Executive summary

Background

This invitational consensus-seeking event was convened by the American Society of Health-System Pharmacists (ASHP) and the ASHP Research and Education Foundation as a component of the Pharmacy Practice Model Initiative (PPMI). As a key event in the PPMI, the summit was designed to create passion, commitment, and action among practice leaders to significantly advance the health and well-being of patients through more-effective use of pharmacists as direct patient care providers.

The impetus for the PPMI and the summit came from a 2007 recommendation of the ASHP Council on Pharmacy Management, which was approved by the ASHP Board of Directors. Many practice leaders believed that health-system pharmacy departments were not moving rapidly enough in redeploying their resources to achieve a greater impact on the appropriate use of medicines and on medication-related patient safety. Leaders in pharmacy informatics were frustrated at the slow pace and the lack of sharp focus in applying health information technology to the imperative of aligning the pharmacy enterprise with the most pressing needs in medication-related care in health systems. The ASHP Research and Education Foundation became a cosponsor of the initiative because its objectives related to improved medication use and patient safety. In early discussions that led to the PPMI, the ASHP and ASHP Research and Education Foundation Hilton Head Conference of 1985 was often referenced, with the belief that a comparable event was needed now to create a compelling call to action for practice model reform.

The ASHP Board of Directors appointed an advisory committee to guide the development of the PPMI, including the planning of the summit. Commercial supporters were recruited to help fund the PPMI. A wide net was cast for nominations for summit participants. The final roster of 109 individuals was selected to achieve balance among practice roles, experience, and perspectives; institution type and size; and geography. Several Web-based and social networking methods were used to engage a large number of other individuals in the work of the summit. The 39 invited observers at the summit included representatives from related organizations, the pharmacy press, and corporate sponsors and individuals with a particular interest in implementing practice model change.

Opening of the summit

The summit was moderated by Stephen J. Allen of the ASHP Research and Education Foundation. ASHP President Diane B. Ginsburg opened the event with a warm welcome and a review of the summit’s objectives. John Figueroa of McKesson U.S. Pharmaceutical Distribution presented greetings on behalf of the largest corporate sponsor of the PPMI.

Throughout the summit, invited speakers commented on specific facets of the subject of each briefing paper. (The next five sections of the executive summary give an overview of the briefing papers and the related summit speeches.)

Imperatives for new pharmacy practice models

Cynthia Brennan, Kim Donnelly, and Shabir Somani of the University of Washington Medical Center and School of Pharmacy, Seattle, wrote a briefing paper on the vast problems associated with medication use in hospitals and health systems, including patient harm and unnecessary expenses generated by preventable adverse drug events (ADEs). The
Goal and Objectives of the Pharmacy Practice Model Initiative (PPMI)

Goal of the PPMI
The goal of the initiative is to significantly advance the health and well-being of patients in hospitals and health systems by developing and disseminating optimal pharmacy practice models that are based on the effective use of pharmacists as direct patient care providers.

Objectives of the PPMI
The PPMI will
1. Describe optimal pharmacy practice models that ensure the provision of safe, effective, efficient, and accountable medication-related care for patients in hospitals and health systems, taking into account the education and training of pharmacists, the prospect of enhancing the capacity of pharmacy technicians, and the current and future state of technology.
2. Identify core patient-care-related services that should be consistently provided by departments of pharmacy in hospitals and health systems.
3. Foster understanding of and support for optimal pharmacy practice models in hospitals and health systems by patients and caregivers, health care professionals, health care executives, and payers.
4. Identify existing and future technologies required to support optimal pharmacy practice models in hospitals and health systems.
5. Identify specific actions that hospital and health-system pharmacists should take to implement optimal practice models.
6. Determine the tools and resources needed to implement optimal pharmacy practice models in hospitals and health systems.

The authors also reviewed the root causes of medication-related problems, the barriers to solving these problems, and environmental factors (enablers) that can be used to help improve medication use. Those enablers include ADE reporting and monitoring programs, laws and regulations, accreditation standards, publicity and marketplace competition among institutions, information technology, patient engagement, interdisciplinary collaborative patient care teams, and national quality-improvement initiatives in health care. The general model for advancing quality taught by the Institute for Healthcare Improvement (IHI) could be applied to determine if changes in a pharmacy practice model are having the desired effect on the quality of the medication-use process. Pharmacists have an immense opportunity to take a leadership role in achieving optimal outcomes from the use of medicines.

The opening speech at the summit was made by Laurence Wellikson of the Society of Hospital Medicine. Dr. Wellikson discussed the stresses in hospital care, the need to reinvent acute care, and the imperative for teamwork in patient care. The status quo in hospital care is not sustainable, and it is time for leaders in medicine, nursing, pharmacy, and elsewhere to set a new direction.

Michael Taylor, an executive with Baylor Health Care System in Dallas, reviewed the broad challenges facing health systems, the difficulty hospitals will experience under national health insurance reform, and the unsettled financial issues in the future. Many health systems are struggling with how to offer high-value services while attempting to expand their position in the market, how to become more clinically and strategically integrated, and how to use information technology effectively to foster continuity of care.

Henri R. Manasse, Jr., executive vice president and chief executive officer of ASHP, discussed the imperative for pharmacy practice model change from the perspectives of the profession’s moral, ethical, and social obligations; the need to use pharmacy resources rationally; contemporary health policy initiatives such as pay for performance; and evidence about the value of pharmacists’ patient care services. Among his recommendations were that pharmacists must (1) stop doing work that can be done by nonpharmacists and (2) be held accountable for the outcomes of their patient care activities.

Billy Woodward, a consultant and seasoned leader in health-system pharmacy practice, offered a scorecard on health-system pharmacy’s performance in various areas over the past 50 years. Based on the work of IHI, he suggested four strategies for practice model change that will enhance pharmacist accountability. Health-system pharmacy must convert barriers to breakthroughs, capitalize on external catalysts for change, address key “untouchable” issues, and expand ways of thinking to achieve integrated distributive and clinical roles in pharmacy and integration of the pharmacist with the patient care team.
Optimal pharmacy practice models: Characteristics, requirements, and challenges

The briefing paper by Rita Shane of Cedars-Sinai Medical Center in Los Angeles began by discussing the essential elements of pharmacy practice for ensuring optimal medication use: leadership, responsibility and accountability for the medication-use process, and the infrastructure of the pharmacy enterprise. The drug distribution system—including procurement of medicines, inventory management, storage, compounding, and dispensing—is the cornerstone of pharmacy practice models. Priorities for patient-centered medication management should be based on evidence related to the value of pharmacists in patient care and on the needs of the population being served. The following issues are among those commonly addressed in the design of contemporary pharmacy practice models: definition of core clinical services, unit-based pharmacist collaboration with patient care teams, specially trained pharmacists for high-risk medication use, integration of pharmacy generalists and specialists, competency assurance of pharmacists, use of residents and students as pharmacist extenders, and use of technicians and technology in drug distribution. Among the enablers of optimal practice models are reports of evidence on positive outcomes from pharmacist engagement in patient care, medical and quality-improvement organizations that recognize and support the role of pharmacists in patient care, the growing number of pharmacist clinical specialists, and expanded residency training. Pharmacists should continue to demonstrate their unique contributions to patient care quality and safety, challenge traditional boundaries related to scope of practice, and collaborate with patient care teams to ensure optimal medication use.

Five pharmacy practice leaders from a variety of settings described their work in implementing successful practice models. Kim Currie Mason of the University of Tennessee Medical Center in Knoxville discussed a round-the-clock integrated practice model in which pharmacist services to patients have been enhanced by expanding clinical specialist support of decentralized pharmacist–technician teams and by minimizing the nonclinical work of pharmacists. The medical center’s pharmacy residency program was a ready source of recruitment of clinical staff.

Nannette M. Berensen of Intermountain Medical Center, Murray, Utah, described the systematic process that was used to transform the culture of a pharmacy department to achieve an integrated practice model in which work functions are viewed as a shared responsibility and not differentiated by job title. An advanced clinical pharmacist career track provided incentives for achieving specialty certification, serving as a preceptor to students, leading patient care initiatives, and contributing to professional organizations. The number of residency-trained pharmacists and board-certified pharmacotherapy specialists increased. Pharmacists are now more actively engaged in improving patient care because they have a greater sense of professional satisfaction and obligation.

Pharmacy Practice Model Initiative Advisory Committee

Daniel M. Ashby, B.S.Pharm., M.S. (Chair)
Senior Director of Pharmacy, The Johns Hopkins Hospital, Baltimore, MD

Burnis D. Breland, Pharm.D., M.S.
Director of Pharmacy, The Medical Center, Inc., Columbus Regional Healthcare System, Columbus, GA

Paul W. Bush, Pharm.D., M.B.A.
Chief Pharmacy Officer, Duke University Hospital, Durham, NC

Lisa M. Gersema, Pharm.D.
Director of Pharmacy, United Hospital, Saint Paul, MN

Susan Goodin, Pharm.D.
Associate Director, The Cancer Institute of New Jersey, New Brunswick, NJ

William A. Gouveia, B.S.Pharm., M.S., D.H.L. (Hon)
Adjunct Clinical Professor of Pharmacy, Northeastern University, Boston, MA

Steven Pickette, Pharm.D.
Director, System Pharmacy Clinical Services, Providence Health and Services, Renton, WA

Joseph Saseen, Pharm.D.
Associate Professor, University of Colorado, Denver, Aurora, CO

Mark H. Siska, B.S.Pharm., M.B.A/T.M.
Assistant Director, Informatics and Technology, Pharmacy Services, Mayo Clinic Rochester, Rochester, MN

T. Mark Woods, Pharm.D.
Clinical Coordinator and Residency Program Director, Pharmacy Department, Saint Luke’s Hospital, Kansas City, MO

ASHP Staff

David Chen, B.S.Pharm., M.B.A.
Director, ASHP Pharmacy Practice Sections and Section of Pharmacy Practice Managers

Daniel J. Cobaugh, Pharm.D.
Vice President, ASHP Research and Education Foundation

Karl F. Gumpper, B.S.Pharm.
Director, ASHP Section of Pharmacy Informatics and Technology
Corporate Supporters

ASHP and the ASHP Research and Education Foundation are grateful to the following companies, whose support of the Pharmacy Practice Model Initiative made this summit possible:

**Leadership Level**
- McKesson Corporation
  - [http://mckessonbop.com](http://mckessonbop.com)

**Gold Level**
- Amgen
  - [www.amgen.com](http://www.amgen.com)
- Omnicell, Inc.
  - [www.omnicell.com/Pages/Home.aspx](http://www.omnicell.com/Pages/Home.aspx)
- Carefusion
  - [www.carefusion.com](http://www.carefusion.com)

**Silver Level**
- Apexus
  - [www.apexus.org](http://www.apexus.org)
- Baxa Corporation
  - [www.baxa.com](http://www.baxa.com)
- Baxter International Inc.
  - [www.baxter.com](http://www.baxter.com)
- CardinalHealth
  - [www.cardinal.com](http://www.cardinal.com)
- Medco Health Solutions, Inc.
  - [www.medcohealth.com](http://www.medcohealth.com)

**Bronze Level**
- AstraZeneca
  - [www.astrazeneca-us.com](http://www.astrazeneca-us.com)
- Cerner
  - [www.cerner.com](http://www.cerner.com)
- Epic
  - [www.epic.com](http://www.epic.com)
- Grifols
  - [www.grifols.com](http://www.grifols.com)
- Pharmacy OneSource, Inc.
  - [www.pharmacyonesource.com](http://www.pharmacyonesource.com)
- Siemens
  - [www.siemens.com](http://www.siemens.com)

Summit participants divided into seven work groups, such as the one shown here, to resolve unsettled “beliefs and assumptions” about the future environment in health-system pharmacy and to make recommendations about essential steps in creating sustainable practice models. Areas of agreement among the seven groups went to the summit as a whole for consensus voting.

Steven G. Pickette of Providence Health and Services, Renton, Washington, discussed the development of a clinical pharmacy practice model for a 27-hospital system, beginning with a common vision and the use of an intervention documentation tool that allowed comparison of outcomes according to the presence or absence of the model. Approval was obtained to implement the model systemwide based on return-on-investment data (lower readmission rates, shorter lengths of stay, greater cost avoidance, and reduced medication expenses).

Richard Berry of Appleton Medical Center, a component of the ThedaCare 4-hospital network in Wisconsin, described the integration of the pharmacist as a formal member of a collaborative care team that includes the physician, nurse, and care manager. The team meets on patient admission and at daily bedside conferences. The pharmacist on the team is responsible and accountable for the patient’s medication-related outcomes.

Brett L. Geiger of the Jesse Brown Veteran Affairs Medical Center in Chicago discussed the integration of clinical pharmacy specialists into the patient-centered medical home model of the Department of Veterans Affairs. Clinical pharmacy specialists serve as midlevel practitioners who have explicit authority to prescribe medications, devices, and supplies; order laboratory tests and review laboratory test values; order consultations; perform physical assessments; and develop and document therapeutic plans. Pharmacists have the opportunity to contribute greatly to the care management and coordination mission of the Department of Veterans Affairs’ patient-centered medical home.

**Advancing the application of information technology in the medication-use process**

Opportunities and challenges related to health information technology (HIT) in supporting optimal practice models were the topics of a briefing paper by Mark H. Siska of Mayo Clinic Rochester (Minnesota) and Dennis A. Tribble of Baxa Corporation Systems Development Center, Daytona Beach, Florida. Using the vision for HIT of the Institute of Medicine and the Department of Health and Human Services as a backdrop, the paper examined the current state of medication management technologies. Although hospitals have made progress in implementing medication-use-supporting technologies, the rate of integration of these technologies remains low. The most significant challenges in HIT are related to cost, insufficient HIT professionals, lack of vision, a
departmental rather than system focus in selecting HIT solutions, lack of interoperability, system design that lacks optimal support of clinical decisions, and privacy concerns. Recommended attitudes and actions for practice leaders included the following points: resist waiting for the perfect solutions to become available before pursuing any HIT applications and continue to seek HIT solutions that yield incremental gains aligned with broader strategic objectives. A preferred future state of pharmacy information technology was described based on the assumption that pharmacists will become primary medication therapy managers and that advanced technical practitioners will operate the drug distribution system.

Christopher R. Fortier of the Medical University of South Carolina and the South Carolina College of Pharmacy, Charleston, discussed technology and technicians as critical determinants in achieving the ultimate practice models. Among the HIT requirements for optimal practice models are remote and mobile capabilities, operational automation, clinical analytics, and interoperability. Also essential are independent pharmacy technician drug distribution models, which will be achieved through mandatory training, documented competencies, and licensure of technicians.

**Advancing the use of pharmacy technicians**

Charles E. Myers, a retired staff member of ASHP, wrote a briefing paper on opportunities and challenges related to pharmacy technicians in supporting optimal practice models. Achievement of significant gains in redeployment of health-system pharmacists to clinical activities will be feasible only if far more pharmacy technicians become adequately qualified to handle medication distribution. There is a high degree of variability among states in the training requirements and scope of practice for technicians. It would be wise to move toward requiring some level of training and pharmacy experience to be eligible to take the technician certification examination. Certifications for advanced and specialized technician practice areas such as sterile compounding should be developed. Although most pharmacy technicians in health systems are engaged in activities associated with drug product distribution, many other roles are evolving. Pharmacy has yet to face its responsibility for ensuring the competence of pharmacy technicians, and this is holding the profession back from adequately addressing patients’ clinical medication-use needs; this constitutes a threat to the public health. Health-system pharmacy may find it necessary to seek progressive laws on technicians that relate specifically to its sector of practice.

**Successful implementation of new pharmacy practice models**

A briefing paper on methods for fostering change in the practice model at the pharmacy department level was prepared by Max D. Ray of the College of Pharmacy, University of Tennessee, Memphis, and Burnis D. Breland of Columbus (Georgia) Regional Medical Center. Among the common threads that have characterized the process of change in health-system pharmacy practice models since the Hilton Head Conference (1985) are the following: changes were usually pharmacy initiated (rather than health system initiated), the pharmacy director typically had a strong vision for the necessity of change and tended to be an early adopter of innovation, building a strong relationship with the medical staff was critical, and changes occurred incrementally and are still ongoing. New practice models are required to achieve pharmacy responsibility and accountability for the outcomes of medication use, and it will fall to the leaders of pharmacy departments to provide the vision, direction,
Encouragement, and staying power to see the process through to completion. Several change models that may be applied to the process of reforming a pharmacy department’s mode of practice were described briefly in the paper, along with common pitfalls in applying change models. Among the essential elements of the process of changing a practice model are consensus building and shared leadership, building support within the institution, interprofessional patient care, staff development, and securing resources for planning and implementation. Vision and leadership in health-system pharmacy could be greatly fostered through a menu of services and tool kits from ASHP.

Scott Knoer of the University of Minnesota Medical Center, Minneapolis, spoke about lessons learned from the experience of changing a pharmacy practice model. Any successful pharmacy practice model will be based on a sound drug distribution system. Automation and highly trained technicians must be leveraged to optimize medication delivery and allow pharmacists to practice at the “top of their license.” Staff engagement early in the process is essential, and the leader must be open to incorporating staff ideas into the model. Implementing successful practice model change requires a sound operational strategy, excellent communications throughout the organization, and the ability to navigate complex political issues.

The consensus of the summit

Summit participants spent much of their time in small-group, consensus-seeking discussions and in large-group discussion and voting on two types of statements: (1) beliefs and assumptions about why change is necessary, the major barriers to change, and the facilitators of change and (2) recommendations about essential steps in creating sustainable practice models in health-system pharmacy. The summit’s final 147 points of consensus reflect results from both the survey conducted before the summit and results of voting at the summit. (A Web-only article by Daniel J. Cobaugh of the ASHP Research and Education Foundation explains the consensus-development process in detail.)

As a high-profile agenda for change in health-system pharmacy, the consensus of the summit is expected to energize strategic planning by the staffs of pharmacy departments. The consensus also will be used by ASHP and the ASHP Research and Education Foundation for guidance on further development of the PPMI, including the creation of tools and resources to assist practitioners with practice model change initiatives.

Here are several key areas of summit agreement related to beliefs and assumptions:

- There is opportunity to significantly advance the health and well-being of patients in hospitals and health systems by changing how pharmacists, pharmacy technicians, and technology resources are deployed.
- Within the next few years, financial pressures will force hospitals and health systems to pursue significant changes in how their pharmacy resources are used.
- In most hospitals and health systems, improvements in technology will be required for pharmacy departments to fully achieve optimal deployment of pharmacist and pharmacy technician resources.
- Pharmacy technicians who have appropriate education, training, and credentials could be used much more extensively to free pharmacists from drug distribution activities.
- Pharmacy departments in hospitals and health systems are looking for guidance from ASHP on how to most effectively establish optimal practice models.
Some of the key recommendations made during the summit are as follows:

• All patients should have a right to receive the care of a pharmacist. (Summit participants recognized that resources have to be allocated according to the complexity of patients’ needs and organizational needs.)

• Hospital and health-system pharmacists must be responsible and accountable for patients’ medication-related outcomes.

• Every pharmacy department should develop a plan to reallocate its resources to devote significantly more pharmacist time to medication management services.

• Pharmacists who provide drug therapy management should be certified through the most appropriate board of pharmacy specialties.

• Pharmacist-provided drug therapy management should be prioritized using a patient medication complexity index.

• A patient medication complexity index should be developed that includes factors such as severity of illness, number of medications, and comorbidities.

• In optimal pharmacy practice models, individual pharmacists must accept responsibility for both the clinical and the distributive activities of the pharmacy department.

• Sufficient pharmacy resources must be available to safely develop, implement, and maintain technology-related medication-use safety standards.

• By 2015, the Pharmacy Technician Certification Board should require completion of an accredited training program before an individual can take the certification examination.

• To support optimal pharmacy practice models, technicians must be licensed by state boards of pharmacy.

Conclusions and next steps

At the final session of the summit, William A. Zellmer, a consultant and speaker on strategic and professional issues in pharmacy, commented that this conference stands at the head of a long line of efforts by pharmacy leaders to move pharmacists more completely into patient care roles. The summit and the larger PPMI will be deemed a success if the staffs of most health-system pharmacy departments purposefully examine how they deploy their resources, based on an understanding of the imperatives for concentrating the talents of pharmacists on making the best use of medicines. The results of the summit reflect a bold commitment by pharmacists to take the lead in creating optimal pharmacy practice models in hospitals and health systems. Now the challenge is to translate the dreams and aspirations of the summit into real changes that improve the quality and outcomes of patient care.

In drawing the summit to a close, ASHP President Diane B. Ginsburg spoke about the excitement of being part of the birth of a new movement to change and advance pharmacy practice models to better serve the needs of patients. ASHP and the ASHP Research and Education Foundation are committed to doing what it takes to facilitate health-system pharmacy’s march forward. Among other steps, ASHP will be refreshing its vision statement for pharmacy practice, bringing into that document the best thinking of the summit. The ASHP 2015 Health-System Pharmacy Initiative will be revamped, taking into account the consensus of the summit. Demonstration projects on practice model change will be funded by the ASHP Research and Education Foundation. ASHP state affiliates will be playing an important role in the PPMI through their educational programming and advocacy. Summit participants and observers have a special obligation to keep the summit alive by championing its key messages. The time to act is now!