HARVEY A. K. WHITNEY LECTURE

# Translating health care imperatives and evidence into practice: The "Institute of Pharmacy" report

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Thank you for the privilege of being here tonight to follow in the footsteps of the exceptionally talented and dedicated pharmacy leaders who preceded me. ASHP has provided me with numerous opportunities to learn, to collaborate, to develop lifelong friendships, to grow professionally throughout my career, and, most importantly, to advance the care of patients. I feel incredibly honored to receive this recognition.

To my family, staff, residents, friends, and colleagues: You have inspired me and nurtured my love for this profession. I must admit that I fell for pharmacy before I fell for my husband. My residents this year created a slogan that states "Must Love Pharmacy," since it is a key criterion we use in selecting pharmacy staff members.

As I started my journey through the collection of Harvey A. K. Whitney Award lectures, Paul Abramowitz reminded me that after the Pharmacy Practice Model Summit in November 2010, I had remarked that the time had come for an Institute of Medicine (IOM) report to examine our current and future roles and to indelibly imprint pharmacists as an essential component of health care delivery models. I am optimistic that, at some point, we will have the opportunity to become the subject of or substantially contribute to an IOM report that addresses the essential role of pharmacists in optimizing medication use. In the interim, I will use the IOM process as a framework in which to provide my remarks, which I will call the Institute of Pharmacy report.

By way of background, IOM is a nonprofit organization and the health arm of the National Academy of Sciences. IOM convenes groups to address important health care issues using evidence-based and expert-based methodologies. Studies are based on specific directives from Congress or requested by federal agencies or other organizations.[1] At the turn of this century, IOM released a breakthrough report, *To Err is Human: Building a Safer Health System*,[2] which created the impetus for the quality and safety initiatives that we have seen promulgated over this past decade.

Some of you may recall that many years ago a keynote speaker at an ASHP national meeting was Faith Popcorn, the founder of a market research consulting company, who coined the term *trendbending*, defined as the process of shaping strategy or products around current trends.[3] Since I am an avid follower of health care trends, my objective is to apply trendbending to examine the implications of key imperatives for pharmacy. The evidence-based and experience-based methodologies that I have used include an analysis of published literature, expert opinion from key stakeholders outside of pharmacy, and key principles and perspectives garnered from the Whitney lecture

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Over the years, Dr. Shane has been recognized for her passion for the profession. In 2007, she received the California Society of Health-System Pharmacists (CSHP) Pharmacist of the Year Award and the Distinguished Service Award from the ASHP Section of Pharmacy Practice Managers. Dr. Shane was the 2005 recipient of the ASHP Distinguished Leadership Award and the 1995 recipient of the John Webb Visiting Professorship in Hospital Pharmacy for management excellence.

Photograph courtesy of Lisa Hollis

Rita Shane

Dr. Shane is a coinvestigator in two research studies in collaboration with the UCSF School of Pharmacy and approved by the California State Board of Pharmacy to demonstrate the safety and importance of allowing technicians to check technician-filled medication cassettes in hospitals. She also worked collaboratively with CSHP to author language in support of this regulatory change, which was approved by the State of California effective in January 2007. Dr. Shane was coinvestigator of a 2000 National Patient Safety Foundation Research Award to study the impact of dedicated medication nurses on the rate of medication administration errors in a randomized, controlled trial, the results of which were subsequently published in the *Archives of Internal Medicine*.

Dr. Shane served as the U.S. facilitator at the Global Conference on the Future of Hospital Pharmacy held during the 68th Congress of the International Pharmaceutical Federation and was responsible for reviewing the international literature on medication administration. She was one of the investigators in a multicenter study of medication errors detected by emergency department pharmacists, which was published in the *Annals of Emergency Medicine*. Throughout her career, Dr. Shane has participated on committees and task forces at the state and national levels; she was a member of the American Hospital Association Committee on Health Professions and the National Quality Forum Patient Safety Advisory Committee. She is currently the ASHP representative to the Joint Commission Hospital Professional Technical Committee. She has made presentations at local, state, national, and international meetings and has published over 75 papers in the pharmacy literature, including 1 of the background papers for the recent Pharmacy Practice Model Summit.

collection, which, according to Jim McAllister,[4] represents a timeless legacy for us all.

I have chosen health care trend exemplars, borrowing from recent IOM methodology, based on their relevance to our mission to ensure the best use of medications. These trends are also significantly aligned with the Pharmacy Practice Model Initiative. As we explore the evidence, the numerous opportunities for pharmacy engagement provide us with a blueprint for providing our imprint as individual pharmacists, as members of our health systems, and as a profession. Let's begin trendbending.

## Trend 1: Value-based purchasing and evolving reimbursement models

In order to reduce rising health care expenditures, the Center for Medicare and Medicaid Services (CMS) value-based purchasing program and commercial payer plans are tying health-system reimbursement to performance in the areas of quality, patient satisfaction, and avoidance of preventable events (i.e., hospital-acquired conditions and readmissions). Commercial health plans are also experimenting with bundled or global payments for hospitals and physicians based on episodes of care. As an example, Blue Cross Blue Shield of Massachusetts has implemented global payment contracts in Boston that provide incentives to reduce readmissions and improve patient satisfaction.[5] Mebel and colleagues[6] recently described the implications and opportunities for pharmacy based on the growing number of medication-related quality measures and opportunities to improve HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) patient-satisfaction scores specific to pain management, understanding of medications prescribed, and information provided after hospital discharge.

The questions for health-system pharmacy are these:

- Are we able to demonstrate our contributions to improving organizational performance on medication-related indicators and patient satisfaction?
- How are we positioning our departments and our profession to address global reimbursement for episodes of care?

## Trend 2: Focus on team-based care

The use of team-based care to reduce health care costs is a key provision of the Patient Protection and Affordable Care Act and has resulted in the emergence of initiatives focusing on three factors.

First is transitions of care. Innovative programs such as BOOST (Better Outcomes for Older Adults Through Safe Transitions)[7] and Project RED (Reengineered Discharge)[7,8] have integrated pharmacists into their multidisciplinary teams.

Second is reducing hospital admissions and complications. The Partnership for Patients is a national program designed to reduce hospital readmissions by 20% and hospital-acquired conditions by 40%.[9] These goals were based on data demonstrating that about one in five Medicare patients is readmitted within

30 days and one in seven patients is harmed during his or her care.

Third is the model of comprehensive primary care and the medical home. The CMS Innovation Center specifically recommends robust team-based care, which includes pharmacists in primary care practices to coordinate care and prevent emergency room visits.[10]

We are seeing increasing evidence supporting pharmacists' contributions on health care teams:

- In 2010, *Health Affairs*, a leading health care policy journal, published "Why Pharmacists Belong in the Medical Home."[11]
- The Health Resources and Services Administration established the Patient Safety and Clinical Pharmacy Services Collaborative in which pharmacists play a key role in community-based teams focusing on high-risk, high-cost, underserved patient populations, with the goal of reaching 3000 communities by 2015.[12] Over the past three years, these teams have achieved significant improvements in patient safety and outcomes.
- Recently, the U.S. Surgeon General Report on "Improving Patient and Health System Outcomes Through Advanced Pharmacy Practice" provided an extensive review of pharmacists' contributions on health care teams in a variety of settings.[13]

A prerequisite for providing team-based care is ensuring that the health professions' work force possesses interdisciplinary skills: specifically, the knowledge of each team member's role and responsibilities and the ability to relate to each other to ensure patient care needs are met.[14] IOM recommended the restructuring of health professional education to enable students to develop team skills as the foundation for working together effectively as graduates.[15,16] To meet this work force imperative, the Interprofessional Education Collaborative was

## Harvey A. K. Whitney Lecture Award

**Past Recipients**

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|---|---|---|---|
| 1950 | W. Arthur Purdum | 1981 | Kenneth N. Barker |
| 1951 | Hans T. S. Hansen | 1982 | William E. Smith |
| 1952 | Edward Spease | 1983 | Warren E. McConnell |
| 1953 | Donald E. Francke | 1984 | Mary Jo Reilly |
| 1954 | Evlyn Gray Scott | 1985 | Fred M. Eckel |
| 1955 | Gloria N. Francke | 1986 | John W. Webb |
| 1956 | George F. Archambault | 1987 | John J. Zugich |
| 1957 | Sister Mary John, R.S.M. | 1988 | Joe E. Smith |
| 1958 | Walter M. Frazier | 1989 | Wendell T. Hill, Jr. |
| 1959 | I. Thomas Reamer | 1990 | David A. Zilz |
| 1960 | Thomas A. Foster | 1991 | Harold N. Godwin |
| 1961 | Herbert L. Flack | 1992 | Roger W. Anderson |
| 1962 | Grover C. Bowles | 1993 | Marianne F. Ivey |
| 1963 | Vernon O. Trygstad | 1994 | Kurt Kleinmann |
| 1964 | Albert P. Lauve | 1995 | Paul G. Pierpaoli |
| 1965 | Sister Mary Berenice, S.S.M. | 1996 | William A. Zellmer |
| 1966 | Robert P. Fischelis | 1997 | Max D. Ray |
| 1967 | Paul F. Parker | 1998 | John A. Gans |
| 1968 | Clifton J. Latiolais | 1999 | William A. Gouveia |
| 1969 | Leo F. Godley | 2000 | Neil M. Davis |
| 1970 | Joseph A. Oddis | 2001 | Bernard Mehl |
| 1971 | Sister M. Gonzales, R.S.M. | 2002 | Michael R. Cohen |
| 1972 | William M. Heller | 2003 | James C. McAllister III |
| 1973 | George L. Phillips | 2004 | Billy W. Woodward |
| 1974 | Louis P. Jeffrey | 2005 | Thomas S. Thielke |
| 1975 | Sister Mary Florentine, C.S.C. | 2006 | Sara J. White |
| 1976 | R. David Anderson | 2007 | Henri R. Manasse, Jr. |
| 1977 | Herbert S. Carlin | 2008 | Philip J. Schneider |
| 1978 | Allen J. Brands | 2009 | Paul W. Abramowitz |
| 1979 | Milton W. Skolaut | 2010 | Charles D. Hepler |
| 1980 | Donald C. Brodie | 2011 | Daniel M. Ashby |

Harvey A. K. Whitney (1894–1957) received his Ph.C. degree from the University of Michigan College of Pharmacy in 1923. He was appointed to the pharmacy staff of University Hospital in Ann Arbor in 1925 and was named Chief Pharmacist there in 1927. He served in that position for almost 20 years. He is credited with establishing the first hospital pharmacy internship program—now known as a residency program—at the University of Michigan in 1927.

Harvey A. K. Whitney was an editor, author, educator, practitioner, and hospital pharmacy leader. He was instrumental in developing a small group of hospital pharmacists into a subsection of the American Pharmaceutical Association and finally, in 1942, into the American Society of Hospital Pharmacists. He was the first ASHP President and cofounder, in 1943, of the *Bulletin of the ASHP*, which in 1958 became the *American Journal of Hospital Pharmacy* (now the *American Journal of Health-System Pharmacy*).

The Harvey A. K. Whitney Lecture Award was established in 1950 by the Michigan Society of Hospital Pharmacists (now the Southeastern Michigan Society of Health-System Pharmacists). Responsibility for administration of the award was accepted by ASHP in 1963; since that time, the award has been presented annually to honor outstanding contributions to the practice of hospital (now health-system) pharmacy. The Harvey A. K. Whitney Lecture Award is known as "health-system pharmacy's highest honor."

established by health care professional organizations to integrate education among physicians, pharmacists, nurses, and other health care professionals on health sciences campuses.[17] Interprofessional training to promote collaborative care is already occurring at a number of sites, including the Northeast Ohio Medical University (NEOMED) College of Pharmacy, Medical University of South Carolina, University of California San Diego, and University of Kentucky. NEOMED has an interdisciplinary curriculum in which a significant proportion of pharmacy learning is accomplished simultaneously with medical students to prepare graduates for a team approach to patient care.[18]

Health-system pharmacists must consider the following:

- Have we placed sufficient emphasis on transitions of care and the medical home in redesigning our practice models?
- Is it time to collaborate with physicians, nurses, and other health care providers in our health systems to create team training programs across our respective disciplines for students, residents, and staff?

## Trend 3: Nursing and health care reform

The nursing profession has positioned itself to play a key role in health care reform through advanced practice roles, through research demonstrating improved patient outcomes associated with nursing actions, and by providing a plan for transforming the future of nursing, detailed in a recent IOM report.[19] The strategic agenda for the nursing profession includes providing primary care in response to physician shortages in these settings. Almost 20 years ago, the American Nurses Association Safety and Quality Initiative established an infrastructure for measuring the impact of nurses on patient care.[20] The initiative resulted in a national database of evidence-based nursing-sensitive quality indicators, including nursing hours per patient day, number of falls, and rate of nosocomial infections. A number of these indicators have been adopted by national quality organizations, such as the National Quality Forum, and are supported by regulatory agencies. From a public perspective, nurses have maintained the top rating in the Gallup poll each year since 1999, with the exception of one year.[21]

The questions for health-system pharmacy are these:

- How do we partner with the nursing profession to further define our respective roles in medication management?
- How can we learn from the important work nurses have done in developing nursing-sensitive indicators?

## Trend 4: Reducing the burden of chronic diseases

The data are compelling: Greater than one in four Americans has two or more diseases, with chronic diseases accounting for 75% of annual health care costs[22] and 22.7% of 30-day readmissions for nonsurgical conditions.[23] A recent IOM report highlighted the need to prioritize chronic diseases such as arthritis, cancer, and diabetes; identify effective population-based interventions; and test emerging disease management models, particularly for the frail elderly and underserved populations.[22] The report identified 15 evidence-based models for comprehensive chronic care and determined to what extent these improved outcomes. Notably, these models include

- Pharmaceutical care,
- Inpatient care that includes comprehensive pharmacy programs,
- Interdisciplinary primary care models,
- Preventive home visits,
- Geriatric management, and
- Transitional care.

Avoiding chronic illness is the primary goal of prevention programs such as the U.S. Department of Health and Human Services' Healthy People 2020, which includes a number of specific medication-related objectives.[24] The IOM report recommended a "living-well framework" that specifies "tailored pharmaceutical treatment" as an intervention strategy for patients with chronic diseases.[22] We know that employers and payers have developed prevention programs to reduce health care costs. However, are you aware that CMS supports an annual wellness visit under Medicare Part B that includes a review of prescriptions?[25]

The underlying questions for health-system pharmacy are these:

- Given this promising support of our role in chronic diseases, do we as health-system pharmacists place sufficient emphasis on chronic medications during the time that patients are in our hospitals?
- Do we consistently evaluate chronic medications in the context of what patients will need when they leave our premises? Do we follow up with these patients after discharge and in our outpatient clinics?
- Shouldn't all patients have at least an annual review of their medication list by a pharmacist as a prevention strategy? And wouldn't high-risk patients benefit from a more-frequent, perhaps quarterly, medication review or "therapeutic tune-up"?
- Can we demonstrate reduced costs and better patient outcomes, which would support the inclusion of this function as a national quality indicator?

## Trend 5: Chronic disease epilogue—specialty pharmacy

An added layer of complexity in the treatment of chronic debilitating diseases has been the emergence of biologicals and other therapeutic advances. These agents, generally referred to as specialty pharmaceu-

ticals, can cost up to $350,000 per year and are expected to represent 40% of health plan spending by 2020.[26] The cost, quality, and safety issues related to chronic diseases are magnified with the use of biologicals. The impending introduction of biosimilars will add new challenges and responsibilities related to formulary evaluation, patient selection and education, monitoring, the evaluation of adverse events and outcomes, and ethical considerations compared with innovator products. Some health systems have been "insourcing" specialty pharmacy management to reduce fragmentation of care and support contracting and revenue cycle management. The projected growth in the number of chronic diseases that will be treated by specialty pharmaceuticals and the associated quality, safety, and cost considerations will require pharmacists who possess the clinical, operational, and financial skills to support patient needs.

### Trend 6: Health literacy and adherence

Low health literacy affects 9 out of 10 adults, results in a higher incidence of chronic diseases, and leads to poor health outcomes.[27] Health literacy is defined as "the degree to which individuals have the capacity to . . . understand basic health information and services needed to make appropriate health decisions." The magnitude of this problem has resulted in a national action plan to improve health literacy by advancing research and evidence-based interventions. Recognizing that low literacy increases the likelihood of medication errors, the Agency for Healthcare Research and Quality recently established a pharmacy health literacy center to support the development of knowledge and skills in this important area.[28] "Universal precautions" to minimize the risk that patients will not understand information about their health or treatment—analogous to minimizing the risk of spreading infections—and the "teach back" method are important elements of the health literacy tool kit.[29] I would venture to guess that the majority of practicing pharmacists are not fluent in these methods of communication with patients.

Since medications are often the mainstay for treating chronic diseases, poor adherence adversely affects patient outcomes and increases hospitalizations at a cost of $100 billion per year.[30] The complexity of medication regimens, level of health literacy, cultural beliefs, and economics are among the barriers to adherence. Evidence supports case management, patient education, simplification of medication regimens, and pharmacist follow-up as effective interventions for improving adherence.[31] An important aspect of new care delivery models will be the application of these interventions to improve adherence and reduce health care costs.

Health-system pharmacy must answer the following:

- Isn't it imperative that we integrate competencies related to medication literacy into education of pharmacy students, residents, and our staff?
- Have we identified improving patient adherence as a core responsibility of health-system pharmacists?

### Trend 7: Health information technology and patient safety

A recent IOM report addressed the need for greater accountability and reporting to make health information technology (IT)-assisted care safer.[32] The report recommended several relevant actions, including

- Establishment of criteria for monitoring safe medication use,
- Development of quality- and risk-management requirements for IT vendors with a focus on human factors and usability,
- Vendor and user reporting of health IT-related morbidity and mortality,
- Establishment of an independent entity to investigate, monitor, analyze, and report deaths, morbidity, and unsafe conditions,
- Cross-disciplinary research related to safe implementation, use, and human factors, and
- Development of a framework to support regulation by the Food and Drug Administration if progress in safety is not achieved.

Pharmacists have recognized the challenges associated with health IT for over a decade. In 1999, Michael Cohen and the Institute for Safe Medication Practices created medication-safety field tests for pharmacy information systems. ASHP established an essential learning platform through the Section on Pharmacy Informatics and Technology, thanks to early work led by Toby Clark and others. More recently, Mark Siska and Dennis Tribble[33] provided us with an excellent road map for ensuring the safe and effective use of technology. As a profession, we have accepted the challenges associated with understanding, integrating, and implementing complex health IT. We have come to recognize that unless we understand the workflows and human interfaces associated with technology, including the transfer of information across the continuum of care, we cannot keep our patients safe. We frequently find ourselves with new work that is transaction based rather than patient centered, undermining our role as guardians of safe medication use and relegating us to servants, as Paul Pierpaoli[34] so eloquently stated. The complexity of medication workflows associated with health IT and the resulting effects on medication safety and quality are not well understood by most health-system decision-makers, health IT vendors, or our patients.

The questions for health-system pharmacy are these:

- Have we ensured that pharmacists play a key role in IT decision-making in our health systems?
- Perhaps the recent IOM report lays an imperative at our doorstep. Is it time for pharmacy to lead a multidisciplinary effort to ensure that safe, effective, efficient medication management is a top priority of health IT vendors?

## Cancer as a case study

I have chosen to use cancer as a case study since it encompasses the trends that I have summarized thus far and some important trends that bear consideration.

- Cancer is a high-cost, chronic disease, and advances in targeted chemotherapy can be expected to increase costs significantly.
- Multidisciplinary teams including pharmacist specialists already play a key role in managing complicated chemotherapy orders, supportive care, and increasingly complex medication regimens.
- Emerging payment models, such as episode payment for entire treatment courses for breast, lung, and colon cancer, are being pilot tested.[35] These models are evaluating the impact of standardized treatment regimens on patient outcomes (e.g., emergency department visits, complications, adverse events, survival).
- Health systems are acquiring oncology practices in response to reduced margins for chemotherapy in the private sector and to advance an integrated approach to patient care.
- Oncology medical homes will be important to support patients and meet clinical, quality, and economic goals.
- Advances in cellular immunotherapy will result in new approaches to treatment and create ethical challenges due to their high cost.
- Oral chemotherapy agents are transforming the treatment of many cancers. Patients require close follow-up to manage adverse effects, ensure adherence, and prevent drug interactions. These costly medications are often provided by specialty pharmacies.
- Biosimilars will require careful monitoring of efficacy and safety in comparison to the innovator products. Patient education regarding these agents will also be important.
- Lack of health literacy is a major challenge for cancer patients and a barrier to effective treatment.[36]
- Ensuring the safety of chemotherapy management with health IT systems is essential.
- Pain management, palliative care, and end-of-life management are nationally recognized patient care and economic priorities.

Health-system pharmacy must answer the following questions:

- Although board-certified oncology specialists are already engaged in providing the services described, are we training a sufficient cadre of pharmacists to meet the many dimensions of cancer care?
- Are we training leaders who understand and can manage the full scope of oncology services that are needed?
- Since cancer is a chronic disease, should this be a priority focus area for education and training, just as hypertension and diabetes are, to ensure that pharmacists across the continuum of care possess the necessary knowledge and skills?

## Stakeholder perspectives on the pharmacy profession

I interviewed several individuals representing different dimensions of health care:

- Bruce Bagley, M.D., Medical Director for Quality Improvement for the American Academy of Family Physicians,
- David Bates, M.D., Medical Director of Clinical and Quality Analysis at Partners HealthCare System,
- Linda Burnes Bolton, Dr.P.H., RN, FAAN, Vice President for Nursing and Chief Nursing Officer, Cedars-Sinai Medical Center, and Vice-Chair of the Initiative on the Future of Nursing IOM report,
- Scott Weingarten, M.D., Cofounder, President, and Chief Executive Officer (CEO) of Zynx Health, and
- C. Duane Dauner, CEO of California Hospital Association.

I sought to determine their perspectives on health care priorities related to medication use and pharmacy practice and their recommendations on opportunities for improvement. Not surprisingly, their perspectives (see box) are consistent with the key imperatives I have described and the recommendations from the Pharmacy Practice Model Summit.[37] Key recommendations and perspectives included the following:

1. We should prioritize high-risk, high-cost populations who would derive the most benefit from pharmacists' knowledge and skills. Technology should support prioritization of these patients.
2. Pharmacists have a tendency to focus on medications being prescribed rather than whether the regimens are effective based on patients' clinical needs. Medication overuse, specifically discontinuing medications that patients do not need, is an area that warrants more emphasis. Health-system pharmacists should play a greater role in patient education and improving adherence.
3. "Teamness" is essential to leverage the contributions of each team member for the benefit of the patient rather than to differentiate the value of one team member over another (Bagley B, personal communication, 2012 Feb 28).
4. Significant improvement is needed in handoffs between health-system pharmacists and the patient's next level of care, whether it be home, a skilled-nursing facility, or assisted living. Communication with patients and caregivers after hospital discharge is important to reduce errors and

readmissions. The interface between health-system and community pharmacists is critical in order to ensure one source of truth for the patient's medication list.
5. Relevance is an important aspect of how we relate to and are perceived by our organizations and by health care professions.
6. Publishing studies in key health care journals is important to increase awareness of pharmacists' contributions outside of the profession.
7. Individuals who pursue the pharmacy profession do not always seek or want to interact with patients.
8. Not all pharmacists have the same level of expertise.

As one would expect, the perspective of each stakeholder was based on his or her personal experience interacting with pharmacists, which demonstrates, as Bruce Vinson has stated, that knowledge of the value of pharmacy services is largely local (Vinson B, personal communication, 2012 Mar 23). Visibility of pharmacists in patient care areas is essential. Each interaction that pharmacists have with patients, members of the health care team, and decision-makers is an opportunity to demonstrate relevance and value, the theme of Roger Anderson's[38] Whitney address. We need to show through our actions that our goals are in alignment with current health care priorities at each opportunity and level of engagement: with the health care team, patients, executive decision-makers, the health care professional community, and, ultimately, policymakers.

### Whitney exemplar themes

One of the first things that I believe most Whitney Award honorees do after receiving "the call" (and we realize the magnitude of this honor) is to take a journey through the Whitney lecture collection. As I explored over 60 years of wisdom, I realized the timelessness of these works that represent the passion, soul, and intellectual capital of our profession. I do not believe that the perspectives I am sharing with you tonight are anything new. With your indulgence, let me share just a few examples that support the blueprint for this Institute of Pharmacy report. (Note: These examples are not in chronological order by design to illustrate the recurrence and evolution of key themes.)

## Stakeholders' Perspectives on Health Care Priorities and Pharmacy Practice

- We should prioritize high-risk, high-cost populations who would derive the most benefit from the pharmacist. Technology should support the prioritization of these patients.
- Pharmacists have a tendency to focus on medications being prescribed rather than whether the regimens are effective based on the patients' clinical needs. Medication overuse, specifically discontinuing medications that patients don't need, is an area that warrants more emphasis.
- Pharmacists should play a greater role in improving adherence and access to medications for low-income populations.
- The concept of "teamness" is essential, since the focus should be on how to leverage the contributions of each team member for the benefit of the patient rather than on each discipline's specific role. Silos are eliminated as team members work together and each member gains respect for each other's contributions to patient care.
- Significant improvement is needed in handoffs between health-system pharmacists and the patient's next level of care, whether it be home, a skilled-nursing facility, or assisted living. Communication with patients and caregivers after discharge is important to reduce errors and readmissions. The interface between health-system and community pharmacists is critical in order to ensure one source of truth for the patient's medication list.
- Patient-specific continuity-of-care plans that encompass all aspects of clinical care will support safe, effective, efficient management of patients.
- Pharmacists would benefit from education about evolving health care delivery models.
- Pharmacogenomics will add another layer of complexity to patient care.
- Individuals who pursue the pharmacy profession do not always seek or want to interact with patients.
- Pharmacists may focus on medication cost rather than safety.
- Not all pharmacists have the same level of expertise.
- Pharmacists should be actively engaged in educating inpatients about their medications.
- Relevance is an important aspect of how we relate to and are perceived by our organizations and by health care professions. Pharmacists should understand and align their priorities with the goals and priorities of their respective organizations.
- Publishing studies in key health care journals is important to increase awareness of pharmacists' contributions.
- Community pharmacists' lack of access to patient health records is a barrier to quality and safety.
- Pharmacists should strive to be included in medical home programs.
- Absence of reimbursement for pharmacists as providers has been a barrier to the profession's progress.
- Over the next decade, advances in technology will support patient self-management as well as remote patient monitoring, which will change the dynamics between providers and patients.

- 1951, Hans S. Hansen[39]: The pharmacist "will never be a part of the whole picture" continuing to do the same work; "he must change" such that "no function is complete without the presence of a pharmacist."
- 1978, Allen J. Brands[40]: "The patient's pharmacist speaks 4 languages: medical, nursing, lay, and pharmaceutical."
- 1977, Herbert S. Carlin[41]: "Patients must be the central focus of all our endeavors. To succeed as professionals, pharmacists must be mature and realistic enough to accept a patient-centered interdisciplinary approach" to patient care.
- 1996, William A. Zellmer[42]: "Let's dedicate ourselves to remaking this occupation of ours into a profession that gives people what they want and need . . . pharmacists with soul."
- 1999, William A. Gouveia[43]: Each pharmacist should "calculate his or her own 'patient trust quotient'" as an indicator "that priority has been given to spending time with patients."
- 2003, James C. McAllister, III[4]: "Our patients must become our strongest advocates and demand our active participation in improving their health. The days of hiding in pharmacies or surrounding ourselves with other providers . . . must end now."
- 1998, John A. Gans[44]: "The most important priority . . . is to define what we mean by quality and become specific in our measurement of it. We need to agree on a specific set of quality measures that are positively changed by pharmaceutical services."

## Call to action

The evidence and expert opinions provide the foundation for my call to action.

**Patient-centered health-system pharmacy practice.** Current health care financing models and regulatory requirements have created a health-system pharmacy model that focuses significant resources on acutely managing medication orders related to the patient's admission rather than ensuring that the patient's medication list is optimized to prevent drug-related problems and readmissions. Think about the significant pharmacy resources we invest in changing long-term medications to those on our formularies, which then creates confusion at discharge. Isn't the need for medication reconciliation an unintended consequence of acute care "medication micromanagement"? Think of each admission as an opportunity to conduct a point-of-care evaluation, much like measuring blood glucose or the International Normalized Ratio to determine if drug therapy changes are needed. Our objectives should be to resolve drug-related problems associated with the patient's admission, evaluate the patient's chronic medication needs, and prepare the patient to safely use medications after discharge.

Here is my vision for what a reengineered patient-centered medication management model might look like. I recognize that this is a significant departure from current practice; however, my objective is to stimulate us to think beyond the traditional medication-use process and focus on what our patients need.

- Upon admission, acute and long-term medications are prescribed. Pharmacists, who have demonstrated competency in therapeutic management, participate in ordering medications as part of the collaborative practice team.
- Pharmacists evaluate medication orders to ensure safety and quality in the context of the whole patient.
- Medications are dispensed to treat acute patient care needs.
- Patients or family members bring in home medications for identification and evaluation by pharmacists.
- When patients are admitted emergently, initial doses of long-term medications are provided by the pharmacy until those medications can be brought in from home. If this is not possible, subsequent doses are provided by the pharmacy.
- Throughout the hospitalization, pharmacists evaluate the medication regimen in collaboration with the team and recommend additions of, changes to, and discontinuation of medications based on the patient's clinical needs during hospitalization and in anticipation of long-term medication needs after discharge.
- Patients are interviewed by the pharmacist to determine if they understand how to take their medications. Education is provided using the "teach-back" method to determine medication literacy. Patients who are competent are allowed to self-administer medications under the supervision of the nurse.
- Patients document their medications on a patient-centered medication administration record, which they can continue to use after discharge.
- Pharmacists develop longitudinal patient-specific pharmacotherapy plans, as Paul Abramowitz[45] recommended, in collaboration with the team.
- High-risk patients, defined as those who are on complex medication regimens, have diseases or conditions that put them at risk for readmission, or have poor medication literacy, receive a follow-up call within 72 hours after discharge to reassess medication literacy and adherence. Additional follow-up encounters, via phone or video conferencing, are scheduled based on the pharmacist's assessment of the patient's risk for adverse medication outcomes.

Obviously, there are multiple considerations and consequences associated with this model, not to mention a host of regulatory issues. The evolution of these ideas requires much more dialogue with stakeholders. However, the questions I ask are these: Would this approach enable pharmacists to spend more time focusing on patient-centered medication needs and less time managing medication order transactions? Would these changes have a positive impact on

team members by providing them with more time for patient care activities? Would patient care be improved by this reengineered model?

**Alignment of practice priorities.** Here are the vital factors in aligning pharmacy's practice priorities with health care imperatives:

- As a profession, we need to make improving patient satisfaction a priority.
- Pharmacists should be integral to and active participants on every health care team.
- The pharmacist should be the member of the team who is responsible for ensuring patient medication literacy and adherence.
- Evaluation and simplification of long-term medication regimens in anticipation of discharge should be a priority focus area, especially for high-risk patients.
- Pharmacists across all settings—acute care, medical home, and ambulatory care—should serve as medication case managers to coordinate longitudinal medication management for high-risk patients, as described in the reengineered model.
- At a minimum, all patients should have an annual review of their medication lists by a pharmacist.
- We should lead a health professional collaborative focused on the integration and usability of health IT systems to ensure medication safety and invite IT vendors to participate.
- We should create an innovation center within the profession to stimulate practice advancement based on current health care imperatives. The center could engage multicenter teams to incubate and spread best practices.

**Essential competencies.** The competencies that are essential for the pharmacy enterprise include

- Patient-centered communication and medication literacy,
- Workflow management, including the relationships among people, processes, and systems,
- Health care reimbursement,
- Specialty pharmaceuticals,
- Interprofessional collaborative practice,
- Cancer care, and
- Geriatrics.

**Metrics and research opportunities.** In his 2009 Whitney address, Paul Abramowitz[45] stated that "to ensure that we have the resources to provide the pharmacy care that our patients deserve, it is critical that we also develop the appropriate metrics and measurement tools." Multicenter studies should be conducted to identify and validate a core set of pharmacy-sensitive indicators associated with improved patient outcomes. We should engage colleges of pharmacy and residency programs to support this research.

In acute care, examples of process and outcome indicators could include the

- Number and severity of prescribing errors prevented per 100 admissions,
- Number of medication-related quality problems (underuse and overuse of medications) resolved per 100 admissions, and
- Number of adverse drug events in high-risk patients (i.e., oncology, critical care, and pediatrics) per number of pharmacist hours per 100 beds as the initial phase in determination of pharmacy-sensitive indicators.

Indicators during transition of care and after discharge might include

- The number and potential severity of drug-related problems resolved during transition of care and after discharge per 100 patients,
- The number of successful teach-back encounters after patient education and after discharge, and
- Adherence rates (defined as medications taken as prescribed) and readmissions rates 30, 90, and 180 days after discharge in high-risk patients with pharmacist follow-up, compared with adherence rates without pharmacist follow-up after discharge.

## Conclusion

My goal in preparing this Institute of Pharmacy report was to stimulate progress in advancing practice based on the significant number of opportunities created by current health care imperatives. From my perspective, the confluence of evidence, expert opinion, and needs of our patients are synergistic and clarify our role and responsibilities as pharmacists. We must

- Always keep patients at the center of our priorities and actions,
- Ensure the accuracy and safety of the patient's medication list in the context of the whole patient and in collaboration with the health care team,
- Take ownership of assessing patients at risk for adverse medication outcomes by evaluating their medication literacy and adherence, and
- Measure what we do in terms that are relevant to decision-makers at the health-system, health professional, and health policy levels.

We should always remember that progress is the outcome of each interaction that we have. Each encounter presents us with an opportunity and a responsibility for demonstrating our value to each stakeholder, especially to our patients. Bill Zellmer[46] stated that an indicator of progress in transforming pharmacy will be public demand. I believe we will have achieved this when patients ask, "Where is my pharmacist?"

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### References


1. Institute of Medicine. About the IOM. www.iom.edu/About-IOM.aspx (accessed 2012 Feb 19).
2. Kohn LT, Corrigan JM, Donaldson MS, eds. To err is human: building a safer health system. Washington, DC: National Academy Press; 1999.
3. Faith Popcorn's Brain Reserve. www.faithpopcorn.com/ (accessed 2012 Feb 19).
4. McAllister JC III. Harvey A. K. Whitney Lecture. What will be your legacy? *Am J Health-Syst Pharm.* 2003; 60:1625-30.
5. Morton M. Blue Cross boss touts payment method. www.metrowestdailynews.com/news/x1679921197/Blue-Cross-boss-touts-payment-method (accessed 2012 Mar 1).
6. Mebel E, Mark SM, Weber RJ. The CMS value-based purchasing program: making sense of the regulations and implications for health system pharmacy. *Hosp Pharm.* 2012; 47:147-55.
7. Society of Hospital Medicine. Boosting care transitions resource room. www.hospitalmedicine.org/ResourceRoomRedesign/RR_CareTransitions/CT_Home.cfm (accessed 2012 Feb 21).
8. Boston University Medical Center. Reengineered discharge. www.bu.edu/fammed/projectred/ (accessed 2012 Mar 16).
9. U.S. Department of Health and Human Services. Partnership for Patients: better care, lower costs. www.healthcare.gov/compare/partnership-for-patients/ (accessed 2012 Feb 24).
10. Gilfillan R. New CBO report supports innovation center's approach to improving care. www.healthcare.gov/blog/2012/01/innovations01242011.html (accessed 2012 Mar 16).
11. Smith M, Bates DW, Bodenheimer T et al. Why pharmacists belong in the medical home. *Health Aff.* 2010; 29:906-13.
12. Health Resources and Services Administration. Patient Safety and Clinical Pharmacy Services Collaborative. www.hrsa.gov/publichealth/clinical/patientsafety/index.html (accessed 2012 Mar 2).
13. Giberson S, Yoder S, Lee MP. Improving patient and health system outcomes through advanced pharmacy practice. A report to the U.S. Surgeon General Office of the Chief Pharmacist, U.S. Public Health Services; 2011. www.fmi.org/docs/health-wellness/Improving_Patient_and_Health_System_Outcomes_Report.pdf (accessed 2012 Jan 30).
14. Shane RR. Pharmacy without walls. *Am J Health-Syst Pharm.* 1996; 53:418-25.
15. Committee on Quality of Health Care in America. Crossing the quality chasm: a new health system for the 21st century. Washington, DC: National Academies Press; 2001.
16. Greiner AC, Knebel E, eds. Health professions education: a bridge to quality. Washington, DC: National Academies Press; 2003.
17. Interprofessional Education Collaborative Expert Panel. Core competencies for interprofessional collaborative practice: report of an expert panel. www.aacn.nche.edu/education-resources/ipecreport.pdf (accessed 2012 Apr 8).
18. Northeast Ohio Medical University. College of Pharmacy—NEOMED. www.neomed.edu/academics/pharmacy (accessed 2012 Apr 19).
19. Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing at the Institute of Medicine. The future of nursing: leading change, advancing health. Washington, DC: National Academies Press; 2011.
20. American Nurses Association. Nursing-sensitive indicators. http://nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/PatientSafetyQuality/Research-Measurement/The-National-Database/Nursing-Sensitive-Indicators_1 (accessed 2012 Feb 18).
21. Jones JM. Record 64% rate honesty, ethics of members of Congress low; ratings of nurses, pharmacists, and medical doctors most positive. www.gallup.com/poll/151460/Record-Rate-Honesty-Ethics-Members-Congress-Low.aspxx (accessed 2012 Feb 18).
22. Committee on Living Well With Chronic Disease. Living well with chronic disease: a call for public health action. Washington, DC: National Academies Press; 2012.
23. Podulka J, Barrett M, Jiang J et al. 30-day readmissions following hospitalizations for chronic vs. acute conditions, 2008. Statistical brief #127. www.hcup-us.ahrq.gov/reports/statbriefs/sb127.pdf (accessed 2012 Mar 13).
24. U.S. Department of Health and Human Services. Healthy People 2020. www.healthypeople.gov/2020/default.aspx (accessed 2012 May 5).
25. Medicare. What is the "Welcome to Medicare" preventive visit? www.medicare.gov/welcometomedicare/visit.html (accessed 2012 Mar 3).
26. Vogenberg FI, Larson C, Rehayem M. Beyond the cost of biologics: employer survey reveals gap in understanding role of specialty pharmacy and benefit design. *Am Health Drug Benefits.* 2012; 5(1):23-9.
27. Vancheriv C. Innovations in health literacy research: workshop summary. Washington, DC: National Academies Press; 2011.
28. Agency for Healthcare Research and Quality. Pharmacy health literacy center. www.ahrq.gov/pharmhealthlit/ (accessed 2012 Mar 1).
29. DeWalt D, Callahan LF, Hawk VH. Health literacy universal precautions toolkit. Rockville, MD: Agency for Healthcare Research and Quality; 2010:1-227.
30. Osterberg L, Blaschke T. Adherence to medication. *N Engl J Med.* 2005; 353:487-97.
31. New England Healthcare Institute. Thinking outside the pillbox: a system-wide approach to improving patient medication adherence for chronic disease. www.nehi.net/publications/44/thinking_outside_the_pillbox_a_systemwide_approach_to_improving_patient_medication_adherence_for_chronic_disease (accessed 2012 Feb 21).
32. Committee on Patient Safety and Health Information Technology. Health IT and patient safety: building safer systems for better care. Washington, DC: National Academies Press; 2012.
33. Siska MH, Tribble DA. Opportunities and challenges related to technology in supporting optimal pharmacy practice models in hospitals and health systems. *Am J Health-Syst Pharm.* 2011; 68:1116-26.
34. Pierpaoli PG. Creatively using our intellectual capital. *Am J Health-Syst Pharm.* 2009; 66:1087. Editorial.
35. United Healthcare. New United Healthcare cancer care payment model to focus on best treatment practices and better health outcomes. www.uhc.com/news_room/2010_news_release_archive/new_unitedhealthcare_cancer_care_payment_model.htm (accessed 2012 Feb 24).
36. National Research Council. Patient-centered cancer treatment planning: improving the quality of oncology care: a national coalition for cancer survivorship and Institute of Medicine workshop. Washington, DC: National Academies Press; 2011.

37. The consensus of the Pharmacy Practice Model Summit. *Am J Health-Syst Pharm.* 2011; 68:1148-52.
38. Anderson RW. Of perceived value. *Am J Hosp Pharm.* 1992; 49:1919-24.
39. Hansen HS. Work by the side of work. *Bull Am Soc Hosp Pharm.* 1952; 9:31-3.
40. Brands AJ. The patient's pharmacist. *Am J Hosp Pharm.* 1979; 36:311-5.
41. Carlin HS. Patient accountability—pharmacists' future. *Am J Hosp Pharm.* 1978; 35:263-7.
42. Zellmer WA. Searching for the soul of pharmacy. *Am J Health-Syst Pharm.* 1996; 53:1911-6.
43. Gouveia WA. At center stage: pharmacy in the next century. *Am J Health-Syst Pharm.* 1999; 56:1613-8.
44. Gans JA. The patient is waiting. *Am J Health-Syst Pharm.* 1998; 55:1675-9.
45. Abramowitz PW. The evolution and metamorphosis of the pharmacy practice model. *Am J Health-Syst Pharm.* 2009; 66:1437-46.
46. Zellmer WA. Pharmacy's future: transformation, diffusion, and imagination. *Am J Health-Syst Pharm.* 2010; 67:1199-204.