American Journal of Pharmaceutical Education **2004; 68 (3) Article S9.**

AACP REPORTS

Pharmaceutical Care in the 21st Century: From Pockets of Excellence to Standard of Care: Report of the 2003-04 Argus Commission

Jordan L. Cohen (Chair),[a] Milap C. Nahata,[b] Victoria F. Roche,[c] Robert E. Smith,[d] Barbara G. Wells,[e] Dennis Helling (Liaison member),[f] and Lucinda L. Maine[g]

[a]The University of Iowa, 115 S. Grand Avenue, Iowa City, IA 52242
[b]The Ohio State University, 500 West 12th Avenue, Columbus, OH 43210-1291
[c]Creighton University, 2500 California Plaza, Omaha, NE 68178-0104
[d]Auburn University, 217 Walker Building, Auburn University, AL 36849-5501
[e]The University of Mississippi, PO Box 1848, University, MS 38655-1848
[f]Kaiser Permanente, 16601 E. Centretech Parkway, Aurora, CO 80011
[g]American Association of Colleges of Pharmacy, 1426 Prince Street, Alexandria, VA 22314-2841

INTRODUCTION

The AACP Argus Commission is comprised of the past five presidents of the American Association of Colleges of Pharmacy (AACP). Its purpose is to scan the environment for the Association and offer its views for AACP action and policy. The Commission also responds to specific AACP Presidential requests for discussion and analysis. Occasionally the AACP President appoints additional members to the Commission who bring unique perspectives on the assigned charges.

The 2003–2004 Argus Commission was specifically charged to define the unique roles and responsibilities of AACP and academic pharmacy in enabling the profession of pharmacy to achieve its goal of delivering pharmaceutical care as the standard for pharmacy practice in all settings. President Kerr asked the Commission to review the reports of the AACP Janus Commission and Report Five of the Commission to Implement Change in Pharmaceutical Education and to reflect on progress made to date on recommendations contained in those reports.

The discussion of the Argus Commission paralleled discussions occurring in 2003–2004 among the member organizations of the Joint Commission of Pharmacy Practitioners (JCPP) of which AACP is a member. Every five years since 1989 JCPP member organizations have planned and executed a profession-wide strategic planning effort. Past cycles have been organized around the planning of a multi-day conference involving pharmacy leaders and other stakeholders. From these conferences the profession adopted the common vision that the future of the profession required individual and collective work to make the necessary changes in pharmacists' education, work environments, regulation, and compensation to allow for the delivery of pharmaceutical care services as the consistent standard of pharmacy practice.

In continuing the every-five-year cycle of planning, JCPP adopted an approach that differed from the convening of a broad-based conference. The profession's leaders instead committed each quarterly meeting of JCPP from November 2003 through the end of 2004 to a series of discussions designed to articulate a desired future for pharmacy in the year 2014. Once accomplished, the participants will work to identify those strategies that must be effectively planned and executed to insure the realization of that vision. AACP leaders actively participated in these quarterly meetings and incorporated relevant elements of the JCPP discussion into other AACP committee activities, including the work of the Argus Commission.

Though the JCPP discussions were not completed during the deliberations of the 2003–04 Argus Commission, sufficient information was available to suggest that the profession remained committed to a future where pharmacists maintain leadership for effective medication use and practitioners increasingly find the opportunities to use their knowledge, skills and abilities to deliver patient-centered pharmaceutical care to individuals and populations.

REVIEW OF RELEVANT PAST REPORTS

The AACP Commission to Implement Change in Pharmaceutical Education[1]

AACP President William Miller initially appointed a 10-member commission in 1989 to critically examine how pharmaceutical education must evolve to keep pace with and lead changes in society and health care. They first considered what the future mission of pharmacy

practice was likely to be, studying the concept of pharmaceutical care as articulated in the work of academic leaders Charles Hepler and Linda Strand.

The last ten to fifteen years have witnessed much experimentation with the concepts and principles of pharmaceutical care practice. While not yet the standard of care across the practice of pharmacy, as noted above, the profession' leaders have not retreated from the belief that access to pharmaceutical care services is essential for the delivery of quality patient care.

At the request of AACP President Mary Anne Koda-Kimble the Commission reconvened in July, 1995, to assess the changes that had occurred in the six years since the original work was done and noted the pace of change in pharmacy education in terms of the number of programs that had completed or committed to the transition from the B.S. to the Pharm.D. degree as the sole professional degree.

Year	Percentage of Schools Offering PharmD Only
Fall 1992	19% of schools
Fall 1995	37% of schools
Fall 1996	>50% of schools
Fall 2004	100% of schools (post-Commission analysis)

The Commission noted the "convulsive market forces" affecting health care and pharmacy and major economic and political forces affecting higher education as well as several important trends in pharmacy. These included automation, information technology, and the growing demand for "population-based" health care services. The six categories of educational outcomes set forth by the Commission remain central to the education of pharmacy graduates today and hence warrant restatement in 2004.

1. Understand health care policy, organization, financing, regulation and delivery;
2. Participate in multidisciplinary teams to provide care and develop clinical practice or disease management guidelines;
3. Utilize various information systems to maintain and retrieve patient data and to communicate with other health professionals;
4. Determine the most cost effective therapeutic plan;
5. Participate in population-based treatment, prevention, and education programs; and,
6. Understand and appreciate cultural diversity.

Of note is the fact that these outcomes are strikingly similar to priorities for the preparation of future health professionals described in recent reports by the Institute of Medicine. Indisputably, the AACP Commission to Implement Change in Pharmaceutical Education yielded time tested insights into the broader environment in which pharmacy practice and education must thrive. Even 15 years after the formation of the original Commission, its vision and recommendations provide AACP and today's educators important guideposts for the structure and process of contemporary pharmaceutical education and a framework for the assessment of our progress.

AACP Janus Commission

The Janus Commission was established by 1995–96 AACP President Koda-Kimble to scan the health care environment and to identify, analyze, and predict those changes within the environment likely to profoundly influence pharmacy practice, pharmaceutical education, and research; and to alert the academy to both threats and opportunities that such environmental changes present. While the Commission to Implement Change primarily looked inward at the enterprise of pharmaceutical education, the Janus Commission largely looked outward and critically examined trends in health care organization and financing and how they would influence pharmacy education and practice. A clarion call for leadership from academic pharmacy was issued to insure that graduates of our educational programs and the scholarship of our faculty were optimally aligned with the changing needs for pharmaceutical care within the evolving health care system. The Commission believed health care delivery would become increasingly more managed as integrated health systems in which practitioners were held more accountable for delivering efficient, patient-sensitive services with defined quality outcomes.

The 2003–04 Argus Commission reviewed the Janus Commission report and found that while change had not occurred as quickly in the health care system as predicted, many of the findings and recommendations remain pertinent to pharmacy education early in the 21st century.[2] A summary of the most relevant findings are contained in Appendix A of this report.

Timing is Everything: Centrality of Medication Use in Health Care

The reports reviewed shared a sense of urgency and the explicit message that if change did not occur in pharmacy education and practice immediately the consequences for the profession, and the public we serve, could be serious and negative. In reality, the transformation of health care underpinning those analyses has not been as sweeping as activities and trends in the early to mid-1990's may have suggested. However, economic forces accompanying the recession at the turn of the cen-

tury, and concerns specifically about quality, access and affordability of health care, are introducing new pressures for health systems change.

While it may be easy to become discouraged and cynical because the profession as a whole has seemingly fallen short of the desired goals to change practice that were adopted by leaders 15 or more years ago, it is very important to broaden the view beyond the desires and aspiration of just those within the pharmacy profession. "Timing is everything" is an adage fitting to an assessment of why pharmacy may or may not have achieved its pharmaceutical care practice goals.

During the 1980's and early 1990's when global health reforms were attempted, medications represented a small portion of overall spending. The most significant shift in the financing of pharmaceuticals in the 1990's was the surge in coverage of medications within employer-sponsored health plans largely managed by pharmacy benefit management firms (PBMs). PBMs were hired by plan sponsors to efficiently process the millions of claims for acute and chronic medications and, as programs became more and more sophisticated, to apply formulary mechanisms and other cost- and utilization-control programs to the medication "silo" within health care. There was virtually no coverage of pharmaceutical care services provided for within the design of pharmacy benefit plans throughout this period of time.

A series of reports from the Institute of Medicine[3-5] is another force that came into play at the turn of the century and increased attention to prescription medications and their effective management. While not every report in this series received an equal amount of attention, either from the public or the professions, collectively they define in a concrete manner the problems in our current health professions education and care delivery systems and set forth important recommendations for change. Of even greater significance to pharmacy educators, each report explicitly identifies pharmacy education and practice as part of the change equation. No doubt, implementation of the Medicare prescription drug benefit in November 2003 will focus additional attention on pharmacy.

Today, physicians, nurses, health policymakers, and quality assurance leaders recognize that specific attention must be focused on the design and functioning of medication use systems that assure patient safety. Increasingly the data are available to suggest that pharmacists must play two distinct and mature roles in the activities surrounding medication use: (1) build and oversee safe, efficient, and sophisticated medication distribution systems and (2) organize and deliver patient-centered pharmaceutical care. There is increasing recognition of the need for pharmacists to play a more visible role in public health and prevention efforts as well. Unfortunately, cost control of drug spending remains the predominant financial objective of decision-makers. Transactional reimbursement for dispensing medication still serves as the predominant compensation system for pharmacy practice, although this has begun to change in some measure.

As the 2003–04 Argus Commission conducted its discussions, Congress debated and subsequently passed legislation designed to introduce the most sweeping changes in Medicare proposed since the establishment of this entitlement program in the 1930's. The Medicare reforms do provide coverage for both components of the medication use process noted above. Specifically, the new Medicare benefit provides coverage for drugs as well as pharmacists services. Identified in legislation as "medication therapy management services," all plan sponsors are required to make them available to certain high risk patient populations.

As pharmacy educators reflect on their activities over the past ten to 15 years there is reason to be proud of the contributions made by members of the academy. First and foremost, the change in degree programs was timely and significant. Such training is now parallel in length and rigor to doctoral education in medicine and dentistry. The guiding premise that pharmacy education must equip graduates to enter practice prepared to deliver pharmaceutical care services assures that our degree programs yield medication use experts for contemporary health care systems.

Furthermore, colleges and schools of pharmacy have continued to hire faculty to serve as pioneers at the vanguard of evolving practice. In the 1970's and 1980's the platform for innovation was almost exclusively the institutional setting, notably academic health center hospitals and clinics. During the last five to ten years more faculty have been hired to develop and lead pharmaceutical care practice in other settings, including the community pharmacy setting. New programs involving pharmacy faculty and students have emerged in locations caring for the underserved, such as community health centers and clinics. In addition, several schools have initiated programs delivering pharmaceutical care and disease management services for university employees and dependents, as well as other local citizens.

Pharmacy faculty have also contributed significantly to the scholarship of medication use through research, policy analysis, and publications. The literature on the need for enhanced medication management and the roles pharmacists play in improving patient care was consid-

ered weak during the era of Clinton health reform efforts. A decade later published evidence supports the contention that pharmaceutical care services enhance quality and contain overall health care costs. In his 2004 Remington medal address, pharmacist Lowell Anderson noted that "the need for pharmaceutical care is clear and now we must create the demand."[6]

Progress Report: Pockets of Excellence in Pharmacy Practice

The Argus Commission sought affirmation that the anecdotal evidence of progress in pharmacy practice was indeed valid by asking for input beyond the traditional review of the literature and perspectives of the five commission members. Dennis Helling, Director of Pharmacy for the Colorado region of the Kaiser Health Plan, joined the Commission as a liaison member. In addition, two other pharmacy practice leaders were invited to present a summary of the progress toward innovation in community and institutional settings.

These individuals were all asked for their insights and recommendations on the role and responsibility of academic pharmacy to enable the profession to meet its long-term goals for practice change. Dan Ashby, Director of Pharmacy at Johns Hopkins Hospital and President of the American Society of Health-Systems Pharmacists, provided the institutional perspective. Dan Garrett, Senior Director for Business Development for the American Pharmacists Association Foundation, presented the community pharmacy perspective. Dan Garrett served as a principle architect of the highly successful community-based care initiative known as "the Asheville Project."[7] Appendix B provides a summary of the discussions and recommendations offered by these practice leaders.

Obstacles to Achieving Pharmaceutical Care as Pharmacy's Universal Practice Standard

Based on the input from the practitioner leaders and reflections on why the profession has not yet realized the goal of delivering more pharmaceutical care in all settings, the Argus Commission identified several significant challenges. While academic pharmacy certainly cannot take on responsibility for remedying all of these, the Commission acknowledged that AACP, deans and faculty do have responsibility for providing advocacy, education, practice leadership and scholarship aimed at addressing aspects of these impediments to progress. That is the basis for the recommendations listed at the end of this report.

The following broad issues were identified:

1. Health care financing and transactional reimbursement for prescriptions which fail to align incentives to improve the quality of the health care system and support pharmacists to routinely provide pharmaceutical care;
2. While the need for pharmaceutical care is clear to all, consumer expectations for pharmaceutical care services are very low/immature which translates to a lack of demand for the delivery of such services by pharmacists.
3. The lack of quality measures and measurement processes directly relevant to the quality of pharmacy services or medication use;
4. Limited culture of quality improvement and accountability for patient care outcomes in pharmacy practice;
5. Corporate cultures in pharmacy practice that are not supportive of pharmacists' involvement in progressive patient care roles due to lack of reimbursement and pharmacy graduates "default" back to dispensing roles in the face of pressures in drug distribution;
6. Under-developed interpersonal skills that promote teamwork and effective interpersonal communications between pharmacists and others (eg, patients, physicians);
7. Limited access to patient specific data for coordinating medication use;
8. Lack of understanding about utilizing a business approach to design and deliver pharmacy services that will provide a return on investment for the practice or payer;
9. Deficiencies or insufficient emphasis on selected content areas and skill development in the pharmacy curriculum; and,
10. Workforce dynamics related to shortages of pharmacists and suboptimal preparation and utilization of pharmacy technicians that compromise advances in delivery of pharmaceutical care.

Roles and Responsibility of Academic Pharmacy: Summary and Recommendations

After considering all available input, the 2003–04 Argus Commission agreed upon the following recommendations for AACP and its members:

Professionalism/Characteristics of Successful Practitioners

Recommendation 1: AACP should embark upon research efforts to assist admissions committees and personnel at colleges and schools of pharmacy to identify methods to determine which applicants possess the potential for developing the key characteristics deemed

highly related to successful advanced clinical practice, including outstanding interpersonal communications, adaptability, and a commitment to teamwork. Further efforts should be aimed at enabling schools to build upon these characteristics throughout the academic program.

Recommendation 2: AACP should identify examples of exemplary pharmaceutical care services delivered by faculty, preceptors and other pharmacists and make information about these practices accessible to member institutions to introduce to students throughout their education and to faculty who are not directly involved with such practices as part of their academic responsibilities.

Recommendation 3: AACP should work with advanced clinical practitioners and practitioner organizations to develop immersion experiences (eg, mini-residencies or sabbaticals) for faculty and academic administrators to assure that those in academic pharmacy remain knowledgeable of and at the forefront of the evolving practice of pharmaceutical care.

Curricular Implications

Recommendation 4: The AACP Academic Affairs Committee and CAPE Outcomes Panel should evaluate the curricular implications of the concept of differentiated roles and specialized functions in contemporary pharmacy practice as well as the curricular components deemed critical for preparing graduates to provide pharmaceutical care (ie, outstanding interpersonal skills, teamwork, and adaptability). These curricular components may include, in part, care documentation and compensation strategies, business case evaluation of new services, quality improvement and assessment practices and tools, interprofessional practice, and the design and evaluation of systems of drug distribution and patient care. In addition, greater emphasis needs to be placed on general education outcomes of problem-solving, critical thinking, communications skills, leadership/professionalism, the historical context of healthcare, and life long learning with the goal of developing graduates with the confidence to influence change in all types of practice settings.

Quality in Experiential Learning

Recommendation 5: AACP should invite other national organizations to jointly convene an invitational conference on experiential education to critically assess the adequacy of resources that guide the development and evaluation of all types of early and advanced practice experiences and create a plan for coordinated efforts to enhance the quantity of excellent experiential rotation sites.

Recommendation 6: Faculty at each college and school of pharmacy should design and deliver compensated patient care services to university personnel, other citizens residing in the community, state employees/retirees/beneficiaries, and other appropriate patient populations at risk of medication-related problems.

Recommendation 7: ACPE should insure through accreditation standards that a sufficient number of advanced practice experiences are delivered by full-time, shared, and volunteer faculty whose practices provide opportunities for students to observe and participate directly in pharmaceutical care service delivery in all settings.

Leadership, Advocacy, and Marketing Activities

Recommendation 8: AACP should expand its interactions with the primary employers of pharmacists to assure employers share academic pharmacy's vision for future practice, to determine if current graduates are adequately prepared for their roles when entering the workforce, and to investigate the extent to which graduates can serve as agents of change throughout their careers.

Recommendation 9: As part of advocacy for expanding access to such services, AACP and member colleges and schools of pharmacy should collect, disseminate, and utilize objective cost analysis data on health outcomes improvement, patient safety, and the impact of pharmacists' services, especially for the elderly and other high risk patient populations.

Recommendation 10: AACP, along with researchers and other stakeholder organizations, should devote efforts to critically assess the pharmacy workforce, including the role, education, and requisite credentials of pharmacy technicians. Further, AACP should assist member institutions to determine the role of colleges and schools of pharmacy in advancing technician education.

Recommendation 11: Deans and selected faculty are in a unique position to educate university administrators, health system leaders, HR staff, fellow deans, governing boards, and political leaders of the economic and quality of life value of the expanded patient care roles of pharmacists. Deans should also be proactive in seizing opportunities to publicly comment through radio, television, and print interviews on the value added role of pharmacy in today's health care system.

Recommendation 12: Faculty, students and administrators should increase grassroots advocacy activities at the local, state and national level to communicate to public and private sector decision makers the value of pharmaceutical care and its impact on quality, safety, and affordability of health care.

Partnership with Practice

Recommendation 13: Pharmacy faculty, in partnership with practitioners, pharmacy networks, and pharma-

cy programs in organized health care settings, should seek to expand patient care in all relevant pharmacy settings through clerkship programs, residency development and shared faculty.

Recommendation 14: Pharmacy faculty should design, conduct and publish evaluation of the impact of patient care services in all relevant practice sites to continue to promote the science of quality measurement and improvement through development and testing of quality metrics relevant to pharmacy practice and the development of a common framework for the evaluation of clinical pharmacy services.

Alignment with Other Stakeholders

Recommendation 15: AACP must increase its dialog with other disciplines to increase opportunities for interprofessional education and practice, to enhance appreciation for pharmacists' contributions to quality patient care, and to share with AACP members important information about other disciplines' priorities for improving education and health care.

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Appendix A. Janus Commission Summary

The Commission challenged pharmacy educators to re-examine the value system underpinning our degree programs. Figure 1 presents the traditional and target values suggested in the Janus Commission Report.

Figure 1

Pharmaceutical Education:
Changing Values for a Changed Health Care System

Traditional Values	Target Values
Factually-based Product Knowledge	Patient-centered Therapeutic Knowledge
Scientific, Classroom-based Curriculum	Scientific/Clinical/Social/Experiential Curriculum
Legal Guardian/Dispenser of Drug Supply	Manager/Coordinator of Medication Use System
Independent Practice/Professionally Isolated	Collaborative, Team-delivered Care System-Oriented Practice

It is significant to note that this recommended change in values is strikingly parallel to the recommendations contained in the IOM report on health professions education (*Health Professions Education: A Bridge to Quality*, 2003). Pharmacy education, and specifically the work of AACP and ACPE in the 1990's, is cited within that report as exemplary of the change that needs to occur across all the health professions education programs.

Through adoption of the new accreditation standards and accompanying curricular reforms, colleges and schools of pharmacy have done more than change from the B.S. to the PharmD degree. The educational process itself has been transformed to a more problem-based, active learning model that prepares graduates to be patient-focused medication use specialists. While most schools still struggle to identify meaningful opportunities to introduce interprofessional learning in both classroom and clinical settings, there are growing numbers of successful examples of such educational models.

The Janus Commission further recommended that colleges and schools of pharmacy attend to other important aspects of furthering the introduction of pharmaceutical care beyond the preparation of graduates with requisite knowledge, skills and attitudes for such practice. Adopting a model from the pharmaceutical industry, the Commission recommended that pharmacy educators engage in:

(a) Research and Development - R&D in areas including evaluation, demonstration, refinement, and marketing of the pharmaceutical care practice model was deemed critical to establishing the need for and value of such services. Research and analysis by individual schools and consortia of schools and other organizations would also insure that educators obtained accurate insights into how such care could be fully integrated into a changing health care marketplace.

(b) Manufacturing and Quality Assurance - By incorporating the learnings from R&D efforts into curricular change and by studying how the performance of graduates met evolving needs in health care according to feedback from employers and

other stakeholders schools could be assured that they were producing the right "product" through the educational process.

(c) Marketing and Sales - The Commission felt strongly that academic pharmacy, and specifically deans, had an important role to play in articulating the need for and value of pharmacists who were prepared to address patients' pharmaceutical care needs and help systems more effectively manage the pharmaceutical component of health care. Communications with other educational units (eg, medicine, nursing, health care administration) as well as with decision-makers in public and private health delivery systems were considered requisite to the integration of our graduates into contemporary health care systems.

The need for an evidence-base for patient-focused pharmacy practice, quality assessment and continuous refinement of curricula, and advocacy for new pharmacy services is as great today as in 1997 when the Janus Commission released its report.

Appendix B. Setting-specific Pharmaceutical Care Practice Analysis

Fully Integrated Care System (Kaiser Colorado)

While acknowledging that a small portion of overall health care services in the United States are delivered in fully integrated care systems, the progressive pharmacy practice at Kaiser Health Plan in Colorado offered the Argus Commission a case study in highly advanced and differentiated pharmacy services and interprofessional practice. In just over 10 years the clinical pharmacy practice within the Colorado region of the Kaiser Health Plan grew from a group of just five clinical practitioners to a cadre of 150 individuals providing a significant array of patient care services for the 400,000 lives covered under the health plan. A total of 650 pharmacists, pharmacy technicians, and pharmacy administrators staff the comprehensive pharmacy operation.

"Differentiated roles and specialized functions" is the term used to describe the personnel model that has been so successful in this practice. Many of the services are delivered at the "population level," including anticoagulation management, cardiac risk service, and high risk pregnancy care. Pharmacists are also actively part of Kaiser's centralized patient call center. These services are staffed primarily with pharmacists trained at the bachelors-level who receive in-service training to prepare them to assume new and expanded roles as they progress on their career ladder.

Other pharmacists are engaged in the delivery of direct, individualized patient care in a variety of primary care clinics and specialty practice areas. This includes diabetes, heart failure, nephrology, mental health, and other specialized services. One clinical specialist typically is needed for each 7 to 8 internal medicine physicians in a clinic or for approximately 10,000 patient lives. Clinical specialists enter the practice with Pharm.D. degrees and a residency (in some cases a specialty residency). If not already board certified, it is an expectation of Kaiser that the pharmacist will become board certified in three years or less.

Every service and new position must be justified on the basis of both cost and quality. The return on investment must be both direct costs and in offsets to additional medical services. The clinical services also must be built upon the foundation of strong core pharmacy distribution operations. It is insufficient to have marquis clinical practice but poor distribution management. Kaiser is also extremely concerned about patient satisfaction measures. In 1992, 82% of patients completing a Kaiser satisfaction survey indicated they were satisfied with their pharmacy services. In 1996 the measure stood at 96% and has remained in that range since that time. Drivers of patient satisfaction appear to be courtesy, the perception that a pharmacist was available, and the quality of the patient consultation provided.

In summarizing the lessons learned from the process of integrating pharmacy so effectively into the mainstream of patient care, Helling offered the following:

(1) Good relations between pharmacy and top levels of management is essential and depends on credible clinician/physician champions to help gain access to senior administration leaders;

(2) Use a business approach in advocating for the introduction of new or expanded services; this must first emphasize true cost savings and secondarily enhanced patient outcomes; and

(3) Identify meaningful metrics that demonstrate the value added by pharmacy services, including leveraging quality rankings such as those of NCQA within the managed care environment.

The curricular implications of these lessons are important for professional doctoral students, residents, fellows, and graduate students. Kaiser is significantly involved in experiential and postgraduate education and training. They maintain a large intern program, are a significant provider of advanced practice rotations, and have a residency training program. Kaiser pharmacists contribute to the didactic curriculum as well but there are no fulltime or shared faculty positions in the mix of pharmacy personnel.

Three important characteristics (beyond the assumption of clinical competency) have been identified as key to the success of a practitioner in the Kaiser system. These have implications for admissions and other areas of pharmacy education. They are:

(1) exceptional interpersonal skills that yield spontaneous praise from colleagues on the medical and nursing staffs;

(2) flexibility and adaptability allowing the individual to identify and take advantage of new opportunities to improve service and care; and,

(3) embody teamwork and exhibit a respect for others' contributions.

While the integrated care setting is still not the predominant model of health care delivery in the United States it offers a lab-

oratory within which much practice development is possible when effective, visionary pharmacy leadership guides practice evolution. Aligned incentives, differentiated roles and specialized functions, and the use of quality measures for performance accountability are important components of the success equation.

Institutional Practice Evolution/Issues

Dan Ashby summarized trends and issues across a variety of hospital and health-systems related to the expansion of pharmacists' roles and the evolution of pharmacy services. He drew upon both his personal experience in several large hospital systems as well as input received from other hospital pharmacy leaders. Leaders in ASHP and health-systems pharmacy remain firmly committed to realizing the vision of pharmacy practice in which pharmacists significantly enhance patients' health-related quality of life by exercising leadership in improving both the use of medications by individuals and the overall process of medication use.

Decreasing lengths of stay, increasing patient acuity, and pressures to moderate the cost of medications and overall health care in the in-patient setting are all factors increasing the demand for clinically-trained pharmacists. In addition, the adoption of technology, including prescriber order entry systems and integrated informatics, creates new opportunities for pharmacists to intervene with prescribers, enhance communication with the medical staff, and introduce evidence-based protocols for clinical management of patients. Ironically, at the same time, pharmacists are being called upon to increase their compounding activities. Other skills and knowledge areas essential for health-systems practice today include quality improvement (CQI/TQM tools and processes), clinical study design, data management and analysis, informatics, and systems knowledge related to expert systems, practice management, and reimbursement.

A strong call for collaboration between academic pharmacy and health-systems pharmacists came out in the discussions. There were numerous examples of where new roles and relationships might be forged. All of the knowledge and skills noted above lend themselves not only to curricular content for professional doctoral degree programs but for post-graduate, life-long learning programs. Institutions could use assistance from faculty in developing new medication use systems and in training personnel on effective medication use management. A critical examination of the use of personnel in both patient care and professional education (ie, faculty roles within institutions and hospital pharmacists' roles as educators) would be timely given contemporary concerns regarding the adequacy of numbers of skilled pharmacists in the workforce.

Several important observations were made regarding clerkship training and the readiness of graduates to assume the roles available to them upon graduation. "Teaching rotations" where students from pharmacy and perhaps other disciplines primarily assume observational roles do not in all cases prepare graduates for the integrated practice responsibilities most hospitals offer newly trained pharmacists. In this case "integrated practice" refers to the fact that most entry-level pharmacists will assume staff positions with a combination of distributive and patient care responsibilities, rather than purely clinical positions. Clerkships might ideally become more standardized across schools and include, at least in some measure, meaningful interprofessional learning opportunities to teach pharmacists how to most effectively work in patient care teams. The ideal length of rotation to achieve specific learning and practice outcomes should also be examined. Ashby also advocated for earlier leadership development and practice management education in pharmacy degree programs.

Community Pharmacy Practice Change

Dan Garrett drew upon his experiences beginning in the mid-1990's in Asheville, NC, where as a hospital pharmacy leader he and colleagues worked with physician specialists and the City of Asheville risk management department to design and implement a community pharmacy-based diabetes disease management program. "The Asheville Project," as the multi-year, multi-disease program is now identified, has been enormously successful for all participants. The project has won national recognition both within and outside pharmacy and served as a model initially for statewide expansion and now national replication. Currently the APhA Foundation is coordinating a 5-site expansion project based on the Asheville model in which employers agree to fund the delivery of diabetes care services provided by pharmacists in the community to their employees and dependents. The Foundation had no difficulty convincing self-funded employers, including the Ohio State University, to sign on to the program. Being able to fulfill the demand for such services as employers and other plan sponsors become aware of their value was an acknowledged concern.

The project is based upon the concepts of patient self-management and empowerment. Pharmacists work closely with primary care and specialty practice physicians to design patients' drug and disease management plans, provide point of care monitoring of disease-relevant metrics to keep both patients and clinicians informed of disease control or progression, and educate patients about their disease and pharmacotherapy to enhance overall therapy adherence and compliance. The result is improved clinical status, higher quality of life, and more rational use of health services resulting in overall cost savings for the health plan sponsor and for patients.

Garrett reflected on his view of how academic pharmacy might facilitate the expansion of pharmaceutical care services like those proven effective in Asheville and elsewhere. Several items have both curricular and service implications for pharmacy educators. Practitioners and students need to gain the skills to develop realistic business plans for the development and implementation of innovative pharmacy services in the community. Two key aspects of any business planning exercise are revenue genera-

tion and marketing of the services. Both populations also need more insight into the use of continuous quality improvement and measurement tools and systems. Of interest, the quality improvement competency was a key need identified across all settings as well as by the IOM in all of their major reports on the health professions.

An interesting contribution in the area of research was the suggestion by Garrett that there is not a need for additional demonstration projects aimed at increasing the evidence-base for pharmaceutical care. Instead there is a need for "process research" that will enable growth in the accessibility of patient care services in the ambulatory care environment. The ability to "ramp up" from isolated pockets of service delivery to widespread availability is essential to the profession's success and has implications for pharmacy education as well.

Two final areas were noted where pharmacy education can enable change in the profession. The first is in the development of skills related to team-delivered care, or collaborative practice. Not only does this involve teaching students in an interprofessional context but also increasing understanding about reimbursement models that are based on collaborative practice (eg, "incident to" billing). The second was increasing student and practitioner understanding of the interpersonal challenges and skills needed for successful coaching of patient self-managed care. Chronic disease management demonstrations such as those in Asheville, NC, reveal that when patients are equipped with more knowledge of their disease and its treatment and receive meaningful feedback on disease control or progressions (eg, regular hemoglobin A1C measures, lipid levels) they become the "manager" of their own health. Today's pharmacy students must appreciate this significant change in practice orientation and how pharmaceutical care services can enable patient self-management.