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Features

The Ohio Northern Pharmacy and Wellness (PAW) Review *is a student-run organization whose vision is to provide a professional, educational and relevant journal for both practicing and student pharmacists while further developing our own leadership, research skills and professional writing ability.*

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Dear Colleague,

Please enjoy this complimentary copy of *The Pharmacy and Wellness Review*, a publication of the Ohio Northern University Raabe College of Pharmacy. *The PAW Review* is in its seventh year of publication. You may access previous editions of *The PAW Review* at http://pharmacyandwellnessreview.weebly.com.

In this special edition we highlight the Health Systems Leadership Summit that was held on the Ohio Northern University campus on February 11, 2016 (the Summit). The Summit was facilitated by ASHP President John Armitstead and included health-system pharmacy directors from the Midwest region. The purpose of the Summit was to address issues and develop solutions to shape pharmacy's growing role in healthcare delivery, particularly in evolving health systems models. The topic areas were identified through the 2016 ASHP Pharmacy Forecast.

The format for the Summit was a roundtable discussion, and students from the Professional Leadership Development elective course attended the event and captured the essence of the discussion. Editorial services were provided by the PAW student group and Ohio Northern University faculty. The articles that appear in this edition of *The PAW Review* are a summary of the issues and discussion on the topics.

The PAW Review is a publication of the Drug and Health Information Center at Ohio Northern University. It is written, edited and produced by PharmD students in the College, with direction from faculty advisors. This is a unique publication among our academy, and this special edition of *The PAW Review* is the first opportunity to provide proceedings from an important event in the region.

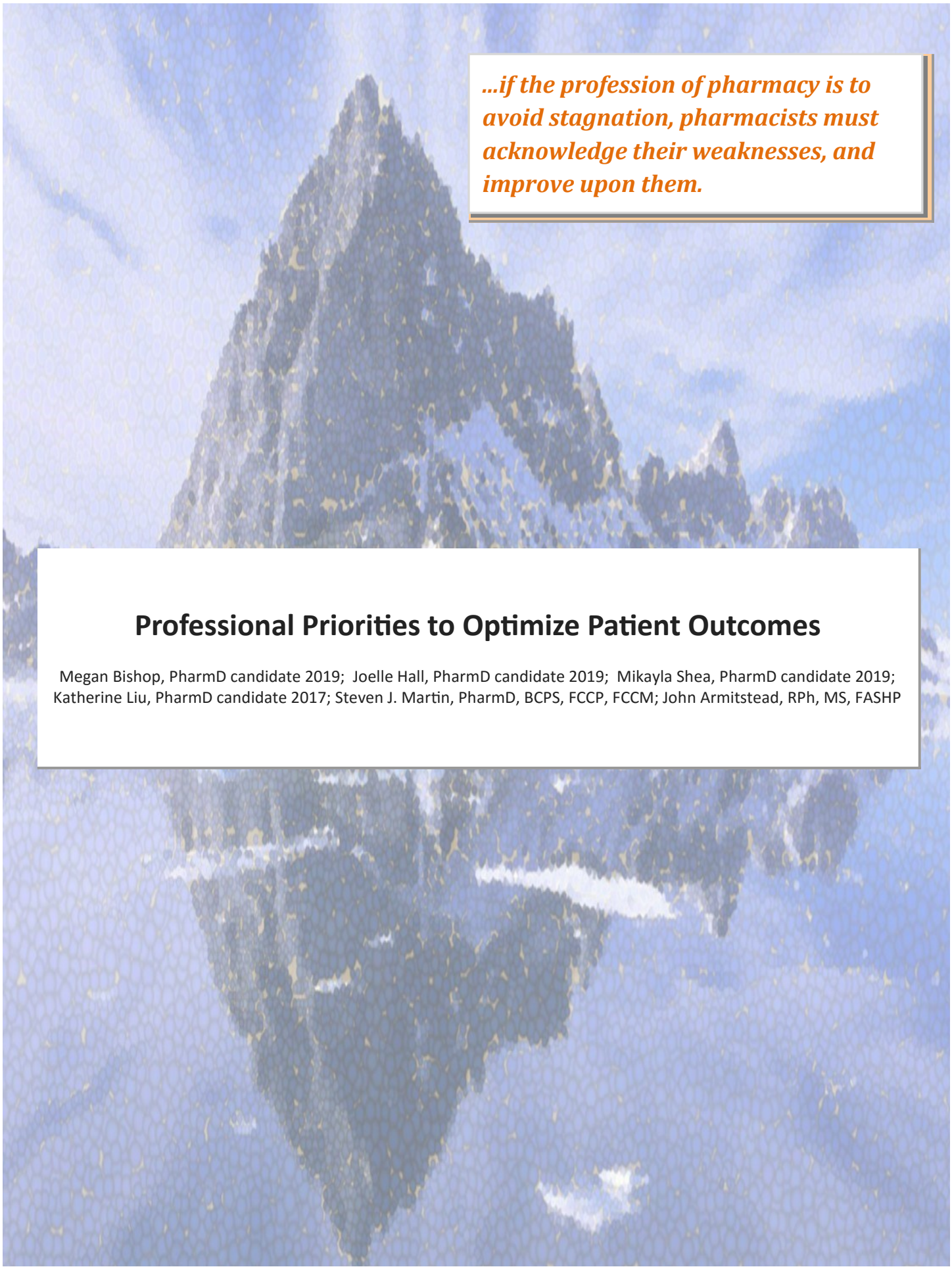
The Raabe College of Pharmacy at Ohio Northern University has been graduating pharmacists for 132 years, and our more than 7,000 alumni impact all facets of the pharmacy profession. Ohio Northern University is located in beautiful Ada, Ohio, a rural community in a medically underserved community. Our students and faculty provide primary care services, as well as preventative care and wellness programs for the underserved of rural Hardin County, Ohio, and the surrounding community. The Drug and Health Information Center answers medical and health questions and provides services to local county residents as well as the medical community in the region.

Visit us at www.onu.edu/pharmacy. I hope you'll enjoy this special edition of *The PAW Review*!

Sincerely,

Steven J. Martin, PharmD, BCPS, FCCP, FCCM

Dean



...if the profession of pharmacy is to avoid stagnation, pharmacists must acknowledge their weaknesses, and improve upon them.

Professional Priorities to Optimize Patient Outcomes

Megan Bishop, PharmD candidate 2019; Joelle Hall, PharmD candidate 2019; Mikayla Shea, PharmD candidate 2019; Katherine Liu, PharmD candidate 2017; Steven J. Martin, PharmD, BCPS, FCCP, FCCM; John Armitstead, RPh, MS, FASHP

John A. Armitstead, RPh, MS, FASHP

John A. Armitstead

John Armitstead is the current president and chair of board of directors of the American Society of Health-System Pharmacists (ASHP) as well as the system director of pharmacy services for Lee Memorial Health System. Armitstead also currently serves as the Health System Pharmacy Administration (HSPA) PGY2 residency program director and cochair of the preceptor development committee for Lee Memorial Health System.

Armitstead received his bachelor of science degree in pharmacy from Ohio Northern University and earned a master's degree in hospital and clinical pharmacy from The Ohio State University while completing a hospital pharmacy residency certificate program from Riverside Methodist Hospital. Additionally, Armitstead has work experience in community, hospital and administrative pharmacy.

Armitstead continues to engage in teaching and educational efforts in addition to his administrative position. Currently, he is a visiting lecturer and preceptor for the college of pharmacy at the University of Florida. He is also a preceptor for the Lake Erie College of Osteopathic Medicine school of pharmacy. Armitstead participated in a number of team taught courses in pharmacotherapy and health-system pharmacy at the University of Cincinnati and University of Kentucky during his career.

In the past year, Armitstead has been honored with the Florida Society of Health-System Pharmacists (FSHP) 2015 Excellence in Leadership Award, the Jack Beal Postgraduate Award from The Ohio State University and has been inducted into Phi Lambda Sigma, a pharmacy leadership society at the Lake Erie College of Osteopathic Medicine. With more than 35 years of pharmacy experience, Armitstead has made numerous contributions to the profession, which include seven years on the advisory board for Micromedex and work with the Regional Pharmacist Counter Terrorism Proficiency Program. Armitstead's vast knowledge in pharmacy has also been expressed through his numerous national publications, presentations and research.

The Pharmacist's Patient Care Process

To create change, one must be aware that change is needed. Thus, if the profession of pharmacy is to avoid stagnation, pharmacists must acknowledge their weaknesses and improve upon them. Armitstead was aware of the need for change and used his presentation to create this moment of epiphany for the attendees of the Summit.

Armitstead began his presentation with the foundation of the practice of pharmacy, which is common knowledge within the profession. Per Armitstead's presentation, pharmacists are already aware that their profession involves commitment to patient-centered care, optimizing medication therapy, improving therapeutic outcomes, promoting health improvement, wellness and disease prevention, and in-depth knowledge of medications. In other words, pharmacists are aware of what they should be doing, but not necessarily committed to doing it.

Armitstead also presented the Joint Commission of Pharmacy Practitioner's Pharmacists' (JCPP) Patient Care Process[1] and outlined a scale to grade the performance of the profession on this process. After presenting the scale (see below) to the attendees, Armitstead asked the question, "To create change, as a whole, are we as pharmacists performing at the level that we should be?"

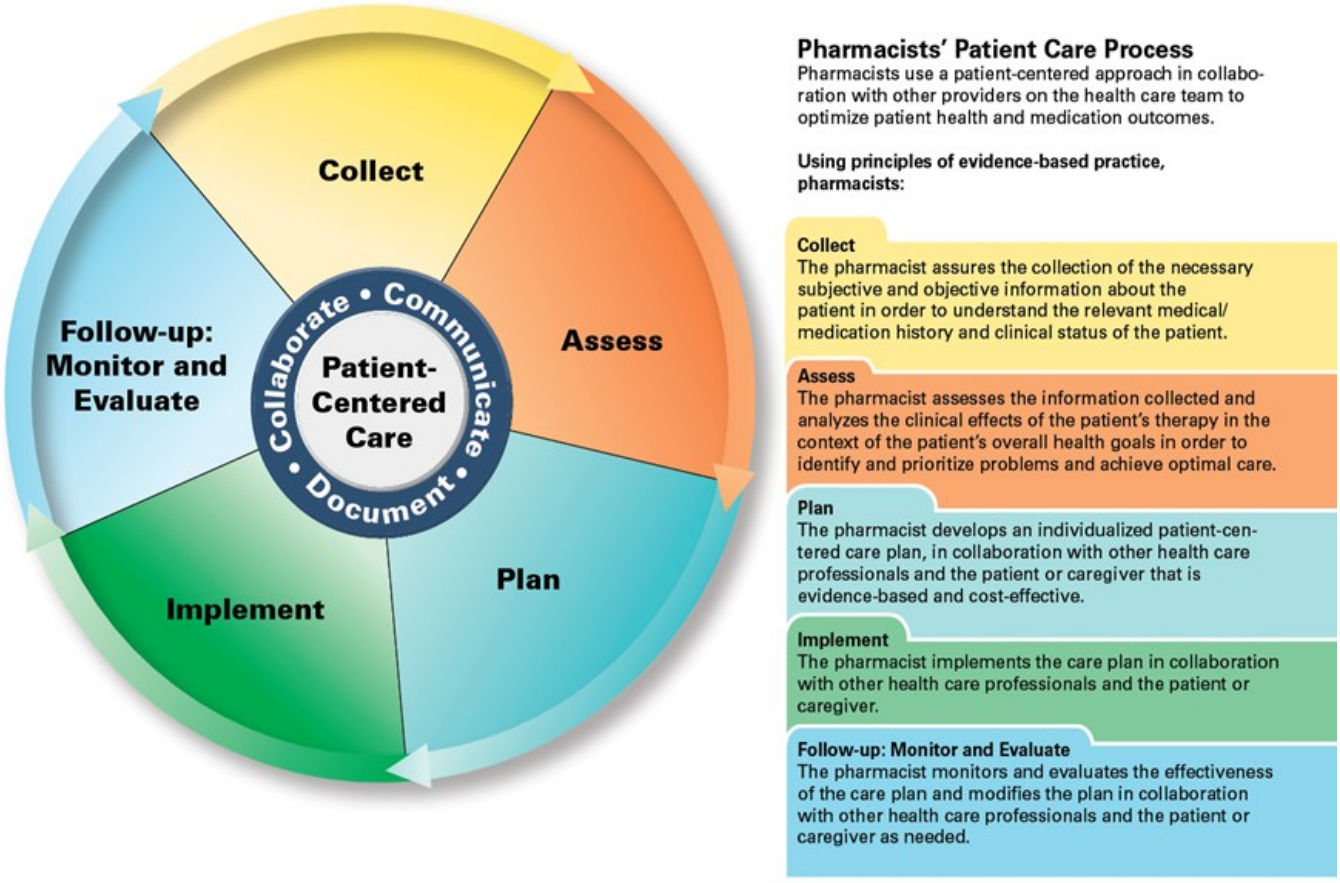
Grading Scale	Description
A	Consistently achieving excellence with no improvement necessary.
B	Solid performance and a strength for pharmacy practice.
C	Fair performance with plenty of room for improvement.
D	Weak performance and goals clearly are not being met.
E	Failing and we should be embarrassed by our efforts and outcomes.

Professional Opinions on Areas of Improvement

Armitstead took advantage of the Summit's interactive setting while presenting his topic of Professional Priorities to Optimize Patient Outcomes. Armitstead chose to evaluate the entire profession of pharmacy and discuss the areas in which pharmacists are performing optimally and also performing minimally. This led to the opportunity for input from the audience about how pharmacy practitioners can capitalize on their strengths and improve on their weaknesses. During the discussion, it was clear that each pharmacist's performance will fall along a spectrum on the scale. For each stage of the process, some pharmacists may be performing better than the average for the profession while others may be performing worse than the profession. It is important to look at the average performance of pharmacists when considering the standard of care and patient outcomes.

To illustrate the professional priorities within pharmacy practice, Armitstead described the JCPP's Pharmacists' Patient Care Process (Figure 1) which is a five-stage model.[1] Each stage pertains to a specific area of care provided by a pharmacist. The first stage of the model is "Collect" and includes all duties performed by a pharmacist to gather background data and compile a comprehensive patient profile. When the audience was asked their opinion on the profession's performance in the area of collection, they graded it a "C." While performance at this grade may be minimally acceptable, it suggests that changes can be made to reach a higher performance level. One suggested reason for the C grade is the lack of consistent and well-developed information systems to share patient data between institutional and community pharmacy settings. Although institutions have made significant progress in this area over the past decade, many community settings have not yet been included in this growth. Creating a uniform patient interview and comprehensive medication review (CMR) may be a mechanism to improve the collection stage.

Figure 1. Joint Commission of Pharmacy Practitioners. Pharmacists' Patient Care Process. 2014 May 29.[1]



The second stage of the model is "Assess" which includes analyzing the clinical therapy the patient is receiving and ensuring that the treatment is aligned with the patient's personal health goals. Finding appropriate and affordable care for each patient is included in this function. The majority of the audience graded pharmacy's performance on assessment as "C." Improving performance in this stage could involve the use of objective testing whenever possible. Documenting the patient's health goals in pharmacy records would advance this aspect of care delivery. Allowing for measurable severity of illness, and linking this to patient outcomes would assist in assuring quality outcome results from pharmacist care. Expanding objective testing would permit the pharmacist to prioritize health conditions according to illness severity.

"Plan" is the third stage within the pharmacists' patient care process and refers to the steps of care that will help the patient meet his/her health goals. Performance on this stage was graded as either "C" or "D." This low score could be attributed to the lack of time that pharmacists dedicate to develop a specific plan for each patient. Given other responsibilities, the pharmacist may not have adequate time to create unique care plans for every patient in the current workflow system. Participants suggested that employing a pharmacist for creating patient-specific plans could be beneficial as could changes in health record systems that allow development of care plans through intelligent software programs.

The next step of the pharmacists' patient care process is implementation of the care plan ("Implement"). This area of the process received the lowest grade, with the majority of the audience grading it a "D" suggesting that the goals in this process are clearly not being met. Poor performance on plan creation could also be a leading cause of ineffective plan implementation.

The final step of the pharmacists' patient care process is "Follow-up: Monitor and Evaluate" and includes assessment of the efficacy and safety of care interventions and altering the plan in partnership with the patient and other healthcare professionals. This stage received mixed evaluation from the participants with a grade of either "C" or "D." Marianne Ivey expressed that patient monitoring may be more successful on an individual patient basis as compared to across the healthcare system. Ivey stated, "I think that our pharmacists are doing a good job of evaluating individual patients' response to a plan; but we aren't, as a profession, doing a good job of looking at trends of outcomes and having clear metrics."

Upon finishing the evaluation of the pharmacists' patient care process, the floor was open for discussion on areas requiring improvement and priorities. Lack of resources and staffing within health systems was identified as a barrier to improving the patient care process. Armitstead agreed with this potential obstacle and suggested that the increase in pharmacist personnel could be a solution. Armitstead explained, "There is greater need for more pharmacists if we have the data to validate that we truly are improving the care and don't have enough time or resources to do it." This concept was Armitstead's final point, and left room for further discussion of this idea throughout the rest of the Summit. The suggestion to simultaneously improve the profession while creating more jobs was an appropriate conclusion for Armitstead's discussion.

Existing Trends in the Profession

Armitstead's final point about the potential for an expanded need for pharmacists is supported by the 2016 ASHP Pharmacy Forecast.[2] The forecast predicts numerous outcomes by the year 2020 that support the creation of more positions for pharmacists. The forecast reported that 70 percent of survey respondents agreed that it is at least "somewhat likely" that there will be formalized levels of responsibility applied for pharmacists to handling medication use management.[1] Eighty percent of respondents thought it "somewhat likely" that at least 25 percent of health systems would have a formal plan that includes pharmacists in advanced roles by 2020. These responses support Armitstead's prediction that additional pharmacist jobs will be created in the future to address the demands of improved patient care.

Future Advancement

In summary, Armitstead challenged the audience of pharmacists, pharmacy students and faculty to think thoroughly on pharmacy as a profession and consider practice areas in need of improvement. The Summit created a baseline assessment by pharmacy thought leaders on the profession's performance in each of the five stages of the pharmacists' patient care process. The five stages (Collect, Assess, Plan, Implement and Follow-up) resulted in votes from the audience on perception of performance of the profession. Their assessment suggested that the profession is performing from "C" to "D" in all stages. Although the practice of pharmacy will not reach an "A" or "B" overnight, there are various ways pharmacists can start improving performance within the model. The session emphasized stages of practice in which the profession must improve and identified barriers and created strategies to make this happen.

The session concluded by recognizing that change is not only necessary, but inevitable, especially with the practice of pharmacy advancing so quickly. Although change will not happen instantly, it is vital that pharmacists be aware of their performance "grades" and how to improve them. With time there will be a greater demand for pharmacy services, and the profession must continually strive for high quality practice performance to maximize the benefit for our patients.

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...leadership will be needed to address the regulation, legislation and formulary decisions with these new biosimilars.[6]

Discussing the Future of Drug Development and the Pharmaceutical Marketplace

Brittiany Feher, PharmD candidate 2017; Brady Giles, pharmaceutical and healthcare business bachelor's degree candidate 2018; Gina Jones, PharmD; Karen Kier, RPh, PhD, MS, BCPS, BCACP; Chet Kaczor, RPh, PharmD, MBA

Chet Kaczor, RPh, PharmD, MBA

Chet Kaczor is director of pharmacy services of Nationwide Children's Hospital in Columbus, Ohio. Kaczor graduated from the Ohio Northern University Raabe College of Pharmacy in 2006 with his doctor of pharmacy and then earned a master of business administration degree at The Ohio State University Fisher College of Business in 2011. Since graduating from Ohio Northern University, Kaczor's pharmacy experience has included being a manager of a Rite Aid Pharmacy, a regional director of operations at Pharmacy Systems, Inc., the manager of ambulatory pharmacy services at Nationwide Children's Hospital and, most recently, director of pharmacy services at Nationwide Children's Hospital. Kaczor is involved in many professional organizations which include the Ohio Pharmacists Association (OPA), of which he is the current president, the American Society of Health-System Pharmacists (ASHP), the Ohio Society of Health-System Pharmacists (OSHP) and the Pediatric Pharmacy Advocacy Group (PPAG). Kaczor's areas of interest in pharmacy include leadership, medication therapy management (MTM), strategic planning and pharmacy operations. In addition, Kaczor has served as a great role model and preceptor for pharmacy students for advanced pharmacy practice experience rotations.

Chet Kaczor

Introducing the Issues

Based on the ASHP Pharmacy Forecast, Kaczor introduced predictions for the pharmacy profession regarding how specialty pharmaceuticals, pharmacogenomics, limited distribution systems, cost management of generic drugs and vertical integration of pharmaceutical manufacturers will look in the next five years. These topics are very important in the pharmaceutical industry, and pharmacists should be proactively thinking about challenges and corresponding solutions that may eventually arise in these areas.[1]

In order to provide a framework for discussion among the Summit's participants, Kaczor first provided an overview of current issues. After the summary, the Summit attendees, with a wide variety of pharmacy experiences and expertise, could then offer their thoughts and leadership experiences to strategically plan and form future goals for these various issues. To achieve approval for a new drug in the marketplace, the U. S. Food and Drug Administration (FDA) examines various characteristics of a drug such as its absorption, distribution, metabolism, excretion, mechanism of action, dosage form, side effects, drug-drug interactions and effectiveness in comparison to similar drugs.[2] Kaczor provided some statistics on new drug approvals over the last couple years and noted that there were 41 new drug approvals in 2014 and 45 in 2015. Out of all these approvals, Kaczor emphasized that over 20 percent were oncology medications. The cost of cancer treatment is also predicted to increase approximately 166 percent from 2006 to 2020.[3] Additionally, there has been an increased trend for cancer drugs to have indications for a specific cancer type, formulations to target specific biological markers for a more personalized treatment approach and chemotherapy by oral administration instead of traditional intravenous methods. The advancement of oral cancer therapy can now allow patients to receive cancer therapy while at home, although similar side effects to that of intravenous therapy may be present.[4]

Regarding specialty pharmacy, Kaczor mentioned that there has been a 67 percent increase in the cost of specialty medications to treat chronic diseases. Although there is not a standard definition for specialty medications, common characteristics include medications that cost greater than $600 which have a complexity component including, but not limited to, chronic disease states, limited distribution systems, special storage conditions and ongoing safety and efficacy monitoring. Some disease states that require specialty pharmacy services include oncology, multiple sclerosis, rheumatoid arthritis, Crohn's disease, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), hepatitis C and growth hormone disorders.[5] When analyzing the overall medication costs in 2014, Kaczor noted that around 32 percent of this cost was attributed to specialty medicines. Over the next few years, this amount is expected to further increase to around 50 percent.

To further provide a framework to generate discussion, Kaczor asked for thoughts on how pharmacists can take a leadership role within pharmacogenomics. To emphasize the need to use a pharmacist's knowledge with pharmacogenomics, Kaczor focused on the pharmacogenomic effects with the antiplatelet drug clopidogrel. Regarding clopidogrel's metabolism, Kaczor explained that patients may be a slow, regular or rapid metabolizer of the CYP2C19 enzyme. Without proper education on pharmacogenomic data, Kaczor noted that some may assume a poor metabolizer for clopidogrel may cause increased levels of the drug; however, a poor metabolizer of this particular medication will actually cause less prodrug form to convert into its active form, likely contributing to subtherapeutic effects. To further observe the complexity of pharmacogenomics, Kaczor then mentioned other factors that must also be included in making therapeutic decisions such as a patient's other medications that may either induce or inhibit the CYP2C19 enzyme. Kaczor also brought to attention legal implications that affect the management of a patient's pharmacogenomic data. Since only a small portion of pharmacogenomic data is needed for drug interventions, Kaczor challenged how the remaining portion of pharmacogenomics data should be handled.

Kaczor asked for thoughts on the incorporation of biosimilars into pharmacy practice since drugs such as Neupogen® (filgrastim) and Remicade® (infliximab) are not considered bioequivalent like many generics. To provide an overview of the emergence of biosimilars to the pharmaceutical marketplace, their approval process is somewhat similar to that of a generic small-molecule drug with its respective

brand drug. To denote one important difference, a biosimilar drug does not have the exact chemical structure as its biologic predecessor, unlike brand and generic small molecule drugs. Still, a biosimilar performs the same therapeutic action as its biologic predecessor, like brand and generic small molecule drugs. With patents of various biologic reference drugs expiring soon, there will be an increased entrance of biosimilars into the marketplace with subsequent lower costs. With this new area of pharmacy, leadership will be needed to address the regulation, legislation and formulary decisions with these new biosimilars.[6]

Next, to address the escalation in generic drug prices in the pharmaceutical marketplace, Kaczor pointed out that there has been a 373 percent increase in the price of generic drugs from 2013 to 2014. As a reference point, he explained that this would equate to a drug that costs $13 on average now costing around $60.

Kaczor then introduced the topic of limited distribution systems and asked for ideas to address the fragmented care that some of the more complicated patients currently receive. Additionally, Kaczor asked for thoughts on eliminating risks from limited distribution systems and improving pharmacist leadership to advocate against these systems.

The last topic explored was the increased trend in both horizontal and vertical integration of pharmaceutical manufacturers. He defined horizontal integration as the merging of multiple manufacturer companies and explained that vertical integration observes the entire drug process from management of raw materials to distribution to hospitals.

Engaging the Audience: What are Goals and Strategies Associated with These Issues?

To initiate the group discussion of the Summit's participants, Kaczor first asked for thoughts to address limited distribution systems and specialty pharmacy. One participant brought up the point that around 50 percent of all FDA drug approvals are currently being approved as specialty pharmacy. Then, the participants questioned if all new drug approvals or even generics may eventually become classified as specialty pharmacy since there is no industry standard to classify them. One Ohio Northern University alumnus offered some remarks from a payer perspective regarding specialty pharmacy by mentioning that distribution systems are moving from fee-for-service to value-based medicine. Currently, specialty pharmacies are based on a fee-for-service model more commonly than a value-based model. One attendee remarked that over time he has been noticing a shift for limited distribution systems to follow Accountable Care Organizations (ACOs). This will help pharmaceuticals to further transition into a value-based model in the future. To understand the purpose of an ACO, it can be defined as a network of healthcare professionals and hospitals who work together to provide a better continuum and quality of care for patients while sharing medical and financial responsibilities. The ACOs operate to provide the right services to the right patient at the right time while reducing duplication in medical tests and other services.[7,8]

Some ACOs still operate by a fee-for-service method; however, incentives will be offered if the ACO can keep costs low. They also must accept the risk of losing money or being required to hire additional staff or take certain measures if quality and outcome benchmarks are not met.[7,8] It was then noted that smaller systems may have a harder time than larger systems to enter an ACO due to factors including pricing and access to the drug and its volume. When observing the increased entrance of oncology drugs into the marketplace, one pharmacist mentioned that value-based medicine has not yet been applied to these medications, but that we are doing it in other cases as Entresto® (sacubitril/valsartan) has recently been contracted by a value-based model. To summarize the remarks, pharmacy leadership needs to make the case for pharmacists' engagement within ACOs in the future as the health system continues to transition into value-based medicine models.

To further expand on the discussion of ACOs, Kaczor provided an example of an ACO by describing Partners For Kids (PFK) at Nationwide Children's Hospital. Kaczor explained that PFK is fully capitated and responsible for approximately 330,000 covered lives in central and southeastern Ohio through arrangements with Medicaid Managed Care Organizations. Partners For Kids works with providers to improve the quality of care while limiting expenses wherever possible, including drug expense. As ACOs expand, Kaczor thinks that the ACOs which are assuming these risks will need to have a larger voice regarding the payment of high cost drugs. One participant added to this discussion that it could be frustrating to work with certain specialty drugs, like Herceptin® (trastuzumab) and Lunesta® (eszopiclone), with the limited distribution systems. Another participant offered some advice that it will take time and persistence to work with limited distribution systems. To summarize the discussion on payment models on pharmaceuticals, pharmacist leadership will need to diligently voice their opinions on ACO regulations and value-based medicine to better manage the expenses of specialty pharmacy.

Next, a pharmacist who works to build specialty pharmacies brought to attention that pharmacists need to take a leadership role to redefine the medications that are entering the specialty pharmacy category. For example, he reminded everyone that medications used to be identified by their mechanism of action; however, anything that costs over $600 is now considered specialty pharmacy. As one positive viewpoint on specialty pharmacy, Kaczor suggested that specialty medicines are commonly perceived as high-touch; therefore, pharmacists could justify their clinical services to be reimbursed with the profit earned from these drugs. Overall, specialty pharmacies can be very successful if pharmacy leadership plans appropriately.

To focus the specialty pharmacy discussion again with a pharmacogenomics perspective, one participant, a previous United States Pharmacopeia expert committee member, mentioned that by the year 2020 there could be a small machine the size of a desktop printer to print medications personalized to each patient according to their genome. Another participant noted that as one small step toward this

goal, the first FDA approved printed drug was made in 2015. It was also discussed that in 20 or 30 years, there could be a possibility that hundreds of medications may be made like this.

As the Summit discussion continued, participants explained that specialty pharmacy was initially designed for clinical care; however, its utilization may have transitioned due to financial motives over time. Another of the Summit's speakers stressed the need of leadership to shift the financial focus of specialty pharmacy back to a clinical focus. She noted that this can be achieved by hiring specific clinical pharmacists to develop these new programs since specialty pharmacy requires complex accreditation and reimbursement protocols and a need for patients to receive appropriate education on those medications.

The discussion on specialty pharmacies eventually moved to the issue of poor integration of information from electronic medical records (EMR) among health systems. Kaczor spoke of a specialty pharmacy recently started at Nationwide Children's Hospital which services the cystic fibrosis clinic and agreed that healthcare professionals could experience collective benefits by reporting individual data from various clinics into an integrated system such as an EMR to comprehensively track patient outcomes. Two individuals guided this conversation to also address partnerships between providers and payers with pharmacy. Another participant answered that the ACO model's ultimate goal is to improve quality and communication and to reduce costs and asked of the role of manufacturers with the negotiations of contracts. It was discussed how manufacturers need to be involved in these sorts of discussions such as where rebates fit in with outcome-based contracts. To summarize this conversation, pharmacists need to take leadership roles with ACOs, EMRs, payers and manufacturers to provide better integration of data and quality with value-based medicine.

Looking at the utilization of EMRs in the future, one attendee suggested that EMRs should be owned by the patient instead of the health system. Another individual added that it would not be valuable for the patient to own the record until it can be used wherever they go. A discussion was generated on how professional societies, state boards and colleges could be involved with these decisions. Although the Summit's participants understand these issues being discussed, the participants were reminded that the average pharmacist may not understand the details of such complex issues. Solutions will come from advocacy together as a profession.

Lastly, the discussion moved to address drug shortages and drug price increases. One participant posed a specific question on what would happen if a manufacturer of a certain drug did not receive the contract from a group purchasing organization (GPO) that had 60 percent of the market. The participant explained his concerns of drug shortages and price increases that may result when only one or two manufacturers for a certain drug face an issue on supplying that drug. To address the issue on drug costs, it was stated that drug costs had been increasing in a controlled fashion for much of the last decade but, more recently, some drug prices have jumped around threefold. To address one area of drug shortage management, it was suggested that a professional protocol should be made in regard to the gray market. To understand these issues better, another participant expanded this discussion offering advice on how pharmacy associations can help, including both at the national and international levels. As an example, she referenced how European pharmacy programs have already implemented value-based medicine programs due to their innovation when facing drug price issues. In the future, pharmacists are continuously needed in protocol development and pharmacy association involvement.

Reviewing the Key Points

In conclusion, the discussion opened the door for various leaders in pharmacy to address and discuss some of the current issues, goals and visions within these topics. Specifically, several areas of discussion that were addressed included the management of limited distribution systems; generic drug price escalation; communication between manufacturers, insurance companies and healthcare professionals; fee-for-service versus value-based medicine; the definition of specialty pharmacy; future use of pharmacogenomic data with pharmaceuticals; improved incorporation of data in EMRs; new clinical roles for pharmacists within specialty pharmacy; and involvement of local, state and national pharmacy organizations. With discussions among pharmacists at events such as Ohio Northern University's Health Systems Leadership Summit, the profession of pharmacy will continue to experience beneficial changes in the areas of drug development, therapeutics and the pharmaceutical marketplace in the future.

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...we, as pharmacists, are able to better identify and manage the high-risk and high-cost patients using the "Big Data" at hand.

Population Health Management, Data and Technology

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Calabrese has chaired the Section Advisory Group (SAG) on quality and compliance and is currently a member of the SAG on manager development. Calabrese also serves on the American Society of Health-System Pharmacists (ASHP) council on pharmacy management and has been an ASHP delegate for Ohio. Calabrese is an active faculty member with the ASHP manager's bootcamp and is a past president of the Ohio Society of Health-System Pharmacists. Calabrese is a frequently invited lecturer who has published and presented on various management and leadership topics.

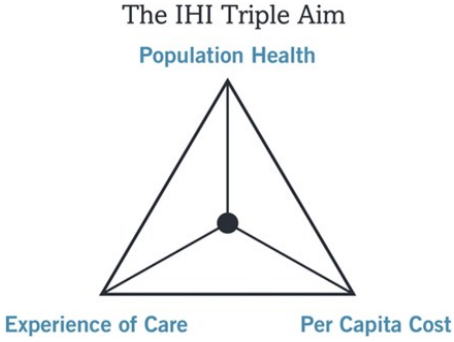

Samuel Calabrese

Operational Definitions
Population health is composed of a variety of different meanings depending on the context and approach. It is a field of study and research that is used in an attempt to understand the factors influencing the health of populations.[1] The population can be based on geographic regions, employees, ethnicities or a diagnosis. Medical care systems, the social environment and the physical environment are determinants of health that have their biological impact on individuals in a population. There are two main approaches to population health. There is a role of social, economic, biological and environmental factors that help determine the health of a population. It is also viewed as the goal of making significant improvements in the health of a specific population. The use of data to understand "health outcomes, patterns of health determinants, and policies and interventions that link these two," is impacting population health and can be used to improve health overall.[1] This data is frequently referred to as "Big Data."

While "Big Data" may be new in terms of its use with population health, collecting and analyzing healthcare data has been occurring long before the health system began identifying high-cost disease states and specifically targeting at-risk populations.[2] "Big Data" is defined as large data collections that are examined in order to visualize trends or patterns in the healthcare system. The information is collected in a variety of ways including research, patient records, test results, mobile apps, medical claims, genetic studies and through social media. Patient populations at high-risk of developing chronic disease states can then be identified allowing for more targeted healthcare interventions. Examples of "Big Data" being used are seen as far back as 1944 when Fremont Rider, librarian at Wesleyan University, published The Scholar and the Future of the Research Library. In his work Rider estimated that every 16 years American university libraries were doubling in size, and hypothesized that the Yale Library will have nearly 200 million volumes, requiring over 6,000 people to catalogue it, by the year 2040. With the development of technology, gathering healthcare information has become increasingly simple. The healthcare community is beginning to utilize the technology that has been put into the hands of healthcare providers. They are doing so by pooling the data from individual patients in order to visualize trends that could help determine the best course of evidence-based treatment for certain patient populations. More specifically, the trends found using this healthcare data can be used to identify and better treat the patients at the highest risk of developing, or those who have already developed, high cost disease states.

According to Calabrese, the key to population health management is in the transition from volume-based care to value-based care. Currently, most of our health systems use a payment system where providers charge fee-for-service. This leads to their incentive being volume, or the amount of patients they see and how often they have to see them. As a result of this fee-for-service system, patients are seen more often, and care is targeted toward acute, single episodes and treating current symptoms rather than preventing or treating chronic disease states. The providers must rely on retrospective results which involves seeing how the patients are doing currently and the symptoms and results they have shown in the past. Calabrese, along with the other pharmacists at the Summit, agree that healthcare needs to move toward value-based care that focuses on quality rather than quantity.

Figure 1.[4] Triple Aim



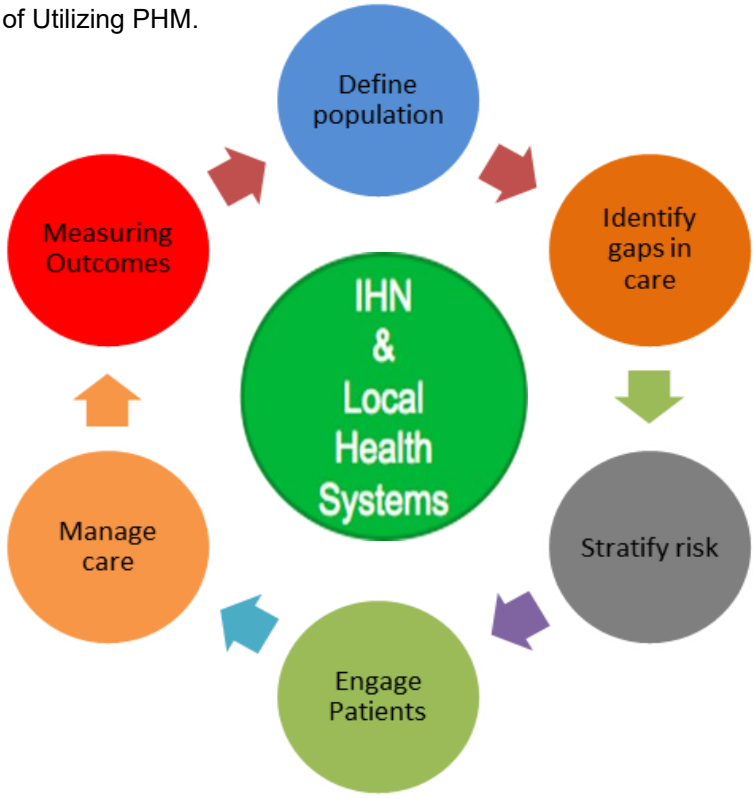
A Focus on Population Health Management
Calabrese explained population health is one of the top ten challenges and opportunities for hospitals according to the Becker's Hospital Review in 2015.[3] Calabrese explained it is a current deficit in the organization and a major opportunity for pharmacists.

The Institute of Healthcare Improvement created the Triple Aim as a framework method for healthcare advancement (Figure 1).[4] The Triple Aim framework works to improve the patient care experience, improve the health of a population and reduce healthcare costs

at the same time. Expecting competing healthcare organizations to work together or expand their current practices serves as a difficult task among companies. It took years for the concept to enter mainstream healthcare. Now, if you search “Triple Aim" on the internet, there are 108 million results.

Calabrese pointed to Felicity Homsted, a chief pharmacy officer of a patient-centered medical home, for providing Calabrese’s favorite definition of population health management (PHM): “the active process of strategically utilizing health determinant data for a defined cohort to design, coordinate and deliver high-quality, cost effective, patient centered care across the continuum, through optimizing communication, collaboration and utilization of available resources with the goal of creating and sustaining health.” The thought process of utilizing PHM is represented by Figure 2. To Calabrese, the key parts of population health management are “utilizing health determinant data for a defined cohort” and “creating and sustaining health.” Pharmacists at the Summit mentioned how our current system is good at taking care of patients in the hospital, but we need to shift our focus to ensure that we take care of them out of the hospital. Before implementing population health management, an organization needs to be ready for the change. If an organization is ready to implement population health management, partners of the organization need to be able to collaborate, there has to be a favorable population density willing to change, a vision of long-term growth rates in the market, as well as clinical expertise and resources available to succeed. A discussion stemmed from this readiness about the challenge of competing organizations working together to help with PHM. Pharmacists at the Summit believe that this will be a major obstacle to overcome to implement these ideas. Adjustments will also need to be made in different organizations in order to reach out to people from different geographic areas. It will likely require a lot of trial and error and a diverse leadership team to implement these changes to meet the future demands of the patient. Two innovative PHM ideas were brought up to meet the demand of the changing population. Technology can be utilized to help with at-home monitoring through Skype visits, saving physicians time from going around the community from home to home. Another suggestion was an open table scheduling style similar to that of an urgent care to provide patients with care at the point in time they need it.

Figure 2. Thought Process of Utilizing PHM.



Big Data

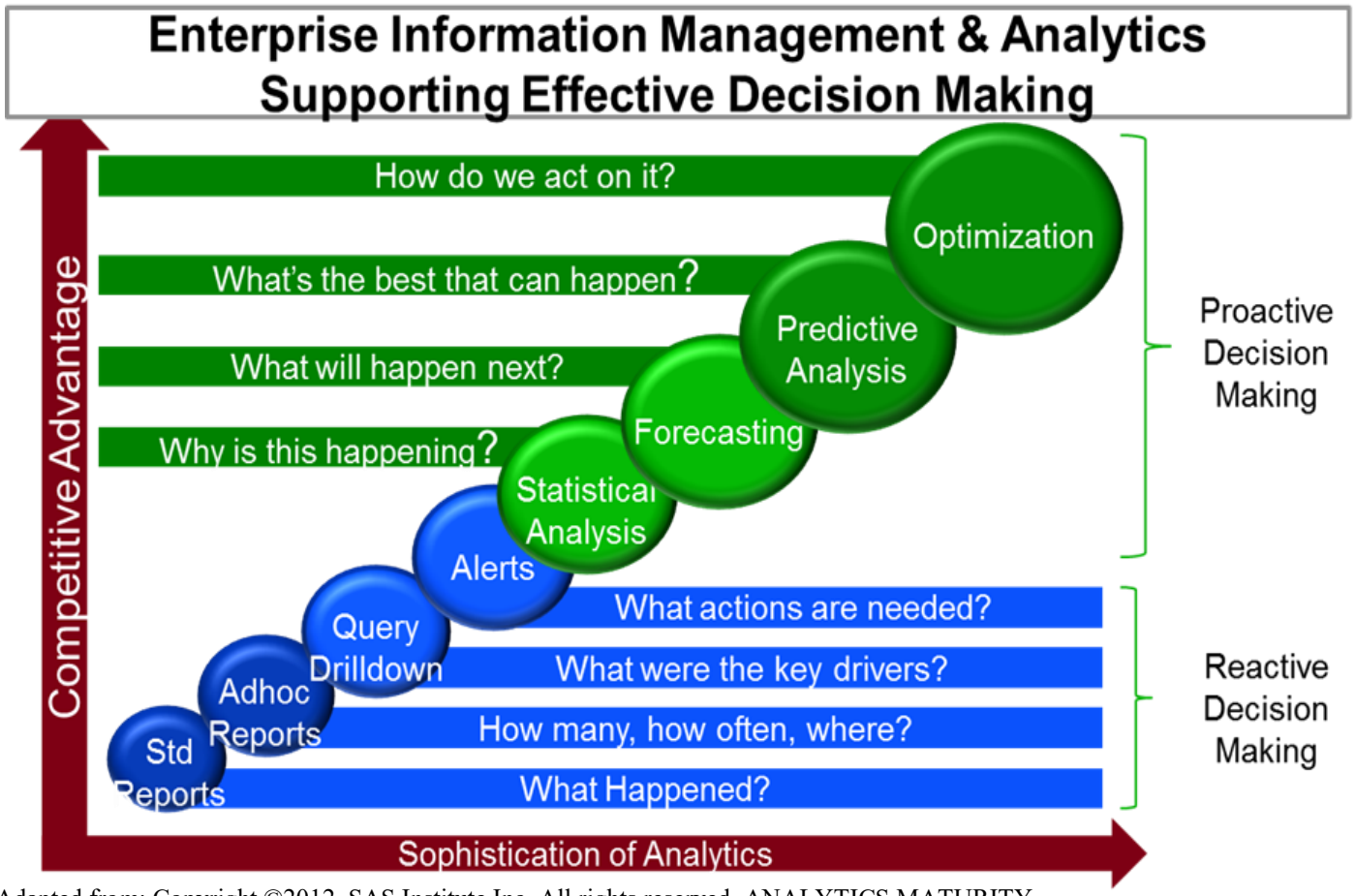
With rapidly advancing technological development, the health system is seeing a flood of information, which can be overwhelming. Unfortunately, this overload of information may only produce a small insight into the direction of healthcare according to Calabrese. Calabrese explained the problem in our health system is not the overload of information, but the filter used to obtain the right information. Without a proper filter, the trends that an analyst is looking for will be masked by unrelated data.

Where does all this “Big Data” come from? The data is a byproduct of having electronic medical records. Doctors, nurses and pharmacists enter the patient health information into the hospital system where it is then shared between all of the patient’s healthcare providers. This data can be collected and pooled together to analyze different trends in health outcomes.

The data around us can be used in many different ways, but the main goal is to "find the needles in the haystack" as Calabrese put it. By using the data to define the health population, information such as what disease states cost the most can be determined and used to find at-risk patients more affordable care to either prevent or treat the disease. This is also financially beneficial to the healthcare system. Additionally, this allows patients to be more engaged with their healthcare. Using at-home testing applications (apps) for smart phones is one way to ensure that patients are more adherent and happy with their care. Calabrese specifically touched on these smartphone apps as being a key feature in the future of healthcare. Apps that are able to tell the patient what pills to take and at what time, including features to notify family members if a dose is missed, will greatly improve adherence.

All of the data available support effective decision making for the future of the healthcare system. Calabrese uses the Enterprise Information Management & Analytics graph to show how to effectively advance the healthcare system and remain competitive in the market (Figure 3).[5] Calabrese described the bottom left as the basic analytics, which are questions that are asked in order to figure out what happened or what caused it with no questions pertaining to how the problem is able to be solved. Moving to the right and up in the chart to the green section is where the more proactive decision making happens. Calabrese then went on to explain that the top right area of the graph, predictive analysis and optimization, is where competitors are truly able to separate from one another.

Figure 3.[5] Supporting Effective Decision Making.



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Calabrese talked about how we, as pharmacists, are able to better identify and manage the high-risk and high-cost patients using the "Big Data" at hand. Calabrese listed several ways that this can be accomplished in pharmacy.

- Pharmacists need to be embedded in primary care and wellness assessments. Pharmacists should be performing comprehensive medication evaluations to determine whether a medication is needed, is being used correctly, or needs to be removed. Finally, Calabrese suggests that training on behavioral health medications be enhanced along with an increase in post-discharge follow-up calls. With these changes, the healthcare system will be able to more easily make the transition from providing volume-based care to providing instead more value-based care.

Volume-based to Value-based

Currently, one-fifth of fee-for-service Medicare beneficiaries discharged from the hospital are readmitted within 30 days.[6] These readmissions are costing about $12 billion per year and are all potentially preventable with improved care transitions. Value-based care relies on outcome-based payment, meaning that providers and healthcare systems get paid a set amount for a patient (Table 1). It is then the goal to ensure that the patient leaves the system without need to be readmitted for the same disease state. The incentive is value care so the care provided is effective and evidence-based with a focus on chronic disease states. Through value-based care, the goal is to work to manage or treat chronic disease states through continuous care by the provider. Providers must be predictive and treat patients proactively to ensure that they are staying healthy. To be able to provide this value-based care, it has become imperative that we collaborate with other healthcare providers to ensure that the continuum of care is appropriate for each patient relying on each provider's specialty to help to keep patients healthy.

Table 1.

	Volume-Based	Value-Based
Payment	Fee-for-service	Outcome-based
Incentives	Volume	Value
Focus	Acute episodes	Populations
Role of the Provider	Single episodes	Care continuum
Information	Retrospective	Predictive

To make the transition to value-based care, Calabrese believes we should take advantage of "Big Data." This data will help us to identify those high-risk patients so that we can assign pharmacists to them. This data will further help us to serve patients in underserved areas where a healthcare provider may be an hour or two away. By identifying those populations, we can use distance technology to provide virtual visits and home monitoring of patients. This would also be used so that patients can take the time they need to recuperate in their own home post discharge via communication with healthcare providers through Skype calls or a similar system.

There are many opportunities for pharmacists to help with the transition to value-based care. To ensure that we are providing value-based care, we need to increase the presence of pharmacists in every practice setting. One example is ambulatory pharmacy practice where pharmacists are embedded along with other healthcare professionals in the primary care of patients. In ambulatory care settings, pharmacists are able to perform comprehensive medication evaluations and wellness assessments. To continue the growth of pharmacists in this area, it is important that we increase the training of pharmacists in areas such as behavioral health. From there, pharmacists can do an even better job of determining proper medication use and watch for correct use versus misuse, overuse and underuse.

A participant at the Summit emphasized we cannot forget about the employer. We should be partnering with the employer to promote the health and wellness of their employees when possible. Ohio Northern University has a program that works with both the surrounding community and the employees of the university utilizing pharmacists and student pharmacists to promote wellness and provide tests to encourage employees to be healthy.

As the pharmacy world strives for value there will be obstacles. One such challenge is having the ability to change and understanding the difficulty of changing the healthcare plans. With this shift to value-based healthcare, there will most likely be a completely new way to get our healthcare. At the Summit, pharmacists discussed the likelihood that employers may give a certain amount of money to each employee to go to the marketplace and purchase their own insurance rather than the employers providing several different plans to choose from. With this foreseen upcoming change, pharmacists will also need to play a role in customer service that will be needed to help patients choose the best healthcare plans for each of them. Health coaching will also become a bigger aspect of healthcare as navigating and understanding the health system can be difficult for patients. Health insurance companies are starting to realize this and including it with some patients' coverage but, as pharmacy evolves, coaching will become increasingly important to ensure patients understand how to take care of themselves.

On Dec. 23, 2015, Ohio passed House Bill 188 with an effective date of March 23, 2016, allowing pharmacists to order blood and urine tests and analyze the results as well as remove, change or add new medications to the patient's drug therapy regimen.[7] Although the Ohio Board of Pharmacy has yet to detail what this means, this is a huge step in the direction of practicing value-based care. This evolution to value-based care allows pharmacists and other healthcare professionals to use resources to keep patients healthy and prevent readmissions within 30 days rather than using the resources for billing and other administrative tasks.

Conclusion

As healthcare continues to grow and innovate toward a more patient-centered outlook, pharmacists and organizations need to be willing to accept the changes and help their company stay on the forefront of technology by utilizing "Big Data" and value-based care to improve the overall population health.

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Some recommendations that Kent provided for current students or residents included preparing for a large amount of flexibility when entering the workforce, displaying a great amount of professionalism and connectedness with the profession, as well as being a reliable team player.

Healthcare Delivery and Pharmacy Workforce: Pharmacy (Wo)Manpower — 2016 and beyond...

Crystal Zheng, PharmD candidate 2019; Mariah Steele, PharmD candidate 2019; Noori Lee, PharmD candidate 2018; Sabrina Hamman, PharmD candidate 2017; Stanley Kent, RPh, MS, FASHP

Stanley Kent, RPh, MS, FASHP

Stan Kent joined the University of Michigan Hospitals and Health Centers in 2015 as chief pharmacy officer. Kent is also the associate dean for clinical affairs at the University of Michigan College of Pharmacy. Kent received his bachelor of science in pharmacy from State University of New York at Buffalo and his master of science in hospital pharmacy from the University of Wisconsin.

Kent was previously the assistant vice president of pharmacy services at NorthShore University HealthSystem, located in Evanston, IL. Kent served as the president of the Wisconsin Society of Hospital Pharmacists and was also selected as the Illinois Council of Health System Pharmacist's - Pharmacist of the Year. From 2010 to 2011 Kent was the president of the American Society of Health-System Pharmacists (ASHP).

Stanley Kent

Introduction to the Pharmacy Workforce

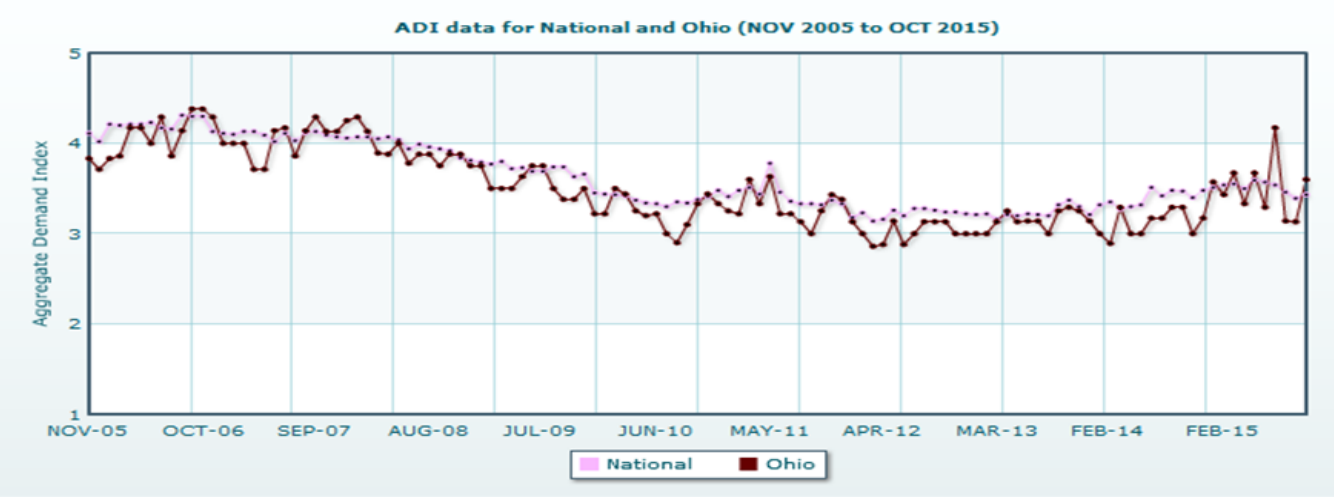
"Is there a shortage of pharmacists? Do we have too many pharmacists? How many do we need anyway?" voices Stan Kent, the chief pharmacy officer at the University of Michigan Health System. As the former American Society of Health-System Pharmacists (ASHP) president, Stan Kent has worked through the years to analyze how the changing population of pharmacists has affected the pharmacy workforce, as well as the increasing role that pharmacists are playing within the healthcare system. Practicing pharmacists, current students, professional organizations, researchers and professors are all affected by the ever-changing workforce climate of pharmacy, and it is critical for all pharmacists to understand the impact that the workforce projections may have on each sector of the profession.

Brief History of the Changing Pharmacy Workforce

Kent discussed the history of pharmacy from 1970 to 2010, where the demand for pharmacists began to increase rapidly, creating a large shortage in the number of pharmacists across the United States. Per ASHP data, "Pharmacy staffing [in hospitals] went from about nine pharmacists per 100 occupied beds, and it literally doubled to about 18 at its peak a couple of years ago," explains Kent. Kent also discussed several other crucial trends that contributed to the shortage of pharmacists, including an increased volume of prescriptions, an increase in the number of pharmacies, an increasing amount of women in the profession, a flourishing economy and the expansion of a pharmacist's role on the healthcare team. This produced "a period of 30 or so years" of pharmacist shortages and, in response, "… we tried to do more with less… and tried to produce more pharmacists." Kent highlighted that from 2000 to 2016 the profession of pharmacy tried to combat the shortage problem by using new technology, hiring more technicians, reducing services offered and encouraging universities to increase the number of pharmacy graduates.

The Pharmacy Workforce Project, formerly known as the Pharmacy Manpower Project, is composed of members from 15 major pharmacy organizations in the nation. The goal of the project is to prepare a system to analyze whether there is a shortage or oversupply of pharmacists and then attempt to develop strategies to improve the overall condition of the workforce. According to the Pharmacy Workforce Project, the state of Ohio still has "a moderate shortage," according to Kent. The project's website contains information regarding demand for pharmacists across the entire United States.[1] Figure 1 compares the aggregate demand index (ADI) trends for Ohio versus the rest of the nation for the past 10 years.

Figure 1. Aggregate Demand Index. Pharmacy Workforce Center, Inc. http://www.pharmacymanpower.com/trends.jsp[1]



Demand categories

5 = High demand: difficult to fill open positions
4 = Moderate demand: some difficulty filling open positions
3 = Demand in balance with supply
2 = Demand is less than the pharmacist supply available
1 = Demand is much less than the pharmacist supply available

A Look into Future Workforce Projections

According to Kent, when the U.S. economy suffered in 2008, many pharmacists kept working instead of retiring in order to secure their retirement funds which contributed to the increasing supply of pharmacists over the years. Since then the economy has improved and the recovery of retirement funds has transpired, pharmacists may expect to see a decline in the aging workforce population. However, "…people are working longer than we ever have... it's something that has really impacted society and particularly our profession…" explains Kent, providing an uncertain factor for future workforce projections.

Pharmacy graduates have drastically increased for the past few decades, heavily adding to the supply of pharmacists in the United States. "We always had about somewhere between 75 and 80 colleges of pharmacy. Last year, we had 135, so it has almost doubled…since 1995" explains Kent, highlighting that the number of colleges has doubled over the last 20 years, when it had remained the same for about 60 years prior. In 2015, about 13,800 pharmacists graduated, and there are now close to 1,800 residency programs available to provide diverse opportunities for students to improve their skills. However, there is still a large disconnect between the number of pharmacy graduates looking to match with a residency, and the number of matches that are available. Kent suggests that more research should be done in this area.

According to the current statistics for the 2016 ASHP residency match, a total of 5,729 applicants participated in the match.[2] The applicant match rate for 2016 was only 69 percent, with 3,953 graduates matching with either PGY1 (3,309) or PGY2 (644) residencies. This leaves 1,776 new graduates across the United States that did not match with a residency. Although these statistics seem to be discouraging, there are still other ways that new graduates can further develop themselves to become more competitive in the workforce. For instance, according to the American Association of Colleges of Pharmacy (AACP), there are 73 colleges across the nation that offer more specialized pharmaceutical science degrees that pharmacy graduates can pursue to earn higher degrees.[3] These programs provide degrees in leadership, pharmaceutical research, pharmacoeconomic studies and many other fields of pharmacy that are rapidly developing.

Maintaining a High-Quality Profession

"My big concern…and our greatest fear was that we were on a trajectory to have too many pharmacists; and what happens is, if there are too many, then there won't be enough jobs…the number of applicants to pharmacy schools will decrease, and eventually, the quality of the pharmacist that we're producing might not be as good as we hoped, or what we need," says Kent. He suggests that the projections of the workforce will have a great impact on the quality of the profession as a whole, which is the reason it is important to be proactive in leveling the supply and demand of pharmacists in the United States. This contributes to the Pharmacy Workforce Project prediction that a shortage in pharmacists will again develop by the year 2020.[4]

Kent recommended that pharmacy schools make sure they are adjusting to market demands over the years, while still keeping their admission standards high. Kent said, "No matter how many applicants there are, if the colleges maintain high admission standards, then it doesn't matter." Quality is more important than quantity, and Kent emphasized that the profession of pharmacy should not be compromised solely for colleges to maintain their class sizes. He also spoke about the American Association of Colleges of Pharmacy (AACP) strategy to maintain high quality applicants to pharmacy school by attempting to spark interest in the profession of pharmacy in the younger school age populations.[3]

While maintaining high standards can be difficult for colleges at times, pharmacy leaders and those in charge of hiring pharmacists after graduating tend to move in the opposite direction to require even higher standards. Kent said, "I really hope that managers don't take advantage of people and raise expectations too high, even though it's sort of tempting because if you were a manager the last 25 years...you had to compromise, oftentimes, on some things in order to hire someone." Kent explains that it used to be difficult to find professionals to fill positions, but now there are usually about 20 applicants per position when looking to hire someone, increasing the push for pharmacists to become more and more specialized. Some recommendations that Kent provided for current students or residents included preparing for a large amount of flexibility when entering the workforce, displaying a great amount of professionalism and connectedness with the profession, as well as being a reliable team player.

ASHP Forecast Recommendations for 2016-2020[5]

The ASHP Forecast introduced several recommendations for institutes to implement in order to combat the changes of the workforce.[5] First, it suggests a planned development for pharmacist privileging. It is predicted that pharmacists will gain roles in modifying or initiating drug therapies, and Kent suggested looking to the Department of Veterans Affairs (VA) pharmacy for some of the models that they have in place in order to develop a plan for other areas of pharmacy. The ASHP also recommends minimizing "cognitive surplus" which refers to professionals of different degree levels performing duties that fit their particular level of education. For instance, it is important for pharmacists to perform tasks that they can to perform, i.e., medication checks, while providing training for interns and technicians to perform more clerical work, i.e., counting and labeling prescriptions.

Another provided suggestion is to ensure the fair treatment and compensation of pharmacy technicians.[5] As an example of this issue, Kent referenced struggles with technician compensation at the University of Michigan in 2015. A new law in the state required technicians to become licensed after certification, neither of which had been previously required. However, the University of Michigan had always required their technicians to be certified, whereas other pharmacies did not. As a result, the other pharmacies in the area increased their technician pay by $2 to $3 per hour and hired a large population of the University's technicians, creating a large shortage for the University.

The ASHP Forecast also recommends that the profession as a whole heavily advocates for provider status, expands roles for the pharmacist in the ambulatory care setting, as well as working to better integrate different pharmacy roles across the discipline.[5] For instance, a pharmacist in a hospital system can dispense for several days per week and work in a more clinical setting for the other days per week.

These topics led to a more in-depth discussion of concerns with motivating current pharmacists in the workforce to expand their roles with the changing healthcare systems. "It's tough, and it's causing satisfaction issues," noted one attendee. Requiring additional training or special certifications for pharmacists that have been established employees in healthcare systems for years will continue to be an implementation challenge moving forward. Another attendee suggested that continual professional development is a very attractive asset to have as a pharmacist and may set certain pharmacists ahead of others in their perspective fields.

Concerns Regarding New Pharmacists in the Workforce

Other participants at the Summit weighed in on the topics of incoming pharmacists and how students can differentiate themselves from the large wave of professionals. One of the other speakers highlighted that as long as pharmacists continue to try to advance themselves further and further, the profession will continue to grow and there will be a place for everyone. Stan Kent suggested that students and new graduates consider professional experience or employment in areas where there are greater shortages of pharmacists and referenced areas such as South Dakota, Montana, or Alaska. One attendee suggested that students and young pharmacists aim to differentiate themselves in any way that they can.

The Pharmacy Workforce and Changing Healthcare Models

As the healthcare model in the United States changes, the profession of pharmacy must be able to adapt and grow. A discussion among the pharmacists ensued involving the healthcare model that the VA currently practices. This model has already been adapted into several ambulatory care clinics and focuses services around the patient instead of the typical fee-for-service model that the U.S. healthcare system originally utilized. Specifically, the VA targets greater prescribing authority for pharmacists, staff development and improvement, and even the physical design of the pharmacy is often superior to other models.[6] The VA offers a highly consistent quality of care across the nation by developing national drug formularies with pharmacy benefit managers (PBMs) and by stressing a constant development of interprofessional patient-centered care.

Conclusion

Stan Kent's presentation on the ever-changing pharmacy workforce environment sparked excellent discussion among several renowned pharmacists at the 2016 Ohio Northern University Leadership Summit. In summary, pharmacists should continue to grow and adapt to the changing workforce need, and it is important for the betterment of the profession to analyze the workforce in order to prepare for a shortage or surplus of pharmacists. Through the past several decades, the profession of pharmacy has seen a transition from a great shortage of pharmacists to somewhat of a surplus; however, with the increasing involvement of the pharmacist on an interdisciplinary healthcare team, and the ability for the profession to adapt with the healthcare and economic climate of the United States, the profession still maintains an image of a bright future. There are many opportunities for pharmacists and pharmacy students alike to continuously develop themselves. As long as individuals in the workforce continue to progress, so will the profession of pharmacy.

Acknowledgement

Natalie DiPietro Mager, PharmD, MPH, associate professor of pharmacy practice, Ohio Northern University, served as a faculty reviewer for this article.

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...residency programs provide a chance for residents to practice their leadership and management skills that they have acquired, while continuing to refine and develop new skills.

Professional Leadership Development

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Marianne F. Ivey, RPh, PharmD, MPH, FASHP

Marianne Ivey graduated with her bachelor's degree from the University of Wisconsin and a doctor of pharmacy degree and master of public health degree from the University of Washington. Ivey has also completed the Wharton School's hospital pharmacy executive leadership program. Currently, Ivey is a professor emerita in the division of pharmacy practice and administrative sciences in the college of pharmacy at the University of Cincinnati. Ivey also serves as a national speaker in the American Society of Health-System Pharmacists (ASHP) Foundation visiting leaders program. She is chairman of the board of advisors at the University of Cincinnati Center for the history of the health professions and is currently president of the hospital section of Federation of International Pharmacists (FIP).

Ivey has previously served as the ASHP president, chairman of the house of delegates (HOD), member of the commission on goals and the commission on credentialing, as well as treasurer of ASHP and the ASHP research and education foundation. Ivey has been awarded many honors and awards for her leadership and is very active in her profession. Ivey also continues to be a leader in her community by being involved and serving in various organizations. Ivey is an avid member of her local chapter of the American Heart Association, Coalition for a Drug Free Greater Cincinnati, Cincinnati Dress for Success and Cincinnati Country Day School.

Marianne F. Ivey

A Need for Pharmacy Leadership

"What is the need for leadership development in pharmacy?" was the question presented by Marianne Ivey. Ivey addressed the leadership gap that currently exists in the profession of pharmacy. Today, pharmacists are focused on the knowledge of therapeutics and taking care of patients; however, the gap exists because pharmacists feel a need to further develop their leadership skills in order to feel prepared to take a management position. Ivey proposed the idea that the profession of pharmacy is lacking practitioners with enough leadership experience and also a lack of interest for management positions. Ivey stated that action plans are needed in order to bridge the leadership gap within the profession of pharmacy between pharmacists in clinical practice and upper management.

It was reported in 2004, through a research study conducted by White and Enright, that the profession of pharmacy needed to focus on pharmacy leadership in order to avoid a future leadership crisis.[1] Comparative measurement was taken through a survey in 2004, and then again in 2013, to assess where leadership in the profession of pharmacy stood. Positive changes were found in 2013, concluding that although the leadership crisis has been somewhat mitigated, there is still a leadership gap and initiatives must continue to be made to avoid a pharmacy leadership crisis in the next 10 years. In a publication by Hall et al., it was noted that due to the Affordable Care Act and its quality care initiatives, the patient-centeredness of healthcare for improved outcomes, and the expansion of technology, pharmacists and other healthcare professionals have undergone an expansion of responsibilities.[2] Leadership skills will be critical in driving the profession forward with these expanded responsibilities.

Due to the expansion of pharmacy practice, there is a shortage of pharmacy executive managers.[3] Based on information published in 2006 by Filerman and Komaridis, health-system pharmacy management has progressed into a more complicated and demanding setting. This has led some pharmacy directors to claim that they have been "drafted" into a managerial position with little training, resulting in unhappiness in their jobs. Another management concern has been downsizing management positions in an effort to save money in healthcare organizations. Because of this, there is a disappearance of the middle-management positions that help train and develop leadership in future department managers. Many practicing pharmacists observe the high level of stress that their manager and/or supervisor encounter in his/her job. Professionals in higher stress leadership positions sometimes earn less than some staff pharmacists, which makes the management positions unattractive. Due to the shortage of those interested in the managerial positions, there is a failure to effectively address pharmacy management. Filerman and Komaridis note that there is a migration of pharmacy managers out of the hospital, and the average age of department directors continues to increase. This is ultimately leading to a shortage of executive pharmacy managers and a desperate need to fill the gap with pharmacy leaders that are prepared with adequate experience and training.

According to the 2008 to 2009 Argus Commission report, prepared by past American Association of Colleges of Pharmacy (AACP) presidents, pharmacy students may falsely assume that their sole career pathway is centered on patient-care without any obstacles along the way.[4] There are also misconceptions about leadership being synonymous with management. Because of these statements, it is imperative that pharmacy schools implement leadership training into the curriculum, so graduates of pharmacy schools are provided with the tools to facilitate and mend the leadership gap that is occurring in the profession.[5]

Key Points Made by Speaker

Pharmacy practice has transitioned from delivering the product of a prescription to also providing direct patient care. This change has taken away some interest that pharmacists may have in management. While it is beneficial that there is interest in caring for

patients, it has left a large need for formally educated and trained pharmacy managers and leaders. Managerial positions are not as appealing to current pharmacists as they once were because they take on administrative responsibilities and lessen the patient care aspect of the job. During her remarks, Ivey gave an example of someone she believed would make a great manager because he could handle problems well and manage people from different professions within the healthcare system. After he became a manager, he decided that he wanted to go back to being a pharmacist providing clinical services because he felt that he fit that role better which contributed to the personal satisfaction of his job. The lack of desire for many pharmacists to become a manager is a major concern in the healthcare system.

Proposed Strategies and Vision to Close the Leadership Gap

In order to close the leadership gap, some strategies have been developed and implemented that focus on students, residents and practicing pharmacists. Each strategy involves opportunities to create growth in the individual, whether it be through learning or observation. The main objective involving pharmacy students is to introduce them to leadership responsibilities and roles early in their didactic studies in order to make them more comfortable when these opportunities present themselves. It is important to increase the exposure that students receive to leadership issues in pharmacy that they will face when they get into practice.

The University of Michigan has a required leadership portion as part of their pharmacy curriculum that is extended along either a retail or health-system pharmacy track, depending on the career aspirations of each student. The incorporation of interprofessional experiences into advanced pharmacy professional experience (APPE) rotations to provide pharmacy expertise to other professionals was also discussed among the group. A participant added a point about the importance of interprofessional relations. When interacting with various professions, there are many things to learn that would not otherwise be gained when being surrounded by only pharmacists. These experiences can allow pharmacy students or residents to learn how to lead those in other professions as well. Residency programs also provide exposure and experience in leadership through longitudinal rotations that allow residents to make connections and participate in leadership opportunities. The residency programs provide a chance for residents to practice the leadership and management skills that they have acquired, while continuing to refine and develop new skills.

An in-depth explanation and example of the integrative leadership development model in colleges of pharmacy programs can be found in an article published by Janke et al.[6] It discusses the importance of student leadership development being integrated throughout the pharmacy curriculum. Student leadership development should include "all student pharmacists, have a longitudinal and experiential nature, achieve outcomes that prepare student pharmacists with the leadership skills necessary for entry-level practice and instill a purpose to engage in lifelong reflection and development." Leadership should be integrated from the first day of pharmacy school and continue until graduation by learning in the classroom while also practicing leadership skill sets through various experiences outside of the classroom. Throughout pharmacy school, students should be encouraged to continue developing their leadership skills after graduation by being made aware of various graduate programs or other opportunities in which they can participate. Implementing this leadership development model will provide students with the knowledge and experiences they need to develop their skills throughout college, but also as they become practicing pharmacists.

John Armitstead suggested that current practicing pharmacists that have the potential to be managers should enroll in the pharmacy leadership academy (PLA) that is conducted by ASHP. This should be timed at a career point when pharmacists are ready to take on the challenge, as leadership development is most effective when the individual is ready to participate. Employer financial support to cover the registration fee will help remove barriers for those who want to further their leadership development. Other options for practicing pharmacists are the new masters of pharmaceutical science with an emphasis in pharmacy leadership or the graduate certificate in pharmacy leadership offered by the University of Cincinnati's James L. Winkle College of Pharmacy. These are both online training programs that Ivey helped to create to better prepare pharmacists for leadership positions in their practices. Another strategy noted was supporting APPE opportunities for managers to show students what they do on a daily basis. It is important to expose pharmacy students to the responsibilities of leadership positions in pharmacy, as well as show them the positive sides of the role. Current managers should express what makes them feel good about their leadership positions and what they enjoy about their role, such as the ability to influence decisions, develop interdepartmental relationships, make an impact beyond the pharmacy and have a sense of accomplishment for their achievements, rather than presenting the negative side.

The overall theme of the proposed strategies shows that in order to increase the desire to be a leader, potential candidates should have multiple opportunities to gain experience and learn about the advantages of the role.

Research in Pharmacy Leadership Development

Although there has been limited published research around pharmacy leadership development, exploration found several programs available to residents and students, such as the one available at the University of Michigan, that help stress the importance of leadership within the profession of pharmacy. One study was found that did support students being exposed to leadership early on in the pharmacy curriculum. Chesnut and Tran-Johnson of Drake University completed a longitudinal study on the effectiveness of implementing the student leadership development series (SLDS), an academic year long, cocurricular course to develop leader-

ship skills in pharmacy students.[7] Participants met monthly for two hours to take part in small group discussions focusing on self-reflection and discovery and to listen to guest speakers lecture on leadership. Over the six years, the study incorporated new activities including creation of a personal leadership platform and participation in poster presentations based on leadership topics. Serving as the evaluation forms for the program, these methods and activities indicated that, overall, the participants expressed that SLDS helped enhance the participants' leadership skills, better prepared them for leadership opportunities and increased their desire to hold a leadership position.

Research also indicates support for the residents' suggestion that the development of leadership skills in pharmacy residents is important in closing the gap within the practice. In a study conducted by Fuller at The Nebraska Medical Center, a new leadership development series was enacted to incorporate leadership development into pharmacy residency programs.[8] Throughout the program, residents participated in group discussions on leadership articles and attended a two-day leadership retreat aimed at addressing various topics, including self-assessments utilizing StrengthsFinders as well as communication and conflict seminars. At the end of the program, feedback from preceptors and residents indicated that the program was a great learning experience because it introduced residents to multiple leadership philosophies and self-awareness. Overall, the leadership skills and tools developed in these programs help better prepare residents for future positions.

In support of Armitstead's suggestion to place potential managers in the PLA that is conducted by ASHP, research has shown that those who complete leadership programs, such as PLA, have the potential to become more effective leaders than those that do not. In the study by Hall et al., the emotional intelligence of pharmacists that participated in ASHP's PLA was evaluated.[2] Over a four year period, the Emotional Quotient Inventory (EQ-i) was measured for multiple groups of pharmacists who had graduated from the PLA and those who had not yet begun their leadership training who served as controls. The tool, EQ-I, measures emotional intelligence which assesses one's ability to deal with daily pressures and helps predict one's success in one's personal and professional pursuits. The results indicated an average level of emotional intelligence among the entire group of pharmacists. However, differences in scores were reported in areas such as self-expression, decision making and interpersonal skills, favoring those who had completed PLA. This data suggests that "PLA graduates have the potential to be more effective leaders than PLA controls given the established and well-studied relationship between leadership and emotional intelligence function."

Conclusion

A gap in leadership has been recognized in the profession of pharmacy. There is an absence of desire to obtain managerial positions, which greatly contributes to the lack of leaders. There have been proposed strategies via current pharmacy leaders that provide effective ways to close this gap. It has been emphasized to start these opportunities as soon as possible. It would be most beneficial to start implementing more leadership experiences into the pharmacy curriculum and continue to provide pharmacy students with leadership exposure in experiential rotations. Pharmacy residencies provide young pharmacists, eager to expand their knowledge, with a prime opportunity to continue equipping their leadership training. If current pharmacists do not feel adequately prepared to be a leader, there are programs through ASHP and other organizations to supply them with proper education and training. The most effective way to continue to close the leadership gap is to equip future leaders with positive leadership experiences that will build confidence and desire to become a leader and take leadership roles in the profession of pharmacy.

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