice.

Most clinical pharmacy programs have not yet evolved to the extent that the combination of clinical services and distribution is greater than can be provided by a single pharmacist. If more pharmacists cannot be hired to expand clinical pharmacy services, then distribution tasks must be delegated to pharmacy technicians. Pharmacists must realize that wherever the level of technician performance is drawn, the pharmacist's capacity is also defined. The less technicians are allowed to do, the less pharmacists will be able to do.

Pharmacy education is entitled to accept some of the credit for the successful implementation of clinical services. Without a pharmacy education that gave sufficient confidence to the pioneers of clinical services, the accomplishments of the past 15 years would not have been realized.

The challenges before pharmacy education are even greater if clinical pharmacy services are going to be fully effective. These challenges include three elements: knowledge-in-depth, research, and service.

Clinical pharmacists require the broad knowledge and skills of a generalist in the use of drugs. Specific knowledge, or knowledge-in-depth, is also required. Clinical teaching must include assignments that require the student to learn at least one subject in great depth. The student must experience the time required, the amount of literature to be reviewed, how to make judgments on the subject matter, and the self-confidence that results from knowledge-in-depth. The skills developed from this experience will be used throughout the graduate's career as drug information changes.

Greater participation by schools of pharmacy in research to help implement changes in professional practice is needed. It would be helpful if schools of pharmacy would take more of a lead role in the needed research. It must be recognized that research

limited to university hospitals is not sufficient. Research in large, medium, and small community hospitals is also required.

Each school of pharmacy that uses hospitals as sites for student teaching should assist in the development of comprehensive clinical services. Students need to learn in environments where the clinical faculty members perform the services the students are being educated to provide after graduation. Credibility is lost when the services at the teaching sites are less than complete.

Teaching, research, and service are the responsibilities of a school of pharmacy. Faculty members need to recognize the importance of clinical services to their own personal growth and support. Without continual growth and success in the profession, how long will pharmacy education and, therefore, faculties continue to be supported? When faculty members finally realize the importance of the success of clinical pharmacy, many conflicts within pharmacy education can be resolved, and educational programs will advance.

Pharmacy is a service profession, and the pharmacist's mission is to serve the drug-related needs of patients, physicians, and nurses. Drug therapy in the modern hospital is a primary modality of patient care. Most hospital patients receive drugs, and the number of drug orders and doses prepared and administered is staggering. The pharmacy leadership in each hospital should ask the following questions: What are the drug-related problems in my hospital? What are the alternatives for solving these problems? What are the roles for the pharmacists in my hospital? I am confident that clinical pharmacy services is the answer to these questions.

The 1980s is a decade of rapid change in the financing of hospital care. It is a decade of opportunity for pharmacists. Clinical pharmacy services can reduce costs, increase hospital efficiency, and improve the level of patient care in a cost-effective manner.

A clinical pharmacy practice brings its own rewards to the pharmacist. To be an expert in the clinical use of drugs presents a lifelong challenge of learning and self-study. It brings professional respect from physicians and nurses and places the pharmacist in the mainstream of caring and healing. A career in clinical pharmacy is an open-ended opportunity for those who seek its rewards.

(For the complete list of references cited, please see page 229 of the *American Journal of Hospital Pharmacy*, Feb. 1983.)

Harvey A. K. Whitney Award Lectures (1950–2005)

© 2006, ASHP Research and Education Foundation. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, microfilming, and recording, or by any information storage and retrieval system, without written permission from the American Society of Health-System Pharmacists Research and Education Foundation.

www.ashpfoundation.org