Pharmacy as a calling

Am J Health-Syst Pharm. 2020; 77:300-307

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DOI 10.1093/ajhp/zxz319

I am humbled and honored to be chosen as the 35th recipient of the John W. Webb Lecture Award, which is given for excellence in pharmacy management, the specialty in which I have chosen to practice. I want to thank the ASHP Section of Pharmacy Practice Leaders selection committee and the Northeastern College of Pharmacy for bestowing this honor upon me. It is particularly rewarding to be placed in the company of such a distinguished group of past recipients, a list of pharmacy giants and more than a few generational leaders who saw pharmacy not as a job but as a calling.

In his 2017 Webb Lecture Award address, Jim Jorgensen[1] referred to this award as the ultimate team recognition. I couldn't agree more, and I would not be delivering this talk without the support of so many amazing people and teams. I will acknowledge some of them now.

I want to thank my wife Beth and my children, Emily and Alex, who I am extremely proud of. My career demands a tremendous amount of both time and flexibility. It also requires a considerable—at times, manic—amount of travel. Due to having such a stable and supportive home life, where my wife managed the household and my kids have been much less trouble than I was at their age, I was able to focus on my career, on my calling as a pharmacist.

I also want to thank my mother for her unconditional love, dedication, and sacrifice and for ensuring that her 4 sons had everything we needed to be successful. My father, who is deceased, instilled in us a strong work ethic, which has unquestionably contributed to our success.

I also want to recognize my first work and life mentor, Marc Riewer, from Omaha, Nebraska. Marc has been my mentor and friend since I was 16 years old. He is a small businessman and serial entrepreneur. He owned the restaurants that I worked at throughout high school and as an undergrad and also the Valentino's Pizza restaurant in Nebraska City that I managed for a year immediately after college graduation.

He was the first person to talk to me about leadership and to not only teach me about business but tell me about life. He explained investing and mutual funds, talked about setting personal goals, and, equally important, he modeled a joy for life and made sure we had fun along the way. Thank you Marc.

I need to give a huge thank-you to both my former University of Minnesota Medical Center, Fairview team and to my current Cleveland Clinic pharmacy enterprise team. I have been blessed to work with many dedicated caregivers who apparently don't mind constant change.

Finally, I must recognize my associate chief pharmacy officer and close personal friend, Sam Calabrese. Anyone who knows us very well realizes that he is the primary reason that all of my wild visions actually get implemented. Thank you, Sam, for your leadership and for your commitment to our patients. I clearly couldn't do it without you.

Background

Before starting to write this lecture, I took the obligatory step of reading all the published Webb addresses for historical context and for inspiration. My biggest concern upon completion of this task was my ability to write something fairly original. It seemed like all that could be written on management, leadership, pharmacy history, relationships, change management, the pharmacy enterprise, practice model innovation, compassion, interdisciplinary care, mentoring, vision, leading in turbulent times, diplomacy, advancing clinical services, strategic planning, servant leadership, and selfless commitment had been written.

While I'm not sure this is completely original, I have decided to focus on why everyone in the audience and, hopefully, those reading the lecture later in *AJHP* are in the pharmacy profession. The title of this lecture is "Pharmacy as a Calling."

What is a calling? Merriam-Webster dictionary defines *calling* several ways, including (1) a strong inner impulse toward a particular course of action, especially accompanied by conviction of divine influence (e.g., "I have been called to this profession"); and (2) the vocation or profession in which one customarily engages.[2] These definitions really resonate with my view of a professional calling. The hallmark of a calling is a desire to contribute to something bigger than yourself.

I am a storyteller, so bear with me as I share my learnings with you from the standpoint of my personal journey to understanding my calling. While many of you likely knew you wanted to be a pharmacist right out of high school, or even before, I didn't. I had a few other jobs along the way that may have given me a better appreciation for the incredible profession that we all practice in today. My first career goal in college was to be an Army officer. I assumed I would retire as a general someday.

Well, after getting kicked out of the Reserve Officers' Training Corps (ROTC) for medical reasons (a recurrent spontaneous pneumothorax, to be specific), I graduated with a

John W. Webb Lecture Award

PAST RECIPIENTS

2018	Patricia C. Kienle	2001	Roger W. Anderson
2017	James A. Jorgenson	2000	Paul W. Abramowitz
2016	Steve Rough	1999	Harold N. Godwin
2015	Linda S. Tyler	1998	Bruce E. Scott
2014	Charles E. Daniels	1997	Max D. Ray
2013	Ray R. Maddox	1996	Billy W. Woodward
2012	Toby Clark	1995	Rita Shane
2011	Paul W. Bush	1994	Richard deLeon
2010	James G. Stevenson	1993	Herman L. Lazarus
2009	William W. Churchill	1992	Bernard Mehl
2008	Thomas S. Thielke	1991	Sara J. White
2007	Marianne F. Ivey	1990	David A. Zilz
2006	Burnis D. Breland	1989	William A. Gouveia
2005	David Kvancz	1988	Joseph E. Smith
2004	William A. Zellmer	1987	William E. Smith
2003	Karol G. Wollenburg	1986	Paul G. Pierpaoli
2002	Harold Kornfuhrer	1985	Robert B. Williams

The John W. Webb Lecture Award recognizes a hospital or health-system pharmacy practitioner or educator who has distinguished herself or himself through extraordinary dedication to fostering excellence in pharmacy management.

This annual award was first established as the John W. Webb Visiting Professorship in Hospital Pharmacy by the Northeastern University College of Pharmacy and Allied Health Professions, Boston, Massachusetts, in 1985. In 2006, a memorandum of understanding between ASHP and Northeastern University transferred responsibility for administration of the award to ASHP. Beginning in 2006, the recipient has delivered the award lecture at the ASHP Conference for Leaders in Health-System Pharmacy and presented a lecture as Visiting Professor in Hospital Pharmacy at Northeastern University. Beginning with the 2007 award recipient, the selection process has been conducted by the ASHP Section of Pharmacy Practice Managers.

psychology degree, with a focus on the psychology of leadership, and I managed a Valentino's Pizza restaurant in Nebraska City for a year until my fiancée at the time, who was on an Army scholarship, finished her bachelor's degree.

Unlike me, my wife wasn't kicked out of the Army, and after graduation she was stationed in Germany as a finance officer. I followed her to Europe, not speaking German, and through a series of interesting events that I won't bore you with, I wound up managing a division of Wedgwood China in which I was responsible for 32 china shops on U.S. military bases in Germany, Italy, Belgium, and Greece. Service members and, more importantly, their wives could get the products duty and tax free, which meant they cost about half the price one would have paid for them in the United States.

That was quite a responsibility for a 23-year-old. Of course, my annual sales of $10 million seemed like a lot in 1990, although it pales in comparison to our current drug budget of $1.2 billion. In this role, I was given an incredible opportunity to lead and to learn.

It was a great job until that whole Ronald Reagan-Mikhail Gorbachev-Cold War ending-glasnost-perestroika thing ruined a good gig. The last thing I did at Wedgwood before I left was shut down several stores as we downsized our military and began closing Army bases. My wife was downsized and got an "early out" from the Army, so we headed back to the States.

Since the job I had was no longer viable, I needed a career change. At one point I was premed, so I had many of the prerequisites for pharmacy school completed. At the time, my little brother Zane was a pharmacist for Walgreens. He came to visit me in Europe 4 times in 3 years, so I figured being a pharmacist was a pretty good idea. Plus, I had tremendous leadership experience from my time at Wedgwood.

It was my goal at that point to marry pharmacy and retail management and lead 100 Walgreens pharmacies or something like that. Well, after working in a chain pharmacy as a student intern for a couple weeks, I decided to change my focus. For me, retail chain pharmacy was not a calling. I then got a student intern job at Methodist Hospital in Omaha, Nebraska. Moving into the hospital from retail was a transformative experience. I worked with passionate pharmacists like Bob Weinacht, who loved teaching in his i.v. room, and David Warner, who many of you know at ASHP. Dave moonlighted at Methodist Hospital in addition to his day job at the University of Nebraska Medical Center at the time.

Guidance to my calling

Although I had ruled retail pharmacy out, I still wanted to continue on a leadership track, now with the goal of merging my newfound love of health-system pharmacy with management. Since I went to pharmacy school at the University of Nebraska, I made an appointment with the director of pharmacy at the time, Jim Dubé. I told Jim of my background and that I wanted to use my leadership skills with the goal of becoming the director at a major academic medical center (the term *chief pharmacy officer,* or CPO, didn't really exist in 1992). Jim guided me toward a combined 2-year health-system pharmacy administration residency and master's degree program in hospital pharmacy. That advice changed my life.

Thank you, Jim Dubé. There is a lesson there for us all. You never know when

what you say or do will impact someone. Make sure you give good advice . . . .

This is when I started to realize how small health-system pharmacy was and how dedicated those practicing it were. I was amazed by their commitment to advancing the profession and improving patient care. I saw how people in this network helped each other and shared successes selflessly for the greater good.

Paul Jungnickel, currently associate dean at Auburn University's Harrison School of Pharmacy, was then the faculty member who set up advanced pharmacy practice experience (APPE) rotations at the University of Nebraska, where I graduated in 1996. He was also a 1975 alumnus of the University of Kansas (KU) administrative pharmacy residency program. I asked Paul if he could set me up with a rotation at KU so I could see the program firsthand and get to know the people there, which he did.

One of my Pharm.D. APPE rotations at Nebraska was with Amber Lucas, who was a postgraduate year 1 (PGY1) resident at the time, long before she was the chair of the ASHP House of Delegates. She was a KU pharmacy school graduate, and she encouraged me to pursue the KU "admin pharmacy" program.

Ross Thompson was a second-year admin pharmacy resident at KU, and he has advanced to the role of CPO at Tufts Medical Center. Ross graciously allowed me to sleep on his couch for a month while I did a rotation at KU.

I matched at Kansas and began my PGY1 year with Rick Couldry as my senior resident and, later, as assistant director (he was hired into that position after he graduated from the program). Rick is now the vice president of pharmacy and health professions at KU.

Two years later Ross, along with Rowell Daniels, who has risen to become chief pharmacy officer at UNC Healthcare, hired me for my first pharmacy manager job at the University of Texas Medical Branch at Galveston.

Three years later, when I was ready for a job change, I called my fellow KU alumnus and this year's Harvey A.K. Whitney Award winner, Bruce Scott, who is also the 1998 Webb Lecture Award recipient. Bruce actually became one of the first to serve as CPO over a large health system (before the title CPO was invented) when he was promoted to corporate vice president of resource management at the Allina Health System in Minnesota in 2001.

Bruce didn't have any positions open, but he referred me to Bonnie Senst, who had just been hired at the University of Minnesota Medical Center, Fairview. He knew that Bonnie was looking for an assistant director of operations. I took the job, and after Bonnie left approximately 18 months later, I was promoted to director and stayed for a decade, working for Bob Beacher, the "godfather" of hospital retail and specialty pharmacy. In 2011 the Cleveland Clinic called, and I have been there ever since.

I tell you all of this for a couple of reasons. First, I have had jobs before I had a career. Because of that, I appreciate, likely more than most, being part of a profession, where everyone is in it for more than themselves. Secondly, since my entry into this glorious profession, I have had the good fortune to work and interact with amazing people who are dedicated to our profession. Jim, Paul, Amber, Harold, Ross, Rowell, Rick, Bruce, Bonnie, and Bob are only a few examples.

Others who were called

The amazing thing about pharmacy is that although I haven't directly worked for the same employer with this next list of people, I have developed deep personal friendships through partnerships across organizations for the good of our profession. Partnerships where we don't compete but selflessly share our successes so that more patients can benefit from advanced pharmacy services. All of these people see pharmacy as a calling, and they have all helped me in our mutual desire to improve the health of society, regardless of geography.

These include the first Webb Lecture Award winner of my generation, Steve Rough, who is the gold standard for sharing the many successes and firsts that he and his team achieved at the University of Wisconsin. In 2013 I was proud to be inducted as an honorary resident into that storied program.

This willingness to broadly share success has helped countless pharmacists develop business plans and implement services. Of course, Mr. Rough didn't just wake up one day and randomly say, "I am being called to be a pharmacy leader." He was actively groomed through 3 generations of dedicated leaders who saw pharmacy as a calling. Winston Durant, David Zilz, and Tom Thielke consciously inspired him to build upon their tremendous successes.

Speaking of David Zilz, how about that guy? The ultimate pharmacy mentor, who is incapable of turning it off, even for a minute. D.Z. has challenged every pharmacist or student he has met to create a life plan. It is inspiring to see just how many people, across generations, this one person has challenged and encouraged. One of my favorite D.Z. quotes (which he cocredits to Sara White) is that "pharmacy leaders should aspire to inspire until they expire." That really sums it up. Those who are truly called just never stop giving.

Next is my high drug price–fighting partner in crime and drug shortage world-leader expert Erin Fox. What an example of how one person can drive the national debate on drug prices and shortages. Thank you, Erin, for your unparalleled advocacy.

A quick list of others who have made me a better pharmacist and leader includes the authors of my 2 favorite Webb lectures, Bernis Brelund[3] and Rita Shane[4] (my former student, who just became chair-elect of the ASHP Section of Pharmacy Practice Leaders); Phil Brummond, my first admin pharmacy resident (who was also just elected as director-at-large for the same Section); Lindsey Kelley, my philosophy mentor;

1997 Webb Lecture Award winner Max Ray, my writing hero and the conscience of pharmacy; 2004 Webb Award recipient Bill Zellmer; and, in no particular order, Mike Brownlee, Desi Kotes, Don Carroll, Jeff Rosner, Jim Klauck, Lynn Eschenbacher, Bob Weber, Barb Hintzen, Ozzie Delgado, Mandy Leonard, Casey White, Noelle Chapman, Osama Tabbara, Bill Kernan, Lee Vermuelen, John Clark, John Armitstead, and the person who makes sure I get everywhere I need to on time, my administrative assistant Melonie Marshall.

The most influential people in my career who have worked at ASHP, who clearly see pharmacy as a calling, include David Chen, who has made the ASHP Section of Practice Leaders one of the most useful networking groups I have ever been a part of; Julie Webb; Joe Hill; Doug Sheckelhoff; Dan Cobaugh; and John Santell, who first reached out to me to get involved in the Section of Pharmacy Practice Managers.

The other incredibly effective networking group that I have been part of is the Vizient (formerly UHC) Academic Medical Center Pharmacy Council. I need to thank Doug Smith, Lynda Stencel, Karl Matuszewski, Dan Kistner, and Chris Hatwig for their support in making this the preeminent venue for those who are called to share their successes and advance pharmacy in academic medical centers.

The final person I need to acknowledge, who sees the practice of medicine as a calling and understands my manic obsession to optimize medication use across the continuum of care, is my boss for the last 7 and a half years, who has unwaveringly supported both pharmacy at the Cleveland Clinic and me personally, Dr. Robert Wyllie, chief medical operations officer. Without him advocating for us behind the scenes, the Cleveland Clinic pharmacy enterprise could not have achieved all that we have around the globe.

Pharmacy is different

All of these people, from my perspective, demonstrate the common link of not seeing their career as a job and understanding that for us, pharmacy is in fact a calling. I have had a lot of jobs that weren't a life's mission. Growing up in Iowa, I detasseled corn when I was 14 and rode my bicycle around the neighborhood delivering newspapers before I could legally drive a car. From age 16 to age 23 I worked in and managed restaurants, and after that I sold china. All of these were legitimate jobs; I earned money and paid taxes. I gained invaluable business and leadership experience in these roles. But none of these were a calling. They were all widget based. The goal was selling something: corn, newspapers, pizzas, or expensive dishes. That's really the focus of the vast majority of jobs in the world. There's not anything wrong with that, but it's not a calling.

What differentiates pharmacy even from other professions is the degree to which we collaborate and share our successes so that more patients may benefit from them. When we opened a state-of-the-art, 100,000-square-foot specialty pharmacy in 2015, we freely shared our business plan with any health-system pharmacist who asked. For the record, we wouldn't share it with someone in a for-profit venture.

Although I haven't opened a centralized pharmacy service center, Rowell Daniels at UNC, Phil Brummond at Froedtert, and Steve Rough all have. Guess what? I have copies of their successful business plans, which they broadly shared, on my computer just in case I need them.

None of my colleagues have ever said to me, "I can't share that XYZ with you; it's proprietary." Instead, they say, "Here you go, call me if you need anything else. Do you want to come see it for yourself?" That's not normal in the business world. That doesn't happen when you sell widgets. That philosophy of working together for the greater good is the hallmark of someone who sees their career as a calling.

I feel truly blessed to have stumbled into this profession. When I applied for admission to pharmacy school, it wasn't due to a higher calling. It was for a good job. Basically, it was to sell drug widgets in the retail environment, ideally a lot of them.

The goal of health-system pharmacy is much nobler. Our collective vision, as stated by ASHP, is that medication use will be optimal, safe, and effective for all people all of the time. I would add "accessible" to this (i.e., "Medication use will be *accessible,* optimal, safe, and effective for all people all of the time"), but other than that it really hits the mark.

The legacy potential of one person

I am inspired by those before us who have cultivated this profession. I am energized by seeing how much one person can impact the world through motivating others. This is most clearly evidenced by the legacy of Harvey A. K. Whitney. In 1927 Mr. Whitney started the University of Michigan's pharmacy internship program. This program became a model for the country, eventually leading to the establishment of the structured postgraduate programs that we call residencies today. Through Mr. Whitney's pharmacy family tree, my residents and many of those in this room are direct descendants of this remarkable leader.

Graduates of Harvey's program contributed to his legacy and created their own. Paul Parker created the best clinical residency program of the era at University of Kentucky, and Donald Francke, who succeeded Mr. Whitney as director of pharmacy at the University of Michigan, continued to train a generation of pharmacy leaders. One of the most historically significant was Clifton Latiolais. Cliff continued the legacy by starting the Ohio State University program that trained the majority of the last generation of now-retiring great leaders and several Webb Lecture Award winners, including my mentor, Harold Godwin.

Harold, in turn, started that KU program in 1968, with its first trainee graduating in 1970. That program produced both of this year's Whitney Award

and Webb Lecture Award lecturers. As a KU alumnus, I created health-system pharmacy administration programs at the University of Minnesota Medical Center and the Cleveland Clinic. My residents and past residents understand, through this example, the impact that they can have if they treat their careers as a calling.

Pharmacy's impact on health systems

Pharmacy's importance to our health systems has never been greater. Several years ago, I was speaking with the 2012 Webb Award winner, the late Toby Clark, as he was pondering the impact of pharmacy on health systems in the era of runaway drug costs. He asked me what my total pharmacy drug budget was. At that time it was around $600 million. He said he was looking for a billion-dollar pharmacy enterprise to demonstrate the importance of pharmacy to our health systems.

The Cleveland Clinic pharmacy enterprise first exceeded a billion-dollar drug budget in 2018, and the 2019 budget is forecast to be $1.2 billion. We dedicate 1,410 pharmacy caregivers across the globe to stewardship of our hospital's resources and to keeping patients healthy through managing the medication continuum. The benefits of a well-run pharmacy enterprise to our health system's success—a success that we contribute to through both patient care and financial stewardship—cannot be overstated.

In 1992, Bernard Mehl[5] wrote in his Webb lecture: "it has been estimated that the percentage of a hospital's budget allocated for drugs will increase from the current 3–5% to 25–30% by the year 2000." He was right, and it has continued to grow. In 2018 pharmaceuticals at the Cleveland Clinic comprised 56% of total supply expenses.

As this audience knows, medication is the thread that runs throughout a patient's life across the continuum of care. To successfully serve patients we must, as Bruce Scott[6] highlighted in this year's Whitney Award address, view healthcare through the lens of population health management and ensure that our drug budgets are spent wisely.

We must maximize the pharmacy enterprise to improve our patients' lives. As we transition into capitated payment and fully at-risk models, we are demonstrating pharmacy's ability to work across transitions of care to keep patients healthy.

A successful enterprise maximizes retail, specialty, and home infusion pharmacy EBIDA (earnings before interest, depreciation, and amortization) in today's fee-for-service world. It also succeeds in tomorrow's world of at-risk contracting by effectively leveraging many of the profitable pharmacy benefit manager (PBM) functions, such as eliminating spread. At the Cleveland Clinic we do this by filling 95% of our fully owned employee health plan prescriptions and managing the formulary and step therapy of our employees and their families.

Due to pharmacy's effectiveness in this realm, our costs per member per month were $28 below the average for other self-insured health systems last year. With 100,000 employees and family members at $28/member/month below average, we saved $33,600,000 in drug costs relative to costs incurred by the insurance plans of peer hospitals. There is no other department in a health system more critical to the clinical and financial success of the organization than pharmacy.

Modern pharmacy history

We have inherited a great profession due to the work of our trailblazing pharmacy forebears—leaders who knew they were part of something greater than themselves and saw themselves as stewards of the profession that they inherited. They felt a need to leave pharmacy in a better place than it was when they entered it. And while there are countless leaders who incrementally add value to our profession, occasionally there are generational leaders who exponentially advance practice, people like 1987 John W. Webb Lecture Award winner William E. Smith, who first decentralized pharmacy services at University of California San Francisco in 1966 with the Ninth-Floor Pharmacy Project.[7] Bill's team not only invented decentralized clinical services but also introduced an early iteration of a unit dose medication system for oral tablets, building upon the groundbreaking unit dose implementations of Bill Heller at the University of Arkansas Medical Center and William Tester at the University of Iowa in 1962.[8,9]

In the 1970s and 1980s, generational leaders like Harold Godwin perfected comprehensive unit dose systems and also created centralized i.v. admixture programs. Believe it or not, these programs have still not been implemented in many parts of the world, like the United Kingdom, where Francine De Stoppelaar, named to be director of pharmacy at Cleveland Clinic London, will be the first to implement these what are now basic U.S. pharmacy services when we open that hospital in 2021.

In the 1990s thought leaders Charles Hepler and Linda Strand[10] defined "pharmaceutical care," which set off a race across the country to implement it.

In 1999, our academic brothers and sisters did us a great service by eliminating the Bachelor of Pharmacy degree. Now every pharmacy school graduate is a doctor of pharmacy and has the basic clinical pharmacy knowledge necessary to prepare for residency training.

Anyway, you get the point. Throughout our health system–based history, with the University of Michigan in the 1920s as a starting point, pharmacy leaders have responded to their calling by dedicating themselves to advancing pharmacy services not only for their patients but for all of society. John W. Webb himself was a visionary who became an early adopter of unit dose packaging, infusion pumps, and innovative sterile product preparation.[11]

Much has been written about these early pharmacist-pioneers who were called to create both safe medication distribution systems and clinical pharmacy. Many Webb and Whitney Award lectures begin by giving a well-deserved nod to those who literally created the profession that we all serve today.

In my readings of the previous Webb lectures, I found that not much has been said about what the current generation of leaders and those starting to retire now have accomplished. While this group has been prolific in sharing their success in the primary literature, with studies demonstrating pharmacy's value in a variety of settings, I am not aware of any big-picture summaries of what this generation of leaders who were called to serve is accomplishing. These are my contemporaries, as Mr. Rough and I represent the beginnings of a generational transition for the Webb lecture and the profession. What major things have happened—things that I have personally witnessed—through the efforts of my immediate mentors and current peers since the 1990s?

From what I have seen, this generation has taken our calling seriously. We have continued to advance the profession broadly, boldly, and rapidly. The rate of change in pharmacy, like in every aspect of life today, has dramatically increased, and the number and variety of initiatives have come at a breathtaking pace.

We have created pharmacy-run medication reconciliation programs and bedside prescription delivery services. We have implemented and begun to optimize electronic health records (EHRs), along the way creating the relatively recent specialty of pharmacy informatics. We introduced robotics into our sterile products compounding and compliance packaging areas.

We embraced the philosophy of lean process improvement to make our departments more efficient. We dramatically expanded the layered learner concept, with a logarithmic increase in the number of PGY1 and PGY2 residency positions available, so that we can create sustainable, high-functioning practice models.

We embraced the concept of the pharmacy enterprise, where we are accountable for all medication use across the continuum of care.[12] We struck out into population health management, where our goal is to keep patients healthy rather than just get them well enough to be discharged from the hospital, and most of our hospitals now have emergency department pharmacists.

The 1990s saw the beginnings of the transformation of pharmacy operations through automation. The first automated dispensing cabinets (that I could find) were implemented in 1989 at Barnes Jewish Hospital by Jim Grey. In 1993 the first unit dose robot was implemented at the University of Wisconsin under Tom Thielke's leadership.

More recently, in 2010, Sam Calabrese at the Cleveland Clinic found and partnered with a small company located at the back of an ASHP Summer Meeting exhibit hall, MedKeeper. This vendor was hungry to work directly with pharmacists who really understood operations and patient care needs and, with Sam's guidance, created a suite of pharmacy programs that tracks doses, manages medication boxes, and makes sterile compounding safer.

Although ASHP just created a Section of Specialty Pharmacy last year, what I believe to be first health system–based specialty pharmacy was built by one of my mentors, Bob Beacher at Fairview in Minnesota, 22 years earlier in 1996. And while as a profession we are just now understanding the need to control the pharmacy benefit at our organizations since the unethical financial practices of the PBM industry were exposed in the media,[13] Mr. Beacher also started the first widely known health system–based PBM at Fairview in 2002, and last year he opened one of the first hospital-owned 503B manufacturing facilities in the country.

In 1976 the University of Wisconsin created an integrated pharmacy model. In the early 1980s Sara White and Harold Godwin implemented a similar model at KU, which Bruce Scott brought to community pharmacy at United Hospital in Minneapolis in 1987. This was long before ASHP held its Pharmacy Practice Model Summit in Dallas in 2010.

As mentioned earlier, Bruce was a pioneering health-system pharmacy leader and was one of the first to apply the pharmacy and therapeutics committee (P&T) model to supply chain. This model was later perfected by Jim Klauck at Froedtert in Milwaukee. Jim's team also mandated pharmacy-driven medication reconciliation for all patients in the Froedtert Health system in Milwaukee in 2005.

Marianne Ivey, like Bruce Scott, was one of the first to preside as a chief pharmacy officer over a pharmacy enterprise, and she introduced this concept to us in the literature in her 2007 Webb address.[14]

The life of a pharmacy chief is only getting more complex. Today's CPOs are overseeing a rapid acceleration in the transition from individual hospitals to large integrated multihospital health systems as their organizations attempt to achieve economies of scale through consolidation.[15] This growth is creating a concentration of top pharmacy leaders in a continually shrinking number of critical positions.

These CPOs are responsible for hundreds and even thousands of pharmacy staff and billions of dollars in both expenses and revenue. Tom Woller at Advocate Aurora Health is responsible for 27 hospitals with 70 retail pharmacies in Illinois and Wisconsin. Lynn Eschenbacher at Ascension oversees 151 hospitals in 21 states, and the Cleveland Clinic has facilities around the globe in Ohio, Florida, Nevada, Canada, Abu Dhabi, and London. These leaders are creating the strategy and infrastructure necessary to maximize the financial and clinical impact of the pharmacy enterprise across vast geographies.

Robert Elenbaas is credited with creating the first emergency department pharmacist position in 1974.[16] Although it took a while to catch on,

since 2005 there has been tremendous growth in this area, with leaders like John Armitstead creating emergency department pharmacist positions in all of his hospitals.

Among many firsts, Tom Thielke and Steve Rough at the University of Wisconsin implemented a bedside barcode-assisted medication administration (BCMA) system in 2001. They leveraged an administrative resident, Dave Ehlert, to crunch the numbers and demonstrate the value of BCMA. What a cool residency project! This is a great example of our profession's sustained commitment to training future leaders.

Barb Hintzen, the first chair of the ASHP Pharmacy Technician Forum, was the lead author of the first publication on lean process improvement in pharmacy and, as far as I could find, the first to publish on lean methodology in all of healthcare in 2009 at the University of Minnesota Medical Center.[17]

In 2018, Rita Shane of Cedars-Sinai in Los Angeles, the 1995 Webb Lecture Award recipient, shepherded a law requiring that pharmacists complete medication reconciliation in hospitals for high-risk patients.

Bill Churchill, the 2009 Webb Lecture Award winner, was a pioneer of technology implementation throughout his career. His team wrote the first article on i.v. robotics in 2012.[18] They also installed one of the first physician order entry systems at a major academic medical center in 1993 while he was at Brigham and Women's Hospital in Boston. Mark Siska's team implemented an EHR at Mayo Clinic in early 2000.

Our generation took pharmacy outside of the hospital as we embraced the concept of population health management. Nothing demonstrates this better than our advancement into the ambulatory care arena as we integrate inpatient and outpatient care. Jerry Greskovic at Geisinger Health in Pennsylvania has dedicated his career to expanding pharmacy's role in managing chronic disease. He has embedded more than 90 clinical pharmacists into Geisinger Health's ambulatory medicine and pharmacy tele-management clinics today. Rather than keeping his information secret for proprietary, institutional reasons, Jerry selflessly shared his successful formula for determining when to add a pharmacist in *AJHP* in 2018, disclosing that Geisinger Health adds a pharmacist to medicine clinics once they have 700 patients fitting the criteria for the targeted population.[19] Jerry didn't publish this information to be famous; he did it so that others could take the article to their C-Suite and lobby for ambulatory care pharmacist full-time equivalents.

So, we have done a lot. We should be proud of how we are shepherding the profession through the challenging and uncertain times of healthcare reform; through the creation of, followed by the gradual dismantling of, the Affordable Care Act. Although we don't know how and when we will realize appropriate reimbursement models for proactive, evidence-based healthcare, we do know that patients are best served by medication management across their lifetimes, and we will continue to push this with the hope that our U.S. healthcare system will eventually reward our hospitals for forward thinking (although, as our colleague at KU Rick Couldry likes to say, "Hope is not a strategy").

Where to go from here

Well, we have defined "calling." We have recited many examples of pharmacists who were called to serve a higher purpose. We have discussed some of the early and recent history of our profession. So, what is left for today's pharmacy leaders to do?

The good news is that there is job security for pharmacy leaders for the foreseeable future. There is a *lot* left to achieve. Like those called to serve before us, today's generation will invent and implement innovative practices and, equally important, will model a proactive, patient-centered disposition. They will continue to inspire residents and young leaders by demonstrating their calling to our profession, and they will share selflessly.

Going back to the modified ASHP vision mentioned previously, we must refocus on this vision and ensure that medication use will be accessible, optimal, safe, and effective for all people all of the time.

There are many areas where we can improve patient care, but I am going to focus on these 7:

1. The pharmacy profession must destroy and recreate the for-profit chain retail pharmacy model that only rewards volume. While we can't change this national model overnight, we can lead the way and become an example for the broader profession to follow. This new model will leverage collaborative practice agreements and access to the patient's EHR. Pharmacists in stores will provide direct patient care, become physician extenders, and improve the health of the populations they serve.
2. We must expand technician responsibilities, and we can't do that until we require a minimum of an associate's degree, as for radiation technologists and nuclear medicine technicians, so that pharmacy technicians are paid a livable wage that they see as career empowering.
3. We must completely automate parenteral medication compounding and expand robotics into other areas of pharmacy distribution.
4. We must push into the world of artificial intelligence (AI) to make the EHR smarter so that pharmacists can stop today's necessary but non–value-added task of reviewing orders that should be correct through a robust, learning EHR. This will free pharmacists to directly interact with more patients.
5. We must continue to manage the comprehensive pharmacy enterprise by assuming responsibility for all aspects of medication use and not allow any revenue related to drugs go, as our colleague Debbie Simonson from Ochsner Health System says, from the

not-for-profits to the for-profit PBMs and chain pharmacies.

6. We must embrace technology and data analytics to achieve our population health management goals. We must mine big data to proactively identify and reach our most vulnerable patients. We must leverage this data to show what we know: that health-system patients served by a vertically integrated pharmacy enterprise have better outcomes than patients whose medication therapy is served piecemeal through nonintegrated care.
7. We, as a profession, must be actively involved in advocacy. We must ensure that pharmacists are legally empowered to independently prescribe in all 50 states. While provider status is nice, and I believe that pharmacists should be able to bill if physician assistants and nurse practitioners can, it's really chasing an outdated revenue model as we transition to more effective population health models.

Conclusion

Now that we have discussed where we have been, where we are, and where we are going, I would like to summarize my interpretation of pharmacy as a calling.

Those who are called realize that they are part of something greater than themselves. Those who are called to pharmacy have likely recognized this because they have been exposed to an inspirational leader who grasped their patient care role as both stewards of and advocates for our profession.

Health-system pharmacists have succeeded in dramatically advancing practice year after year, decade after decade due to multiple factors that have converged to produce a pipeline of leaders in successive generations.

A common vision for patient care, created through networks like ASHP and Vizient, empowers passionate individuals to make both incremental and exponential advances in practice. Sharing these successes broadly accelerates adoption of best practices.

Multiple iterations of initiatives discovered elsewhere and widely disseminated lead to continually better processes.

Occasionally, generational leaders like Harvey Whitney and Bill Smith dramatically advance practice beyond what was previously conceivable.

Pharmacists who are called to serve our profession are patient care champions who not only innovate but selflessly share their successes with the intention of serving as many patients as possible. Those who are called pass the baton by inspiring succeeding generations through focused residency training, modeling, and mentoring.

I will leave you with the previously mentioned "David Zilzism," as I know that everyone in this audience will aspire to inspire until they expire.

Finally, I encourage you to follow the example of so many previous John W. Webb Lecture Award honorees who have advanced practice, shared freely, and inspired others to serve. Go forth and innovate, my friends!

Thank you very much.

Disclosures

The author has declared no potential conflicts of interest.

Additional information

Presented in connection with Dr. Knoer's designation as the 2019 John W. Webb Lecture Award recipient by the ASHP Section of Pharmacy Practice Managers and the School of Pharmacy, Bouvé College of Health Sciences, Northeastern University, Boston, MA. Dr. Knoer delivered his award lecture at the ASHP Conference for Leaders in Health-System Pharmacy in October 2019 and presented a lecture as Visiting Professor in Hospital Pharmacy at Northeastern University.

References

1. Jorgensen JA. Tools of the trade: creativity, innovation, influence, and advocacy. *Am J Health-Syst Pharm.* 2018; 75:785-94.
2. Merriam-Webster. www.merriam-webster.com/dictionary/calling (accessed 2019 Jul 20).
3. Brelund BD. Believing what we know: pharmacy provides value. *Am J Health-Syst Pharm.* 2007; 64:18-29.
4. Shane RR. Pharmacy without walls. *Am J Health-Syst Pharm.* 1996; 53:418-25.
5. Mehl B. Defining excellence. *Am J Hosp Pharm.* 1993; 50:921-8.
6. Scott BE. What are you doing for others? *Am J Hosp Pharm.* 2019; 76:1377-82.
7. Smith WE, DeLeon RF, Herfindal ET et al. The Ninth-Floor Pharmacy Project at the University of California, San Francisco: a seminal development in clinical pharmacy. *Am J Health-Syst Pharm.* 2015; 72:2108-13.
8. Barker KN, Heller WM. The development of a centralized unit-dose dispensing system part one: description of the UAMC experimental system. *Am J Hosp Pharm.* 1963; 20:568-79.
9. Black HJ, Tester WW. Decentralized pharmacy operations utilizing the unit dose concept. *Am J Hosp Pharm.* 1964; 21:344-50.
10. Hepler CD, Strand LM. Opportunities and responsibilities in pharmaceutical care. *Am J Hosp Pharm.* 1990; 47:533-43.
11. Colleagues mourn the loss of John Webb, 87. *Am J Health-Syst Pharm.* 2011; 68:784-5.
12. Knoer SJ. Stewardship of the pharmacy enterprise. *Am J Health-Syst Pharm.* 2014; 71:1204-9.
13. The Columbus Dispatch. Ohio firing pharmacy middlemen that cost tax payors millions. www.gatehousenews.com/sideeffects/ohio-firing-pharmacy-middlemen-cost-taxpayers-millions/site/dispatch.com/ (accessed 2018 Aug 14).
14. Ivey MF. Expanding the pharmacy enterprise: leadership needed. *Am J Health-Syst Pharm.* 2009; 66:1652-9.
15. Knoer SJ. Multihospital health systems: seize the opportunity. *Am J Health-Syst Pharm.* 2018; 75:423-6.
16. Elenbaas RM, Waeckerie JF, McNabney WK. The clinical pharmacist in emergency medicine. *Am J Hosp Pharm.* 1977; 34:843-6.
17. Hintzen BL, Knoer SJ, van Dyke CJ et al. Effect of lean process improvement techniques on a university hospital inpatient pharmacy. *Am J Health-Syst Pharm.* 2009; 22:2042-7.
18. Seger AC, Churchill WE, Keohane CA. *J Oncol Pract.* 2012; 8:344-9.
19. Knoer SJ, Swarthout MD, Sokn E et al. The Cleveland Clinic pharmacy population health management summit. *Am J Health-Syst Pharm;* 2018; 18:1421-9.