

Academic Pharmacy's Role in Practitioner Preparation and Continuing Development to Enhance Healthcare and Ensure Optimal Medication Use. Report of the 2001-2002 Professional Affairs Committee

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According to the Bylaws of the AACP, the Professional Affairs Committee is to study

issues associated with professional practice as they relate to pharmaceutical education, and to establish and improve working relationships with all other organizations in the field of health affairs. The Committee is also encouraged to address related agenda items relevant to its Bylaws charge and to identify issues for consideration by subsequent committees, task forces, commissions, or other groups.

President Milap C. Nahata charged the 2001/02 AACP Professional Affairs Committee to explore the changing healthcare environment and consider academic pharmacy's role in practitioner preparation and continuing development for an envisioned future practice that most effectively uses pharmacists to enhance public health and ensure safe medication use.

Specifically the Committee was charged to:

- envision changes in the healthcare environment and, specifically, the practice of pharmacy, to maximize the pharmacist's contribution to public health;
- using the two recent Institute of Medicine (IOM) reports on patient safety and quality in the health care delivery system as background, and the framework for analysis suggested by the 2000-01 Argus Commission, propose scenarios for pharmacy practice in healthcare systems that most effectively use pharmacists to enhance healthcare and ensure optimal medication use; and
- outline and discuss academic pharmacy's role in practitioner preparation and continuing development for the envisioned future.

Background information and resource materials were circulated among committee members prior to a conference call on September 6, 2001. During the conference call the Committee shared preliminary views and discussed their approach to the charge. The Committee agreed to adopt the environmental scanning of major external forces provided in the Argus Commission Report and to the following structure for their response to the charge. That is, this report is intended to:

- A. Document current and possible practice realities and describe concisely a pharmacist's contribution to the public's health. "Specifically, if called on to describe to an external audience the

value of a pharmacist to patient care, what would we say?" It was felt that this question was key to identifying the knowledge and skills required of pharmacists and to identifying possible gaps in current accepted educational outcomes.

- B. Suggest strategies to AACP and member colleges and schools for curriculum changes/inclusions to ensure that pharmacy students are adequately prepared to fulfill those functions described in item A.

BACKGROUND

President Nahata requested that the Committee refer to the 2000-01 Argus Commission Report(1). This Argus Commission identified major forces (social, demographic and economic) affecting pharmacy practice and the role of pharmacists. They also suggested a framework for analysis that addresses forces of change, current realities, core purposes, future realities, and implications for the academy. The Committee used the Argus framework to identify gaps between current practice realities and future needs. "By identifying the gaps between current reality and the future, while keeping our core purpose in mind, we are in a stronger position to influence and direct change"(2). The two recent Institute of Medicine (IOM) reports: "To Err is Human: Building a Safer Health System"(3) and "Crossing the Quality Chasm"(4), also provided important background for consideration. While "To Err is Human" focused specifically on patient safety, the latter report focused more broadly on the health care delivery system and recommended an agenda for fundamental change in the way the system (individuals, organizations, processes) meets the needs of the people served.

The Committee adopted and built upon the external forces identified by the Argus Commission that we can expect to affect pharmacy practice and the role of pharmacists. The scanning points to an increasing demand for pharmacist services in all sectors of the health care system. Argus envisioned pharmacists caring for a diverse and aging population, an increase in prescription volume as well as self-care with nonprescription medications, patient access and provider delivery of care transformed by automation and information technology, and changes in reimbursement and access to care driven by escalating costs. Through advances in medical informatics, shared data, so critical to team delivery of health care, may become available across practice sites. Advances in science (e.g., biotechnology, genomics)

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Am. J. Pharm. Educ., 66, 23S-27S(2002); received 9/5/02.

will affect drug therapy and diagnostic modalities. As knowledge of the genome increases, practitioners will be better equipped to understand why drugs work in some patients, and not others, and how to optimize response in all patients.

The educational preparation of pharmacists has changed significantly. The baccalaureate degree in pharmacy will no longer be eligible for accreditation after 2004. The PharmD curriculum has changed pharmacy graduates. More mature students from diverse backgrounds are enrolled in a doctoral program that offers enhanced depth and breadth of pharmaceutical and health care education and experiences. This combination has created graduates with a different level of professional confidence and vision for practice—minimizing drug misadventures through assessment, counseling and follow-up to optimize appropriate use and outcomes of drug therapy (pharmaceutical care)—in all settings (1). The academy recognizes that a curriculum must be a dynamic and evolving program of learning experiences (both didactic and experiential), responsive to developments in science, technology, practice and public policy to ensure that graduates are prepared to lead advances in practice and adapt to change throughout their professional career. At an individual school level, this implies self-study, assessment and continuous curricular monitoring and revisions as appropriate. At the level of the academy it implies periodic assessment and revision of the AACP Center for Pharmaceutical Education (CAPE) Educational Outcomes to ensure that they maintain contemporary validity relative to roles and responsibilities of pharmacists in future practice scenarios.

Future practice scenarios envisioned by the Argus Commission(1) may find pharmacists providing individualized care separated from the dispensing process; managing large volume prescription distribution supported by automation and ancillary personnel; and at the health care system level, working with colleague clinicians in multidisciplinary teams using large population data bases, assessing drug utilization patterns against evidence, and designing interventions to promote the best use of medications. This latter model is variously described as "mass customization"(5) or "profession-based practice"¹ and reflects a multidisciplinary approach (shared professional activity) to evidence-based best care guidelines. This approach implies a shift from solo to group practice, from autonomy to teams and systems that include all elements of practice, both virtual and real, to allow the "support of information systems, collection of evidence about care, and efforts for continuous quality improvement"(6). Pharmacy has a significant role in designing evidence-based pharmacotherapy.

A. CONCISE DESCRIPTION OF THE PHARMACIST'S CONTRIBUTION TO PUBLIC HEALTH: CURRENT AND POSSIBLE PRACTICE REALITIES

"Pharmacists have been mandated by society to assure patient safety by identifying and preventing potential prescribing errors and adverse events (drug/drug interactions, drug/disease interactions, etc.)"(7). Pharmacists are the health professionals educationally prepared to provide medication therapy monitoring in all health care environments (e.g., community pharmacies, hospitals, outpatient clinics, long-term care facilities). Advances in technology have and will continue to expand access to pharmacy services. Virtual access to pharmaceutical decision support is a reality. Pharmacists contribute to patients' health through a comprehensive approach of pharmaceutical care—educating patients about their medications, monitoring their drug therapy for potential adverse effects, monitoring for compliance and appropriate use of medications to realize the optimal health benefit.

Pharmaceutical decision support was identified in "To Err is Human" as an essential component of health care. Access to pharmaceutical decision support and systems for dispensing medications designed and approved by pharmacists were identified as "musts" for

all hospitals. Recognizing that the variety and complexity of medications makes it impossible for other health care providers to keep up with all of the information required for safe medication use, the report singled out the pharmacist as "... an essential resource in modern hospital practice ... access to his or her expertise must be possible at all times"(8). In a randomized trial study in a hospital setting, pharmacists made more than 1200 interventions on behalf of patients, including dosage adjustments, recommendations to add or discontinue medications, and drug information counseling to patients and health care providers. The study quantified improvements in quality of care and cost savings when pharmacist recommendations were implemented (9). A study evaluating health care outcomes measures, cost of care and medication errors in over 1000 hospitals found that one of the "most effective ways to prevent or reduce medication errors is to decentralize pharmacists to patient care areas"(10). Hospitals with decentralized pharmacy services compared to those with only centralized pharmacists realized a 94 percent decrease in medication errors that adversely affected patient care outcomes.

In the community setting, a values research study, sponsored by the National Association of Chain Drugstores (NACDS), found that consumers most valued pharmacists for "catching mistakes, providing advice and counsel on taking prescription and over the counter medicines, and working with physicians.... these attributes were very important to them because they felt lives would be saved, there would be no adverse reactions, medications would be taken properly, and people would get better"(11). Jones, et al. suggested that "the pharmacy may be an important and underutilized intervention point to prevent contraindicated drugs from being used together"(12).

The second IOM report points to a need for shifting health care resources to prevention and health maintenance. Ineffective control of chronic conditions such as diabetes, hypertension, and asthma contributes to increased morbidity (13). Pharmacy plays a valuable role in addressing chronic medication use from the perspective of the critical need for monitoring patient responses. Pharmacists are strategically positioned to address the medication problems of the chronically ill and pharmacies serve as health screening and health maintenance sites in the community.

On a daily basis in diverse and varied practice environments, pharmacists make valuable contributions to health care. Preparation and dispensing of medications serve as the platform for most pharmacists' professional activities. Drug history taking; drug interaction and allergy detection, prevention and management; therapeutic drug monitoring; and patient counseling/consultations serve as important vehicles that support actual medication-related problem identification and resolution and the detection of potential problems for the purpose of preventing untoward events(14-18).

The wide range of pharmacists' contributions to public health include:

- Improving medication compliance(19)
- Providing evidence-based recommendations for drug product selection, dosing, and treatment monitoring. "Patients should receive care based on the best available scientific knowledge. Care should not vary illogically from clinician to clinician or from place to place"(20).
- Taking responsibility for medication safety management and promoting patient safety practices including dissemination of evidence-based, best safety practices to other health professionals(21).
- Identifying drug-food allergies and drug allergies, and designing safe and efficient drug distribution systems.
- Providing an important role in community pharmacy to reduce medication errors. During counseling, errors are uncovered and corrected (22-24).
- Managing drug therapy via prescriber-approved medication dosing guidelines, including laboratory tests or other monitoring procedures to assess effectiveness and safety of treatment(25-27).
- Providing education on the benefits of immunizations and easy access to immunizations for their patients. Thirty-two states now

¹James, B. C. "Making it easy to do it right," *Framework for Pharmacy Drug Therapy Management in the 21st Century*, Academy of Managed Care Pharmacy, Alexandria VA (2002).

allow pharmacists to administer immunizations. Pharmacists can reduce the incidence of some communicable diseases by providing education, coordinating, and administering vaccines(28-32).

- Participating on cardio-pulmonary resuscitation teams.
- Designing and conducting drug usage reviews(33,34).
- Promoting wellness by providing screenings for hypertension, diabetes, hyperlipidemia, osteoporosis and asthma(35-37).
- Applying clinical pharmacokinetic principles in drug therapy consultations and therapeutic drug monitoring(38).
- Educating and counseling patients at whatever level is appropriate for their health literacy about their medications and the instructions given to them by their physicians so as to enhance compliance and medication safety(39,40).
- Conducting clinical research, documenting interventions, outcomes and cost effectiveness(14-17).
- Providing drug information and medical informatics services to other health care professionals.
- Caring for patients with respect, developing a relationship built on trust, maintaining high standards of ethical professional behavior(41,42).

What is necessary to promote the role of pharmacists as contributors to public health?

Until the recent public policy recognition of the increased societal demand for pharmacist services and the unmet need that will likely result due to workforce issues, pharmacists, unlike nurses and physicians, have not been included in major public and private sector policies. Currently, pharmacists are not recognized as providers under Medicare except to perform immunizations. Joint efforts among the major pharmacy organizations are aimed at changing legislation to recognize pharmacists as providers. The Medicare Pharmacists Services Coverage Act (S.974/H.R. 2799), legislation recognizing pharmacists as providers under the Medicare Program eligible to bill for drug therapy management services provided to Medicare beneficiaries has been introduced in both the U.S. Senate and House of Representatives(43).

Only 32 states in the U.S. allow physicians and pharmacists to enter into voluntary written agreements to manage drug therapy of a patient or group of patients(13). In general, this can include selection, initiation, monitoring, continuation, discontinuation, modification, and administration of drug therapy; ordering, performing, and interpreting medication-related laboratory tests; and patient assessment related to drug therapy. The written agreement describing the collaboration defines the participants in the collaborative therapy and the limitations that are agreed upon. Having evidence that pharmacists can successfully engage in collaborative practice and having legal authority to do so provides the basis upon which pharmacists might make a persuasive argument that such services are needed and are in the best interest of the parties involved. While institutions or corporations negotiate some agreements, a collaborative practice agreement can occur between one physician and one pharmacist agreeing upon renewing a selected drug when the physician is not available(25-27).

B. STRATEGIES FOR THE ACADEMY'S RESPONSE

In making their proposal for policy, their recommendations for action to the Association, and their suggestions to member colleges and schools, the Committee considered both "how" we educate and "what" is considered important for the envisioned future practice scenarios. Interdisciplinary and interprofessional education, interprofessional strategies for restructuring clinical education, and viable ambulatory care and community pharmacy practice models were considered of primary importance in changing how we educate. The Committee determined that programmatic emphasis is required in domains of patient medication safety, health literacy and cultural competence, preventive medicine and technology (including applications to both teaching/learning and practice). Committee members noted the importance of assessing students' level of confidence to practice pharmaceutical care and ability and skills to assert professional leadership in collaborative drug therapy practice arrangements.

Colleges of pharmacy need to continue their proactive approach to improving patient care in all patient care environments. As increasingly complex care is delivered in the community setting, there is an onus on pharmacy education to create practice models that advance pharmaceutical care and provide a continuum of learning experiences for our students. It is also necessary to respond to the need for emphasis on prevention and health—and to prepare our students for their role in offering preventive screening and wellness services.

Pharmaceutical care is aimed at improving the patient-pharmacist relationship so that patients' health-related quality of life will also improve. To provide pharmaceutical care, a pharmacist must possess knowledge and skills in pharmacology and therapeutics and must be able to use the drug distribution system to implement drug therapy decisions. A pharmacist must develop an effective rapport with patients and other health care providers in order to affect care(44). To effectively communicate with patients in a manner they can understand that allows them to understand their condition and how to use their medications appropriately, a pharmacist must be aware of and competent to care for patients with cultural, ethnic, linguistic and literacy variances in their patient population. Students need new approaches aimed at improving patient comprehension of their medication instructions. These approaches and accompanying students' experiences should address the diversity of patients' abilities to comprehend verbal and written information about drugs, their varying health literacy [defined as the "set of skills needed to read, understand, and act on basic health care information(45)] and should improve mechanisms to monitor patients after they return to their homes to self-administer potent Pharmaceuticals. Patients with low levels of health literacy cannot read and interpret labels on prescription containers, printed literature supplied by the pharmacy, appointment slips from physicians, or consent forms. These patients have been reported to have a higher likelihood of hospitalization than patients with adequate health literacy skills(46,47).

Pharmacy practice will become increasingly dependent on computer devices across all aspects of practice—patient interactions, health system interactions, distribution systems, research. To prevent medication errors, most believe that it will be necessary to improve the technical knowledge and skill of health care professionals but also a reengineering of the health care system, that accounts for analysis and correction of system causes, computerized physician order entry, automated medication dispensing, bar-coding technology, aviationstyle preoperative checklists, promoting a culture of safety, and the use of simulators in training so as to integrate human factors with situations, alarms, and devices(21). "Educators need to locate reliable sources of information and engage in a dialog about using technology to enhance teaching and learning. We need to research the effectiveness of what we apply in our teaching in order to add to our overall understanding of teaching and learning. Efforts must be made to seek out faculty and institutions that have developed educational technology resources and share that information through clearinghouses or directories."(48)

To be a contributor and expert on safe medication practice, it is critical for pharmacists to develop an understanding of safety at the system and individual level, built on a foundation of risk management, quality improvement, information science and other disciplines not normally encountered in the pharmacy curriculum (49). The academic community should be involved in developing models of reference (standards) for each unique practice environment. Colleges should target the integration of the epidemiology of medication errors with risk management and supporting disciplines as applied to both the population-focused practice and the individual-focused practice of pharmacy. Special emphasis should be placed on the development of personal practice skills which inspire consistent behavior and insure respect for careful surveillance that promotes prevention.

In envisioning future practice scenarios that maximize the pharmacist's contribution to healthcare, the Committee determined there are gaps in the current CAPE Educational Outcomes document relative to the pharmacist's role and responsibilities for medication safety systems management, health literacy, cultural competence, preventive medicine, technology applications to practice, and collaborative drug

therapy practice. The Committee recommends a thorough re-examination of the CAPE Educational Outcomes (revised in 1998) with particular attention to the areas of practice identified in this report and others that may become evident.

Recommendation 1. AACP should reconvene the Center for the Advancement of Pharmaceutical Education (CAPE) Advisory Panel on Educational Outcomes to examine the 1998 Educational Outcomes to ensure that the Outcomes maintain contemporary validity relative to roles and responsibilities of pharmacists in future practice scenarios.

Recommendation 2. AACP should support development of curricular resources on patient medication safety and facilitate their incorporation in the educational programs of member schools.

Recommendation 3. AACP should develop programs, products, and/or services as appropriate to assist faculty with technology applications to enhance teaching and learning. Resources should also include technology applications for practice (e.g., automated dispensing, medical informatics, tools for drug information retrieval, management of large databases, etc.) and methods to increase the technical knowledge and skill of graduates. Faculty and students need to know what technology applications are available and how to use them to advantage both in education and in practice.

Suggestion 1. Colleges and schools of pharmacy should invest resources to create models of practice that allow pharmacists to use their unique clinical expertise to maximize their contribution to the care of their patients in the community outpatient setting.

Suggestion 2. Colleges and schools of pharmacy should emphasize the pharmacist's role and responsibility in patient medication safety in their didactic and experiential instructional programs.

Suggestion 3. Didactic and experiential education in colleges and schools of pharmacy should include an understanding of the pharmacist's role and responsibility in preventive medicine—the unique expertise pharmacists can contribute to elevate the health status of people in the community.

Suggestion 4. Colleges are encouraged to design experiential education to maximize the ability of students to attain self-confidence in clinical decision support and practice management interactions with patients and other health professionals.

Suggestion 5. Colleges should offer learning experiences designed to provide students with effective communication skills to improve patient comprehension of their condition and optimal use of their medications.

Inter disciplinary/Interprofessional Education and Collaborative Practice

Colleges should create a "culture of collaboration" to ensure that pharmacy students understand how to successfully operate and cooperate in a multidisciplinary, interprofessional team(50). Interdisciplinary education contributes to a pharmacist's comfort level and effective communication skills for working with other health professionals, including physicians, nurses, and other allied health professionals in health care practice partnerships. Interdisciplinary education also familiarizes the other health professionals with the knowledge and skills that pharmacists contribute to the care of patients. Health science students training together helps to clarify role identity and build appreciation and understanding for the other profession's scope of practice. Interprofessional education is viewed as one method for addressing conceptual barriers to collaborative health care(51,52).

Unless they have trained together or worked in a collaborative patient care setting, it is all too common that health professionals do not fully understand the unique and complementary contributions that

those in other disciplines bring to patient care. Pharmacists are not used for the full range of services that they could provide. It is critical that the unique role and responsibilities of pharmacists and the unique clinical capabilities that pharmacists bring to patient care are recognized by other health care providers so that pharmacists may be integrated into their practices.

In a recent position paper, the American College of Physicians-American Society of Internal Medicine (ACP-ASIM) acknowledged the expanding scope of practice for pharmacists and the benefits that will accrue to patient health and safety through collaborative care. "With the transition to the PharmD degree and automated drug dispensing, pharmacists are being trained to take on a greater patient care role. Instead of taking an adversarial position, the medical community must work together with the pharmacy profession to enhance patient care and safety while maintaining physician responsibility for continuous patient care. By combining the efforts of organized medicine and pharmacy, medication errors can be reduced and patients may live fuller, healthier Hives"(53).

Students need to be prepared to assert their professional competence in interprofessional collaborative and cooperative care arrangements. Pharmacists should be able to develop or review proposals for collaborative drug therapy that include: definition of the goal of the collaborative practice, operational plans for meeting the goals, quality assurance, financial plan, marketing, and qualification of the pharmacist participating in the agreement (25-27). To get beyond the demonstration project stage with any of these clinical services, pharmacists must understand how to use published data about such services to justify initiation and continuance of collaborative drug therapy. Pharmacists must be able to establish relationships with other health care professionals so they are recognized and valued as an essential resource in drug therapy.

Proposed Policy Statement 1. The Committee proposes the following policy statement in support of interprofessional and interdisciplinary education for adoption by the House of Delegates.

"The American Association of Colleges of Pharmacy supports interdisciplinary and interprofessional education for health professions education."

Recommendation 4.

AACP should join with other health professions education and practitioner organizations to support a "multidisciplinary summit of leaders within the health professions to discuss and develop strategies for (1) restructuring clinical education to be consistent with the principles of the 21st century health system throughout the continuum of undergraduate, graduate, and continuing education for medical, nursing, and other professional training programs; and (2) assessing the implication of these changes for provider credentialing programs, funding, and sponsorship of education programs for health professionals." This recommendation is consistent with a recommendation of the IOM report (54).

Suggestion 6. The Committee encourages all colleges and schools of pharmacy to foster multiple opportunities during the didactic and experiential program designed to educate and train pharmacy students side-by-side with other health professions students. The desired educational outcome is that pharmacy students understand how to successfully participate, collaborate and cooperate in a multidisciplinary healthcare team.

Suggestion 7. Colleges and schools should develop educational materials that focus on implementation of collaborative practice agreements.

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