CAREERS IN PHARMACY
FALL 2015

WHY PHARMACY
EMPLOYMENT OUTLOOK

STUDENT GUIDEBOOK
A DAY IN
THE LIFE OF A
PHARMACIST

NAVIGATING
THE ADMISSIONS
PROCESS

AND MORE …
Welcome to the Careers in Pharmacy Student Guidebook. This guide is proudly sponsored by Bayer HealthCare Pharmaceuticals and written for you, the high school or college student or graduate who is considering your career options. Opening it could be the first step toward a career in one of the most exciting, challenging and rewarding professional fields in today's healthcare arena: pharmacy.

Our goal with this publication is to broaden your career horizons to include the many facets of pharmacy, and our hope is that you'll give serious thought to pharmacy as a lifelong career. It's a great time to become a pharmacist.

Bayer is proud to be part of the pharmacy family. We’re a leading pharmaceutical company that focuses on innovative drug development, including the newest advances in biotechnology research.

We employ pharmacists throughout our organization, and we interact with pharmacists of hospitals, pharmacies, nursing homes and other patient settings. We also support their development and offer professional growth forums through our Pharmacists at Bayer employee resource group, PhAB.

Bayer supports pharmacists as critical members of the nation’s healthcare team. That's why we sponsor the Careers in Pharmacy Student Guidebook. It can be a valuable source of information for you on the educational requirements, career options and opportunities available in this rewarding profession. If you’re a motivated student who enjoys math, science and communicating with and helping people, pharmacy could be your path to a career that offers both enormous personal fulfillment and top-tier financial rewards.

What’s more, as a graduate of one of the nation’s 119 schools of pharmacy, you’ll have a wide choice of career options. Pharmacists practice in a host of different settings, including chain and independent retail pharmacies, hospitals, managed care, clinical and institutional centers, and in pharmaceutical research.

Our hope is that you find this guidebook a useful window into the pharmacy profession. I wish you all the best in your future career.

Donald Sawyer
Senior Vice President, Corporate & Government Customers

Ed Feeley
Vice President, Account Management
CAREERS IN PHARMACY

FALL 2015

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Looking for a career that offers the excitement of discovery, a richly rewarding level of job satisfaction in service to others, a high pay scale, a wide variety of work locations and the admiration of your friends and neighbors? A career as a pharmacist offers all these and more.

Buoyed by a massive surge in demand and a revolution in health care, the pharmacy profession is entering a golden age. And newly graduated and licensed pharmacists have an unprecedented array of career options, almost unlimited advancement opportunities and a diverse palette of choices in where they practice their skills.

“There has never been a better time for students to consider a rewarding career in pharmacy,” noted the American Association of Colleges of Pharmacy. “The demand for trained pharmacy professionals has dramatically increased in recent years due to the rapid growth of the healthcare and pharmaceutical industries, especially for the growing elderly population. The number of pharmacists in healthcare services also is increasing as pharmacists become more actively involved in drug therapy decision-making for patients of all ages.”

RESPONSIBILITY AND REWARD

Becoming a pharmacist isn’t a walk in the park. It requires a commitment to hard work, at least six years of higher education — including at least two years of basic college course work and four years of study toward a doctor of pharmacy degree — and an aptitude for science, including chemistry. But equally important is a passion for helping others.

“Pharmacists’ responsibilities include a range of care for patients, from dispensing medications to monitoring patient health and progress to maximize their response to the medication,” the AACP reported. “Pharmacists also educate consumers and patients on the use of prescriptions and over-the-counter medications, and advise physicians, nurses and other healthcare professionals on medication decisions.

“It’s a heady responsibility. But for students willing to put in the time and effort, the rewards — both in terms of financial return and professional pride and satisfaction — are considerable.
“While it varies by pharmacy practice area, recent pharmacy graduates can earn top salaries right out of college,” the AACP reported. “Pharmacy is a career that offers great benefits, flexible work schedules, outstanding growth opportunities, profit sharing and much more. Pharmacy is an exciting blend of science, health care, direct patient contact, computer technology and business.”

DRAMATIC TRANSFORMATION

The profession also is undergoing a dramatic and exciting transformation as a fast-reforming health system, a growing shortage of primary care physicians, an influx of newly insured patients and a tsunami of baby boomers all converge, demanding new solutions to the nation’s overly costly, over-stretched healthcare system. In response, government and privately run health plan payers, hospital-based health systems and time-pressed family physicians are turning to pharmacies nationwide to provide more cost-effective and accessible front-line healthcare services.

“Increasingly, pharmacies provide vaccinations, health education and disease state testing and management,” reported the National Association of Chain Drug Stores. “Through personal interactions with patients, face-to-face consultations and convenient access to preventive care services, pharmacies are helping to shape the healthcare delivery system of tomorrow — in partnership with doctors, nurses and others.”

Indeed, “The vast majority of pharmacists today are already doing much more than simply filling prescriptions,” noted Dr. Harry Leider, chief medical officer for Walgreens. “They’re helping patients manage chronic disease, providing medication management services, conducting health tests to diagnose such conditions as diabetes or high cholesterol and administering a wide range of immunizations.”

The expanding clinical and preventive-health roles taking shape within thousands of pharmacies nationwide make this “an exciting time to pursue a career in pharmacy and make a difference in the lives of individual patients,” said Anne Burns, VP of professional affairs for the American Pharmacists Association.

“It’s often said that pharmacists are the most underutilized healthcare professional in the healthcare system,” Burns noted. “That’s changing as policy makers, media outlets, healthcare administrators and physicians and other members of the healthcare team highlight the value that pharmacists can bring to improving patients’ health and medication outcomes.”

A DEEP RESERVOIR OF TRUST

Beyond the financial rewards and career satisfaction, there’s another benefit to serving in the pharmacy profession that doesn’t factor into the bottom line: Pharmacists enjoy a high level of respect and confidence within their community. Year after year, Americans put pharmacists among the top two or three most trusted professionals. In Gallup’s most recent Honesty and Integrity survey, pharmacists ranked second in terms of trustworthiness and ethical standards, behind only nurses and tied with medical doctors. “The survey results reflect the remarkable trust that patients continue to place in their pharmacists,” said National Association of Chain Drug Stores president and CEO Steve Anderson. “Pharmacists are highly educated and highly accessible professionals. They are valued in neighborhoods across America.”

In this edition of Careers in Pharmacy, we take a look at the many aspects of serving as a pharmacist, profile a few of those pharmacists at their different practice settings and examine the educational requirements and costs of earning a degree in pharmacy. So, let’s get started!
On the front lines of health care

Answering the health reform challenge

Physician shortages, high health costs push pharmacists to front lines of care

Combine these massive societal forces:

- An aging population;
- An epidemic of such chronic diseases as obesity, diabetes and heart disease;
- An acute and growing shortage of primary care doctors;
- A dramatic and unsustainable rise in the nation's healthcare costs.

Now, add to this volatile mix the sweeping health reforms ushered in by the Affordable Care Act, including an influx of tens of millions of newly insured Americans and a big change in the way government and private health plans pay for health care. That change is already underway as health plans begin to replace the old no-questions-asked, fee-for-service model of payments with a new, accountable reimbursement system that demands teamwork among healthcare providers, the sharing of patient data and proven results, as measured by better patient outcomes and fewer trips back to the hospital.

Stir all those elements together, and what do you get? Both challenges for the U.S. health system as a whole, and opportunities for the pharmacy profession to reach new heights as it helps the nation address those challenges.

On the one hand, the aging of America, the chronic disease epidemic, the influx of newly insured patients and shrinking access to primary care physicians has unleashed what Dr. Harry Leider, chief medical officer for Walgreens, calls “a perfect storm of factors that together can impair the most fundamental aspect of health care — a patient’s ability to receive the care and treatment they need at an affordable cost and within a reasonable time frame.”

Those same forces, however, are also thrusting pharmacists into the spotlight as a key resource in the nation’s desperate search for a way out of the current healthcare crisis. As health plan payers, hospital systems and overloaded physicians seek new ways to cut health delivery costs and connect their patients with more timely and more affordable access to care, they’re turning to the nation’s more than 290,000...
Pharmacists across the country are stepping up to fill a more prominent role as front-line healthcare providers.

“New care delivery models, such as patient-centered medical homes, are expanding across the country,” said Anne Burns, VP of professional affairs for the American Pharmacists Association. “Pharmacists are increasingly being incorporated into these models as members of inter-professional healthcare teams that collaborate and better coordinate the care of their patients. All members of the team strive to practice at the top of their training and use a patient-centered approach to actively engage patients in their health care.”

Pharmacists, Burns added, “are often involved in managing medications, providing such chronic condition management services as diabetes management, and serving as a medication resource for other members of the team. Demand is growing for pharmacists to practice in these models.”

As a result, said Robert Thompson, executive VP of pharmacy at Rite Aid, “Students considering a career in pharmacy today should understand that the role and duties of the practicing pharmacist will change over time, as pharmacists will spend less time dispensing and more time on patient management activities. In the future, pharmacists will be measured and rewarded based on how well they achieve health improvement outcomes in their patients.

“Achieving outcomes in patients is no easy task,” added Thompson, who won the 2015 Harold W. Pratt Award, chain pharmacy’s top honor. “It will require pharmacists who are not only technically skilled but are highly skilled in building a relationship of trust with their patients. The pharmacists of the future will need to really enjoy working directly with patients. They will need to be behavior management experts.”

DELIVERING RESULTS, ONE PATIENT AT A TIME

The forces driving this evolution in pharmacy practice are inescapable. “America’s population is living longer than ever before; however, the number of people suffering from chronic disease is at an all-time high and growing,” Leider wrote. “Almost half of U.S. adults — approximately 117 million people — have at least one chronic disease, resulting in three-quarters of our nation’s annual healthcare expenditures going toward costs for treatment and management of these conditions.

“We’re also challenged with a primary care physician shortage that’s only supposed to worsen, with the Association of American Medical Colleges predicting that in five years there will be nearly 100,000 fewer doctors than the number needed,” Leider added. “And, of course, there is the influx of newly insured individuals into the healthcare system as a result of the Patient Protection and Affordable Care Act.”

Against this backdrop, it’s clear we need to make changes to our system to counter these trends that will only continue to hinder patient access,” he noted. “One viable solution is to promote the important role community pharmacists can play in providing patient care, in the same manner as other non-physician providers like nurse practitioners and physician assistants.”

One big health plan payer leading the charge to make pharmacists a full member of the new, integrated health care team is the U.S. Centers for Medicare and Medicaid Services. Following enactment of the Affordable Care Act, CMS is enlisting pharmacists in the national campaign to lower health costs and improve healthcare quality.

A focal point of that campaign is encouraging pharmacists to provide such expanded patient-care services as Medication Therapy Management, particularly to older Americans in need of support and guidance as they navigate an often-complex medication regimen.

“The ACA has expanded MTM services ... and has increased utilization of pharmacists in integrated care delivery models,” said Rebecca Chater, executive health-care strategist at pharmacy automation provider Ateb, and former executive VP in charge of Kerr Drug’s clinical services division, Kerr Health.

“Pharmacists are well-positioned to help alleviate the access pressures resulting from shortages of other primary care providers,” Chater added.
Job opportunities still strong

Rock-solid job prospects, the satisfaction that comes with serving others, personal growth and a very good paycheck: Those are the rewards of a career in pharmacy.

Demand for more pharmacists peaked several years ago, following a severe shortage in practitioners that spurred the development of additional schools of pharmacy and an increase in enrollments. But the pharmacy job market still beckons as massive demographic forces and a still-expanding healthcare system continue to fuel demand for more pharmacy professionals.

“Employment of pharmacists is projected to grow 14% from 2012 to 2022,” the Bureau of Labor Statistics projects. BLS researchers cite several factors that will drive the increase.

“The population is aging, and older people typically use more prescription medicines than younger people,” the agency reports. “Higher rates of chronic diseases, such as diabetes among all age groups, will also lead to increased demand for prescription medications. In addition, scientific advances will lead to new drug products. As health care continues to become more complex and as more people take multiple medications, more pharmacists will be needed to dispense medications and to counsel patients on how to use their medications safely and effectively.”

In addition, noted BLS, “The number of individuals who have access to health insurance will increase as federal health insurance reform legislation is enacted. As more people have access to insurance coverage, more pharmacists will be needed to fill their prescriptions and to consult with patients about their medications. Demand is also likely to increase for pharmacists in a variety of healthcare settings, including hospitals and clinics. These facilities will need more pharmacists to oversee the medications given to patients and to provide patient care, performing such tasks as testing a patient’s blood sugar or cholesterol.”

GROWING OPPORTUNITIES AMID HEALTH REFORM

But a rise in the patient population and an aging America are only part of the story behind the growing demand for pharmacists. In addition, said Anne Burns, VP of professional affairs for the American Pharmacists Association, “new opportunities for pharmacists are continually emerging, such as expanding medication therapy management and other patient care services, care transitions services, health information technology integration, quality measurement and new care delivery models.”

What’s more, Burns said, “Collaborative efforts within the pharmacy profession to gain recognition and coverage for pharmacists’ patient care services will further advance opportunities for pharmacists of the future.”

All these factors are buoying long-term job prospects for pharmacists — not to mention what is likely to be lifetime employment security. “We’re going to need pharmacists who can serve patients across that patient..."
life cycle and continue to be able to make sure that they have access to changing needs as new treatments come out,” asserted Peyton Howell, EVP and president of AmerisourceBergen's global sourcing and manufacturer relations division.

Solid employment prospects aside, what can you expect in the way of compensation for all your hard work getting through pharmacy school, practice-rotation residencies and the licensure process? Newly graduated and licensed pharmacists have average annual salaries well in excess of $100,000.

According to the BLS, the median pay for the nation’s 290,780 practicing pharmacists in 2014 was $118,470, with a mean hourly wage of $56.96. In some practice fields, like scientific research and development or in some clinical settings, average salaries were even higher.

Nearly half of the nation’s full-time pharmacists — 43% according to the BLS — work in full-service drug stores and small-scale apothecaries, where annual wages average $119,420. Hospitals and clinics employ roughly 23% of pharmacists, where annual compensation averages nearly $118,000. Supermarkets and big box mass merchandise pharmacies account for another 18% of pharmacists, with mean pay scales ranging from $115,000 to more than $122,000.

**SOLID PROSPECTS FOR PHARMACY TECHS**

Pharmacy technicians — charged with many of the administrative, dispensing and transaction duties that go with running a modern pharmacy — also can expect solid job prospects. Indeed, the BLS reported, “Employment of pharmacy technicians is projected to grow 20% from 2012 to 2022, faster than the average for all occupations.”

Behind that outlook are the same factors driving the need for new pharmacists — an aging population in need of higher levels of drug therapy, professional counseling and medication therapy management; the shift of more patients into such alternative care sites as pharmacies; the growth of newly insured patients under the health reform law, etc. But other forces also are spurring demand for pharmacy techs, led by fundamental changes in pharmacy practice itself.

As pharmacists take on more clinical care, diagnostic and disease-management duties — and spend more time interacting with and counseling their patients — they're shifting more of the basic duties of dispensing medicines onto pharmacy techs, aided by advances in pharmacy technology and electronic record keeping.

Techs, in turn, are undergoing more training than ever before and most have passed certification require-
ments to keep up with the rise in responsibilities and increased interaction with patients. Among their current duties are measuring, packaging and labeling prescriptions; taking information from customers and prescribing doctors; organizing and tracking pharmaceutical inventory; answering phone calls; and entering patient data into the pharmacy computer system.

### TOP PAYING NONRETAIL INDUSTRIES FOR PHARMACISTS

<table>
<thead>
<tr>
<th>Industry</th>
<th>Total pharmacists employed</th>
<th>Percent of industry employment</th>
<th>Hourly mean wage</th>
<th>Annual mean wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific research and development services</td>
<td>190</td>
<td>0.03%</td>
<td>$62.40</td>
<td>$129,790</td>
</tr>
<tr>
<td>Warehousing and storage</td>
<td>180</td>
<td>0.02%</td>
<td>61.60</td>
<td>128,130</td>
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<tr>
<td>Offices of physicians</td>
<td>5,160</td>
<td>0.21%</td>
<td>61.32</td>
<td>127,550</td>
</tr>
<tr>
<td>Outpatient care centers</td>
<td>3,700</td>
<td>0.53%</td>
<td>60.57</td>
<td>125,980</td>
</tr>
</tbody>
</table>

**Source:** Bureau of Labor Statistics, as of May 2014

### PHARMACISTS’ AVERAGE ANNUAL EARNINGS BY PRACTICE SETTING

<table>
<thead>
<tr>
<th>Industry</th>
<th>Total pharmacists employed</th>
<th>Percent of industry employment</th>
<th>Hourly mean wage</th>
<th>Annual mean wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug store pharmacies</td>
<td>125,810</td>
<td>12.33%</td>
<td>$57.41</td>
<td>$119,420</td>
</tr>
<tr>
<td>General medical and surgical hospitals</td>
<td>66,010</td>
<td>1.26%</td>
<td>56.58</td>
<td>117,690</td>
</tr>
<tr>
<td>Mass merchandise stores</td>
<td>29,270</td>
<td>1.84%</td>
<td>58.87</td>
<td>122,445</td>
</tr>
<tr>
<td>Supermarket pharmacies</td>
<td>23,240</td>
<td>0.89%</td>
<td>55.33</td>
<td>115,080</td>
</tr>
<tr>
<td>Pharmaceutical wholesalers</td>
<td>6,020</td>
<td>3.13%</td>
<td>57.23</td>
<td>119,050</td>
</tr>
<tr>
<td>Electronic shopping and mail-order houses</td>
<td>3,970</td>
<td>1.24%</td>
<td>56.34</td>
<td>117,200</td>
</tr>
<tr>
<td>Specialty (except psychiatric and substance abuse) hospitals pharmacies</td>
<td>3,080</td>
<td>1.25%</td>
<td>55.34</td>
<td>115,110</td>
</tr>
</tbody>
</table>

**Source:** U.S. Bureau of Labor Statistics, as of May 2014

### PHARMACY TECHNICIANS’ AVERAGE EARNINGS BY PRACTICE SETTING

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of employees</th>
<th>Percent of industry employment</th>
<th>Hourly mean wage</th>
<th>Annual mean wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and personal care stores</td>
<td>192,290</td>
<td>18.84%</td>
<td>$14.04</td>
<td>$29,200</td>
</tr>
<tr>
<td>General medical and surgical hospitals</td>
<td>58,090</td>
<td>18.84%</td>
<td>17.22</td>
<td>35,820</td>
</tr>
<tr>
<td>Mass merchandise/discount stores</td>
<td>42,970</td>
<td>2.63%</td>
<td>14.23</td>
<td>29,610</td>
</tr>
<tr>
<td>Grocery stores</td>
<td>26,540</td>
<td>1.02%</td>
<td>13.97</td>
<td>29,060</td>
</tr>
</tbody>
</table>

**Source:** U.S. Bureau of Labor Statistics, as of May 2014
A DAY IN THE LIFE OF A
CHAIN RETAIL PHARMACIST
MALISSA DANCEY
PHARMACY MANAGER
WALGREENS, SMYRNA, GA.

Where do Americans go most often for medications, drug therapy counseling and front-line health-and-wellness services? To national and regional pharmacy chains, which employ far more pharmacists than any other practice setting — 175,000 or so, according to the National Association of Chain Drug Stores — and which, combined, fill more than 2.7 billion prescriptions a year.

Chain pharmacies can credit their remarkable success, in part, to the work of pharmacists like Malissa Dancey. A 2007 doctor of pharmacy graduate of the University of Nebraska Medical Center School of Pharmacy, Dancey is pharmacy manager for Walgreens in Smyrna, Ga., where she dispenses both prescriptions and a range of patient health-and-wellness services, including immunizations and medication therapy management, or MTM.

Dancey expressed enthusiasm about her role, and about the growing responsibility pharmacists have for their patients’ total well-being, in partnership with other members of an increasingly integrated team.

“Nowadays it seems like filling prescriptions is a small part of the job and we’re playing a much more important role,” she said. “We are often spending more time counseling and answering questions, speaking with [physicians’] offices concerning medications, solving insurance issues. We also provide many other healthcare services at each location, [such as] immunizations, health testing, MTM, etc.

“It is great to be able to use all the skills we learned during school,” Dancey added. “I have found much satisfaction lately providing MTM services. I like when we can take time to really see each patient as a whole and address every aspect of...”
One recent goal, Dancey said, is to gain expertise in specialty pharmacy, which requires a high level of engagement with patients. “I have been training at our local on-site specialty store. It’s been great to learn and become familiar with specialty drugs that you don’t often deal with at a typical retail location.”

“I am able to actively help patients every step of the way, from new treatment education and getting medications covered by their insurance...[to] helping them find funding resources for what can be very expensive medications that they may not be able to afford without our assistance,” Dancey said.

The new roles taken on by Dancey and other Walgreens pharmacists highlight the rapid transition in pharmacy, as practitioners expand their duties from simply dispensing prescriptions and counseling patients on their use, to becoming front-line patient-care providers and wellness advocates. “My role as a community pharmacist has changed significantly since I first started working,” she said. “We have expanded our role in many ways.”

“The biggest change has been our role in immunizations services. When we first started offering them in our stores about 10 years ago, it was a nurse who was contracted to administer flu shots inside our store, and patients were almost surprised that they were there. Now, it is commonplace to provide immunizations and almost every patient and payer is aware that we not only offer flu shots, but in most states, a wide range of other CDC-recommended immunizations as well.”

What’s more, Dancey said, “All of our pharmacists are licensed or certified to administer immunizations, as we’re the largest retail provider of vaccines in the United States. Now, as Walgreens actively expands in other services, I feel that soon we may be seeing a similar impact as we have with immunizations.”

Dancey credited her employer, the nation’s largest drug chain, with providing “the best technology to enable us do our jobs more efficiently.”

What led her to a career in chain pharmacy? “I was very interested in the healthcare field when I started college,” she explained. “I explored many options, and first considered becoming an MD. However, the amount of school and time it would take seemed too long because it was also important for me to start a family. The pharmacy career allowed me to have the benefits of a higher healthcare education while still being able to complete school and start a career in a reasonable amount of time.

“The primary reason I chose to work for Walgreens is that it was recommended by a family friend who was a Walgreens pharmacist when I started pharmacy school,” Dancey added. “She always spoke very highly of the company, especially the technology and innovation. They have been industry leaders for so long it seemed like a great choice!”
Beyond the pharmacy counter:

A WORLD OF CAREER CHOICES

For those embarking on a pharmacy career, the choice of practice settings and locations is as varied as the field of health care itself. And while the community pharmacist is the most widely recognized and accessible pharmacy professional, tens of thousands of pharmacists forge rewarding careers in a wide variety of clinical, research or academic locations, far from the retail pharmacy counter.

“Pharmacy is practiced in a wide range of settings — community pharmacies, hospitals, long-term care facilities, the pharmaceutical industry, mail service, managed care, and government (Department of Defense, Department of Veterans Affairs, Indian Health Service, Public Health Service),” reported the American Pharmacists Association.

As the American Association of Colleges of Pharmacy reported, “while the majority of pharmacists work in community pharmacies, there is an unprecedented demand for pharmacists in a wide variety of occupational settings,” including academia, ambulatory care, consulting, the Armed Forces, the pharmaceutical industry and in hospitals and institutional settings.

According to APhA, 112,000 pharmacists are employed in community pharmacy settings, including 66,000 in chain pharmacies and 46,000 in independently owned drug stores. But another 40,000 professionals are based in hospitals, and 21,000 practice in consulting, government, academic, industry and other settings.

“There are so many opportunities for pharmacists in today’s changing healthcare environment,” noted Anne Burns, APhA’s VP of professional affairs. “Medications play such an important role in the treatment of acute and chronic illnesses, but treatment regimens can be complex, and patients often don’t understand how and why to use their medications appropriately. Pharmacists, with their extensive medication training and expertise, as well as their skills in delivering health-and-wellness services and chronic condition management, are increasingly being sought for the contributions they can make to improving the health of patients,” Burns added. “This is happening in a variety of settings from community, hospital and long-term care to physician office practices, consultant practices, accountable care organizations, and managed care organizations.”

Walgreens pharmacist Malissa Dancey agreed. “There is more to pharmacy choice than ‘retail or hospital,’” Dancey said. “With our role in health care continuing to expand into a true healthcare provider, there are so many opportunities.”
Here's a look at some career options beyond the retail pharmacy counter:

**SPECIALTY PHARMACY**

The fastest-growing and most dynamic sector of pharmacy today is in specialty pharmaceuticals, as breakthroughs in molecular engineering and genomic research yield new biotech medicines targeted to patients with serious, chronic and often life-threatening illnesses.

Such medicines can cost hundreds or even thousands of dollars per dose, and their complex treatment regimens require a higher level of coordinated care, along with close patient monitoring and follow-up by pharmacists to monitor long-term results, adjust dosage levels, etc.

The upside, however, can often be a dramatic improvement in a patient's condition as he or she begins to respond to drug therapies that are targeted specifically to their condition and genetic markers. As such, bio-tech medicines developed through new research techniques at the molecular level — and even more recent advances in the science of genetically driven research into patient-specific drug therapies — represent enormous, if expensive, potential benefits to millions of patients.

**HOSPITALS AND INSTITUTIONS**

Does the prospect of working in the true nerve center of the healthcare delivery system sound appealing? Then perhaps the role of hospital or health system pharmacist is for you.

“As society’s health care needs have changed and expanded, there has been an increased emphasis on provision of care through organized health care settings,” the AACP reported. “As a result, an increased number of pharmacists now practice in hospitals, nursing homes, extended care facilities, neighborhood health centers and health maintenance organizations.”

In hospitals, pharmacists are engaging directly with patients and other staff members, including doctors and nurses. They're on the floors “rounding” with other health professionals right at patients’ bedsides, dispensing medicines and counsel, monitoring the effects of medications and checking for potential drug interactions in a coordinated approach to care. In that role, they can have a profound impact on the quality of care. “Studies in hospital and clinic settings have shown that pharmacists can improve prescribing and patient outcomes and decrease hospital and prescribing costs,” the AACP reported. “Seventy-eight percent fewer preventable adverse drug events occurred among patients in a hospital’s general medicine unit when a pharmacist participated in weekday medical rounds.”

**CONSULTING PHARMACY**

Consulting pharmacy practice has its roots in the provision of pharmacy services to nursing homes. “While the concept ... originated less than three decades ago, today more than 10,000 consultant pharmacists provide a broad spectrum of administrative, distributive and clinical services to more than 1.7 million nursing facility residents and hundreds of thousands of others in a wide variety of care environments,” noted the AACP.

“Much of pharmacy, especially consulting pharmacist work, is education,” said Chad Worz, a consulting pharmacist and AACP board member. “Consultant pharmacists review the medication regimen of nursing home and assisted-living residents,” he said. “We spend time navigating patients on multiple medications. Our [goal is] to ensure those medications are safe and adding benefit to the patients.”

**ACADEMIC PHARMACY**

Some 4,000 pharmacists work as full-time faculty members in the nation’s schools of pharmacy. “Perhaps no other job in pharmacy has such far-reaching effects on the profession as that of an educator,” noted the AACP. “It is in academia that one can excite individuals about pharmacy and lay the groundwork for continuing advances in the field.”

What’s required to succeed as a pharmacy educator? “Becoming a member of the faculty ... usually requires a postgraduate degree and/or training,” the AACP reported. “These academicians often are called educator/practitioners, and they serve as role models for pharmacy students and residents.”

**PHARMACEUTICAL RESEARCH AND DEVELOPMENT**

There also are pharmacists making a real contribution to public health behind the scenes, without ever interacting directly with patients. They work within the pharmaceutical industry — or within university- or corporate-sponsored research labs — in such areas as product development, quality control testing and marketing.

Much of the work in cutting-edge research requires additional scientific training and postgraduate degrees. But pharmacists who make the commitment are helping to develop promising and often lifesaving medicines at the frontiers of targeted molecular drug development and biologics.
CONSULTING PHARMACY ROLE OFFERS FREEDOM AND FLEXIBILITY
One fairly recent but fast-growing career path for pharmacists is that of consulting pharmacist. The field, which came into its own beginning in the ’80s and ’90s, offers freedom of movement, flexible hours, the chance to work in a variety of practice settings and professional peer status as a member of a healthcare team focused on the care of mostly elderly patients.

Chad Worz is one of some 10,000 U.S. pharmacists who practice as consultants, employed by outside firms to serve in a variety of settings, chiefly nursing homes and assisted-living centers. A pharmacist with Medication Managers LLC in Cincinnati, and a member of the board of directors of the American Society of Consultant Pharmacists, Worz works with local nursing home patients and nurses to provide prescription drug therapy and the many services that surround that activity.

Among those duties, he’s responsible for regularly monitoring the effects of medications and patients’ adherence to their drug therapy, assuring drugs are stored and administered correctly and making recommendations “directly to the nurse practitioner or doctors to improve treatment,” he said.

As part of the patient care team, “consultant pharmacists participate in behavior management meetings for residents on psychoactive medications,” Worz explained. “Consultants may help initiate and manage [medication] formularies for nursing homes and may provide education and development on clinical protocols for certain diseases or concerns, [such as] antibiotic use, hospitalizations, falls or mental status changes.”

“EACH DAY IS DIFFERENT”
Worz likes the fulfillment and elevated professional status that come with being responsible for the long-term care and well-being of dozens of elderly patients. “It is incredibly rewarding to have so much influence over how medications are utilized in an older population,” he said. “The elderly consume the most medications and suffer the most consequences of that consumption.”

Serving that elderly population will
be increasingly important, Worz added. “Today and into the future, long term care and geriatrics will be central to the health care system due to the baby boomer population,” he predicted.

Worz also likes the variety that defines the role of a consulting pharmacist. “Each day is different because each nursing home environment is different,” he said. “Patients range from the very independent in assisted living homes to very acute post-surgical patients in the rehabilitation centers.”

A consultant, he added, “may go to one or more nursing homes in a day and essentially can be in charge of how their work is scheduled. The practice revolves around a monthly review, so it is possible to work longer hours and have a three-day weekend or be flexible during rush hour or when you have activities during the day. There are no set times to consult so long as you make meetings at the nursing homes and keep the nursing home clients satisfied with your services.”

UNLOCKING MEDICATIONS’ MYSTERIES

Worz was drawn to pharmacy as a teenager working at an independent-ly owned neighborhood drug store. “As with many of us in pharmacy, I started at a local, corner drug store,” he said. “It was working there that grew my interest in pharmacy. It was the patient interaction that drove my interest, hearing questions and providing help to people.”

Worz called his education from the University of Cincinnati College of Pharmacy “a tremendous influence” that helped steer him away from plans to attend medical school and set his course for a career in pharmacy. “I was coaxed into a degree in pharmacy as a good way to approach medical school,” he recalled. “My experience at U.C. from the social to the clinical drove me to remain in pharmacy.”

“I was fortunate to have professors who were pushing the limits of pharmacy; professors who were experts at medicine and had the respect of the clinicians they worked with. I saw a growing place for pharmacists as part of the team bringing an often overlooked perspective to health care,” Worz said.

Worz is still driven to expand and share pharmacy’s knowledge base and clinical expertise. “Most of the education and help we provide is based on our experience and knowledge of how medications work and what their disposition is in our patients,” he noted. “I certainly enjoy impacting the health of a patient, but I also enjoy unlocking the mystery of how medications work and teaching those aspects to nurses, nurse practitioners, doctors and other clinicians.”

If Worz has any advice for those considering a pharmacy career, it’s this: “Pursue you dreams. If you see a place that a pharmacist can add value, then forge ahead even if that means carving out a new niche.”

“Consultant pharmacy has been more than a career choice for me,” he added. “It was the canvas that I chose to paint my theories on pharmacy and pharmacist’s services. Remember that information can be found and located, but understanding it, seeing where it needs to be placed and communicating its importance is what provides influence and creates change.”
It's official: Women have become a majority in the pharmacy profession. And their numbers continue to increase as more women discover the unique advantages offered by a career in pharmacy, including — but not limited to — pay scale parity with men, advancement potential and an accommodating and flexible work schedule.

“We have shifted from a male-dominated to a female-dominated profession,” noted the 2014 National Pharmacy Workforce Survey.

The profession's tilt toward women is striking as a demographic and societal marker — and it seems to be accelerating. “Women comprised less than 13% of all pharmacists in 1970,” said Eden Sulzer, director of the Women in Pharmacy initiative for Cardinal Health, a top pharmaceutical and health services supplier. “Women now comprise the majority. Currently, 56% of all U.S. pharmacists are female, which is a natural progression from trends we've seen since the '90s, when we saw record numbers of women attend pharmacy schools.

“Because two-thirds of new pharmacy graduates are women, and because most pharmacists nearing retirement are men, the proportion...will continue to rise,” Sulzer predicted. “By 2025, 2-in-3 pharmacists are likely to be women.”

In addition, the workforce survey found that “the proportion of females [55.2%] who were in management positions was greater than the proportion of males for the first time,” Sulzer noted.

Current enrollment data at the nation's 135 colleges of pharmacy points to a long-term trend.

“Of the total number of students enrolled in first professional degree programs for fall 2014, 61.4% were women and 12.4% were underrepresented minority students,” the American Association of Colleges of Pharmacy reported. In addition, said AACP, “women accounted for 49.3% of full-time graduate students” in the most recent academic year.

NEARLY EQUAL PAY

The growing sway of women in pharmacy is only natural, Sulzer said. “Women make 80% of healthcare purchasing decisions for their families and often serve as the primary caregiver for their children, as well as aging parents. And who better to serve their healthcare needs than the growing number of women pharmacists?”

Not to be overlooked is the fact that pharmacy offers the most equal pay between men and women of any profession, according to U.S. News and World Report, with women earning about 92 cents for every dollar earned by their male counterparts. What’s more, “The penalty for working fewer hours or taking time out of the labor force is low,” the Bureau of Labor Statistics noted in a recent report.

Women continue to lag in at least one area — pharmacy ownership. Far more men own and run their own pharmacy business, either by buying out a retiring independent pharmacist or by building their own business from the ground up.

That will change as more male pharmacy owners retire, Sulzer predicted. “It took about a decade for women to close the gender gap when it comes to management roles in pharmacy. It’s probably going to take some time to make a meaningful dent ... to pharmacy ownership.”
Like the idea of running your own business? Independent pharmacy ownership may be for you.

Being owner-operator of your own pharmacy offers real benefits, including the freedom and creativity of business ownership, potential financial rewards and the chance to serve as an integral health-and-wellness resource within your community. “Independent pharmacy allows pharmacists to completely immerse themselves into their community and develop a relationship with their patients and their patients’ families,” noted Brandon Achor, a student at the University of Arkansas for Medical Sciences College of Pharmacy and a 2014 finalist of a business-plan competition sponsored by Good Neighbor Pharmacy and the National Community Pharmacists Association.

“Many pharmacy students are simply not aware of pharmacy ownership as a career option,” but some pharmacy schools “offer specific tracks focused on community pharmacy ownership,” said Eden Sulzer, director of the Women in Pharmacy initiative for Cardinal Health.

Roughly 22,500 independent community pharmacies in the United States employ more than 314,000 full- and part-time workers, according to NCPA. Offering services including medication therapy management, immunizations and compounding, those stores provide “an opportunity for the community pharmacist to play an increasingly significant role in the healthcare system,” said Ron Clerico, VP of retail marketing at Cardinal Health.

Many independents — such as franchise owner of Medicine Shoppe Pharmacy in Whiting, N.J. Al Patel — are bringing new solutions to the health system.

Patel is the driving force behind Discharge Rx Care, which helps transition local patients from the nursing home to their own home. The pharmacy works with nursing home staff to prepare a patient’s medications prior to discharge. Afterward, a Medicine Shoppe pharmacist will make home visits to improve those patients’ long-term adherence rates and help them understand how to use insulin pens, nebulizers or other devices.

“When we go into the home and review the prescriptions with the patients, ... they are more receptive to the information,” Patel explained.

Being a pharmacy owner can bring long-term prosperity and growth. After all, it’s worth noting that every drug store chain out there — from Walgreens, CVS and Rite Aid on down — began as a single store.

“Today, 24% of independent pharmacy operators own more than one location,” said Bob Graul, national VP of the RxOwnership support program for pharmacy owners at McKesson. He predicted that as many as 10,000 independent locations will change hands in the next 10 years, opening new opportunities for young pharmacists.
A DAY IN THE LIFE OF A MILITARY PHARMACIST

CAPT. RYAN COSTANTINO
U.S. ARMY

PHARMACY IN FATIGUES: THE REWARDS OF MILITARY SERVICE

Ask Capt. Ryan Costantino why he joined the Army to practice pharmacy, and you'll get a slew of answers, all of them good ones.

"I chose a career as a military pharmacist primarily for the opportunities it could afford me," he said. "I know of no other position where you can be an administrator one day, an inpatient pharmacist the next, make a formulary decision in the afternoon, and the next day head to Airborne school to jump out of an airplane to earn your Airborne badge!"

Costantino is quick to point out that jumping out of airplanes "is voluntary, and not a requirement of a military pharmacist!"

A 2012 graduate of Massachusetts College of Pharmacy, Capt. Costantino completed a pharmacy practice residency at the University of Maryland Medical Center before being commissioned as a pharmacy officer in the Medical Service Corps in August 2013. He now serves at Winn Army Community Hospital in Fort Stewart, Ga., most recently as chief of inpatient and supply pharmacy in charge of pharmaceutical care for a 44-bed community hospital serving some 75,000 beneficiaries.

Among other duties, that job entails overseeing eight civilian employees and managing both pharmaceutical supplies and the preparation of sterile solutions, as well as working shifts in the inpatient and outpatient pharmacies. "I even served as an instructor in the Army's local physician's assistant program," Costantino explained.

"I have served at my current post for the past two years and hope to be there for another two years," he said. "Looking ahead, ... I hope to return to the University of Maryland to complete a... pharmacy residency and a masters in Health Outcomes."

For this pharmacist in uniform, variety is the spice of life. "One of the favorite aspects of my job is that I have no typical workday," he said. "Some days I spend primarily completing administrative tasks, scheduling pharmacists, conducting ward and clinic inspections, or attending pharmacy or Joint Commission-related meetings. Other days I work in the hospital pharmacy rounding with providers..."
and checking orders or sterile products. I even get to spend some days out in the field at places like the firing range maintaining my proficiency as a soldier!”

In addition, Costantino said he likes “the variety of different pharmacy practice areas I get to see … as a supervisor, a clinical manager, clinical pharmacist, inpatient pharmacist, outpatient pharmacist, supply pharmacist, medication safety pharmacist, an instructor, and the list goes on. I constantly have to shift my thinking because the skills required to be an excellent community pharmacist are different from the ones required to be an excellent inpatient pharmacist. This keeps me very well rounded as a healthcare provider and helps me stay up on all the advances in pharmacy.”

The rewards of serving as a healthcare provider in the Armed Forces can be substantial. Taken together, they can help bridge whatever pay gap may exist between a military and private-sector pharmacy practice.

“Army pharmacy salaries are competitive,” Costantino noted. “The Army pay scale is public, so one can easily see what a captain makes. However, one should also factor in the incentives such as the HPLRP (Health Professions Loan Repayment Program), Tricare health benefit (the military’s insurance program for active service members and their families) … and additional stipends, such as the basic housing allowance or board-certification pay.”

In addition, “some states do not require state income tax from active duty service members,” Costantino pointed out.

One of the biggest benefits is the Active Duty Health Professions Loan Repayment Program. The program “provides a maximum repayment of up to $120,000 of educational loans,” noted a report from the Army. “Payment is made in annual increments of up to $40,000.”

Beyond those benefits comes another one that can’t be measured in financial terms. “Serving those who have or are risking their lives on the front lines around the world brings me great personal satisfaction,” he said. “I train day in and day out to be the best pharmacist a soldier ever meets.”

“I think service members, veterans and their families deserve the best, and I felt it was incumbent on me to serve them, given the knowledge and experience I had gained at my alma mater and during my residency,” Constantino said.

He added that anyone considering a career in the Medical Service Corps should weigh their options carefully. “One thing to be aware of … is that deployment is definitely a possibility, especially if one makes the Army a career,” he said. “If this is a concern, I recommend reaching out to a recruiter and getting in contact with an Army pharmacist to hear more about the expectation and experience before making a decision. Consultant pharmacy has been more than a career choice for me,” he added. “It was the canvas [on which] I chose to paint my theories on pharmacy and pharmacist’s services. Remember that information can be found and located, but understanding it, seeing where it needs to be placed and communicating its importance is what provides influence and creates change.”

“A CLOSER LOOK AT OTHER INCENTIVES

✔ A Pharmacist Accession Bonus of $30,000 for applicants who become a pharmacy officer in the Medical Service Corps. The bonus, paid in return for a four-year service obligation, is available to those who become licensed to practice pharmacy within one year of entry into active duty, and who successfully complete the Basic Officer Leadership Course. However, the bonus can’t be combined with the loan repayment program.

✔ Pharmacy Officer Special Pay is a $15,000 annual payment based on an additional two-year Active Duty Service Obligation contract that can’t be combined with the loan repayment program. “Essentially this program is a two-year retention contract to incentivize officers to remain on active duty,” explained Army spokesperson Maria Tolleson.

✔ Under a program called Non-Physician Health Care Provider Board Certification Pay, pharmacy officers who maintain their certification qualify for bonuses of $2,000 to $5,000.

“SERVING THOSE WHO HAVE OR ARE RISKING THEIR LIVES ON THE FRONT LINES AROUND THE WORLD BRINGS ME GREAT PERSONAL SATISFACTION,” HE SAID.
At this point, maybe you’re thinking that a career as a pharmacist might be worth pursuing. If so, there are plenty of resources available to help you choose the right college of pharmacy and a rewarding career path (see pages 4-5 for a list of pharmacy organizations).

The first step might be to assess your own talents and interests. One of the best things about being a pharmacist is that every day is different and comes with its own challenges and rewards. In the course of a typical workday, pharmacists can draw on a wide range of problem-solving, analytical and people skills, so it's a good idea to imagine yourself in that role. Do you have an aptitude for math and science? Do you enjoy working with and helping people? How are your communication skills? Can you interact with both a highly educated physician or patient and a patient who might have a 10th-grade education?

To succeed as a pharmacist, “communication skills are critical,” said Kimberly McKeirnan, clinical assistant professor in the College of Pharmacy at Washington State University Health Sciences. “PharmD education includes training and opportunity to practice communicating — interviewing and counseling patients, effective communication with other healthcare providers — but having an interest practicing these skills would be beneficial to a prospective student.”

To that end, she said, “I would encourage anyone thinking about becoming a pharmacist to get real-world experience by volunteering in a pharmacy or hospital. Volunteering provides the opportunity to learn about the roles that pharmacists play in health care prior to undertaking formal education, as well as provide a valuable service to your community.

“Compassion is another useful skill for healthcare providers,” McKeirnan continued. “As pharmacists we regularly interact with people who are faced with such difficult situations as health concerns of their own, health concerns of a family member, or financial difficulties. Showing compassion and empathy will set students apart as candidates to gain entry into a PharmD program and make them better practitioners during their career.”

Laying the Groundwork

According to the American Association of Colleges of Pharmacy, “A balanced and comprehensive high school and college education is an important first step in the pursuit of a professional degree in pharmacy, especially in the areas of math and science. The doctor of pharmacy degree program requires at least two years of pre-professional (undergraduate) study, followed by four academic years of professional study.”

What’s more, noted the organization, “A growing number of first-year students enter a pharmacy program with three or four years of college experience.”

Admission requirements for all U.S. pharmacy programs can be found at www.aacp.org/pharmacycareers.

Given the fact that pharmacists literally bear responsibility for the health, well-being and, in some cases, the lives of patients, it's no surprise that they undergo extensive training and advanced-degree education before donning the white coat. In addition, the field of pharmacy has become increasingly complex as advances in pharmaceutical therapy and genomics have taken hold — and as pharmacists’ patient-care activities have become more and more integrated with those of doctors and other members of the healthcare team.

“Historically, educational requirements for pharmacists included the choice of two entry-level degrees — a five-year bachelor of science in pharmacy or a six-year doctor of pharmacy. However, as of 2000, most schools of pharmacy began offering only the PharmD degree,” noted the American Pharmacists Association, the nation’s oldest national pharmacy organization.

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Courses of study at different pharmacy schools, noted AACP, “are similar but not identical. “There are no rigid rules on curricula enforced on colleges, but a common core of subjects is found in every college of pharmacy curriculum,” said the group. But all doctor of pharmacy degree programs are designed to prepare students for a variety of responsibilities, including “providing pharmaceutical care to patients” and “developing and managing medication distribution and control systems.” Pharmacy school course work also focuses on disciplines like pharmacy management, promoting public health and “providing drug information and education,” AACP reported, with courses in physics, chemistry, biology and math, along with a grounding in such liberal arts courses as English, psychology and sociology.

THUS, THE TYPICAL CURRICULUM EMPHASIZES SIX MAJOR AREAS OF INSTRUCTION, ACCORDING TO THE EDUCATIONAL ORGANIZATION:

- **PHARMACEUTICAL CHEMISTRY**, including “the application of chemical sciences to pharmacy” and “the processes and tests used to determine the purity and strength of a chemical or its pharmaceutical form.”
- **PHARMACOGNOSY**, which deals with “the nature and sources of ‘natural drugs’ … obtained from plants or animals.”
- **PHARMACOLOGY**, which “is concerned with understanding the action of drugs in the body,” AACP noted. “Physicians know a great deal about pharmacology and toxicology; yet, as the expert about drugs, the pharmacist must maintain this knowledge to an even greater extent.”
- **BUSINESS MANAGEMENT**, especially for those considering independent pharmacy ownership or chain pharmacy management. Areas of instruction can include basic economics, accounting, management, computer applications, marketing, merchandising and legal applications.
- **PHARMACY PRACTICE INSTRUCTION**, which AACP said is “designed to give an appreciation of the background and nature of the profession, to familiarize students with the many skilled processes used in pharmacy, to introduce the various forms of medicines and to teach them how to dispense medication accurately and skillfully.”
- **A CLINICAL COMPONENT**, focusing on such areas as communicating with patients and other practitioners, hands-on practice rotations, general diagnosis and medication therapy management.

Students also are encouraged to invest in an additional year of postgraduate education by serving as pharmacy residents. Residency programs are available in many practice sites, including chain and independent community pharmacies and hospitals.
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* Medical University of South Carolina and University of South Carolina merged to become the South Carolina College of Pharmacy
* Inaugural class in Fall 2015

BE SURE TO CHECK THE AACPs WEBSITE FOR THE LATEST LISTINGS
One of the most rewarding career paths to take as a pharmacist may be that of teacher and mentor. Pharmacists in retail and clinical settings already spend time educating their patients about their medication therapy, so the transition from pharmacist to faculty member at a school of pharmacy is a natural one.

“As pharmacists, we play a crucial role as educators,” said Kimberly McKeirnan, doctor of pharmacy, a clinical assistant professor at Washington State University College of Pharmacy. “One of the most important aspects of practicing community pharmacy is providing comprehensive, tailored patient education and ensuring that our patients have a thorough understanding of the medication they are about to take. That background experience translated well in to teaching.”

To McKeirnan, teaching is a way of giving something back to the community by drawing on her own community pharmacy experience to enrich classroom and lab instruction — and to help students reach toward their career goals. After receiving her own doctor of pharmacy degree, McKeirnan worked as a community pharmacist at an Albertsons supermarket pharmacy for five years before joining the Washington State faculty. “Working as a pharmacist in a community setting was an excellent background to have prior to beginning my role as a faculty member at WSU,” she said. “Students also seem to enjoy hearing stories from my time practicing pharmacy, … [and] sharing my experiences as a pharmacist with them makes the material they learn in class more relatable.”

McKeirnan clearly enjoys her role as educator and mentor. What’s most gratifying, she said, is “knowing that I’ve helped patients work through challenging situations, seeing students excel in activities where they directly interact with patients in our community and provide great care, seeing students in my lab course have the ‘ah ha!’ moment” and “conducting research that I believe will positively impact the future of pharmacy practice.”

“One of my favorite things about my role as a faculty member at WSU is that every day is different,” she said. “Some days I get to mentor student pharmacists as they...”
learn the skills to provide quality patient care during two-hour lab sections; other days I am out in the community precepting students as they hone their patient interaction skills by providing immunizations or community health screenings; other days I am in my office dreaming up and conducting research aimed at improving patients' access to care in the rural Eastern Washington area.”

That research extends to “working with faculty colleagues across the nation to design and implement community pharmacy research projects, with the goal of expanding the role of pharmacy practice,” McKeirnan said.

“VALUED AND APPRECIATED”

It wasn’t that long ago that McKeirnan herself was a student at the college where she now teaches others. “My education as a PharmD student provided a strong foundational knowledge of the practice of pharmacy,” she noted. “The PharmD program at Washington State University includes three years of combined didactic and experiential education, followed by a fourth and final year of experiential rotations taking place in multiple pharmacy settings.”

“The first three years provide a framework of knowledge that can be built upon with practical experience during the year. After four years of the PharmD program, I felt ready to take on the challenges of pharmacy and start practicing!”

McKeirnan and other faculty members are focused on keeping the classroom experience at Washington State College of Pharmacy connected with the real world of pharmacy practice. “At WSU, we regularly review our curriculum to ensure that we are teaching the most up-to-date information to our students,” she said. “Many of our faculty members also are practicing pharmacists, which keeps the content that we teach consistent with what’s going on in practice.”

In addition, McKeirnan explained, “all members of our faculty conduct research, contributing to new roles for pharmacists and medical developments in health care.”

Besides working with and mentoring students and contributing to the expansion of pharmacy practice itself, McKeirnan also derives great satisfaction from helping young prospective pharmacists achieve their career goals. The rewards that come with a career in pharmacy — either as a practitioner on the front lines of care or as an educator — are rich and sustainable, she said.

“I found interacting with patients and being able to answer their questions and help them with their medical problems highly rewarding,” McKeirnan said.

“Being the person that my patients called when they, their parents or their children were ill or had a medical question showed the depth of trust placed in me. I felt valued and appreciated — not just as a pharmacist, but as a person.”

This pharmacist and educator was drawn to the profession from an early age. “I’ve always found medication fascinating,” McKeirnan said. “As a child I suffered from asthma. I remember being amazed at how using the inhaler made me feel so much better.”

“That sparked my interest to learn more about medicines, how they work and the diseases they treat.”

Now, she added, she’s “getting the chance to conduct research that can expand the practice of pharmacy, and working with brilliant student pharmacists who are full of enthusiasm!”

“ONE OF MY FAVORITE THINGS ABOUT MY ROLE AS A FACULTY MEMBER AT WSU IS THAT EVERY DAY IS DIFFERENT,” SHE SAID.
GETTING IN:

A GUIDE TO PHARMACY SCHOOL ADMISSIONS

SO YOU’VE DONE YOUR RESEARCH AND THOUGHT HARD ABOUT YOUR FUTURE, AND YOU’VE DECIDED A CAREER AS A PHARMACIST MIGHT BE FOR YOU.

WHAT’S THE NEXT STEP?

Gaining admission to a pharmacy school takes time, preparation, financial resources and a good academic record. In most cases, you’ll be competing with others for a coveted spot as a first-year pharmacy student, so start preparing early.

If you’re still in high school or a college undergrad, try to build a base in the kinds of classes that will prepare you for pharmacy school. “A sound education in math and science is an essential part of preparation for the study of pharmacy,” noted the American Pharmacists Association. “High school science courses are helpful in preparing students for the many science courses studied in pharmacy college. Biology, chemistry, physics and mathematics are especially desirable.”

Since the pharmacy school curriculum “does not concentrate highly on literature, history, government or social studies,” APhA added, “it would be to your benefit to build a strong background in these subjects while you are in high school or during your pre-professional schooling.”

Find out from the schools you’ll apply to what prerequisites they’ll want to see on your high school record. You also can begin preparing for the PCAT, the Pharmacy College Admission Test, which is a required part of the admissions process at many colleges. Information about the exam is available at a website administered by the AACP, www.pcatweb.info. There, you can learn about the test, see sample questions, download a PCAT Candidate Information Booklet and even take a practice test.
FINDING THE RIGHT SCHOOL

As of 2015, you can choose among 135 U.S. colleges that offer pharmacy degree programs. Almost every state hosts at least one of them; in many cases, a school of pharmacy operates in tandem with a medical school at a major university, and is sometimes allied with a regional health system.

How do you choose the right one? Each has different strengths in terms of faculty, teaching resources, lab space, location, quality of campus life and student organizations, access to community health and pharmacy outlets for collaborations and student rotations, etc. So it’s helpful to try to research several schools — in person — early in the admissions process.

Schedule a visit with the pharmacy school’s dean, admissions officer or a faculty member while you’re there, and tour the facilities. If you’re already enrolled in a college and are still considering your career options, talk with the school’s health professions advisor. “If your decision to study pharmacy is not yet firm, you can still have your program checked by the pharmacy school; this advice can be helpful when you do apply for admission,” the APhA advised.

Not to be overlooked is the benefit of talking with pharmacists working in drug, discount and food stores, and clinics in your own town. They can be great sources of information about the schools they attended and the value of their professional educations.

It’s worth the time. After all, achieving a doctorate in pharmacy is a huge investment in time and money, with a lifetime of potential benefits.

PAYING THE COST

A pharmacy education isn’t cheap. The average cost for first-year students in a doctor of pharmacy program can range from more than $18,000 for in-state tuition at a public university pharmacy school to more than $36,000 for out-of-state tuition at a privately run college, according to a survey of schools of pharmacy. To cover the costs, 89.2% of students took out loans for the 2014-15 academic year, the AACP reported.

At time of graduation, doctor of pharmacy graduates of public universities owed an average of $120,000 in college loans in 2014. That’s a 40.5% increase in debt levels since 2009, according to researchers. Private university graduates entered the pharmacy workforce with an average of $165,000 in debt, up 37.7% in five years.

It sounds daunting, but with pharmacists averaging $100,000 or more in annual salaries at the beginning of their careers and average salary levels for all pharmacists nearing the $120,000 mark, paying off your college loans is quite manageable.

“Every dollar you spend on your education is a dollar well invested,” the APhA reported. “The returns in direct salary benefits and in other less tangible gains will be far in excess of your initial investment.”

There also are low-cost loan and scholarship opportunities to help take the sting out of tuition costs. Most loan and scholarship programs are administered by the financial aid office on each college campus, and those offices dispense not only assistance applications, but also information about the kinds of financial assistance available to prospective pharmacy students.

Among them can be Pell Grants and Supplemental Educational Opportunities Grants, which are federally funded scholarships dispensed on a needs basis to lower-income families; college work-study programs; campus-based direct student loans at low interest rates for undergrads; and federally backed loans for students entering the health professions.

In addition, said the APhA, “Pharmacy colleges also administer student financial assistance funds provided by local or state pharmaceutical associations and their auxiliaries, practicing pharmacists, drug manufacturers and wholesalers, memorial funds and foundations, alumni associations, local chapters of pharmaceutical organizations and fraternities, as well as general university funds allocated for this purpose.”

Is the time and expense worth it? In a survey, students graduating with a doctor of pharmacy degree reaffirmed their decision to enter the field. “Despite the increasing debt burden from pursuing a professional degree, [the majority of pharmacy graduates] feel positive about their choice to study pharmacy,” the American Association of Colleges of Pharmacy reported. About 95% of them “indicated they are prepared to enter pharmacy practice,” AACP noted, and nearly 82% “indicated that if they were starting their college career over again they would choose to study pharmacy.” And 8- of-10 “indicated they would recommend a career in pharmacy to a friend or relative.”

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*Source: American Association of Colleges of Pharmacy*
1. You're actually helping people get and stay well. That everyday part of being a healthcare provider pays dividends in job satisfaction and professional pride that can't be measured in dollars and cents.

2. You're on the front lines of health care. In most practice settings, you'll work face to face with patients and their caregivers as a valuable and trusted member of their healthcare team. Besides dispensing prescriptions and medication counseling, today's practitioners can provide such services as immunizations, disease screenings and ongoing disease management for such conditions as asthma and diabetes, along with wellness education and smoking cessation classes.

3. Choose from a wide variety of career opportunities. Pharmacy is practiced in a huge array of professional settings beyond chain or independent community sites. Options include hospitals, nursing homes, colleges, managed care organizations, the military, pharmaceutical research and development and the federal government. Some of those choices also offer the chance to travel.

4. Almost guaranteed employment. Pharmacists are still in demand throughout the healthcare industry and in most parts of the United States. And with the role of clinically trained pharmacists expanding and demand increasing every year for prescription therapy, the need for more practitioners will continue.

5. You'll enjoy a great salary, right from day one. Demand for more pharmacists has boosted pay levels in recent years, and put the profession among the top tier of starting salary levels. Newly licensed pharmacists can easily earn $100,000 or more at the beginning of their career.

6. Flexible hours and job mobility come with the turf. Depending on the practice setting, “pharmacists may be able to establish nontraditional or part-time work hours,” the American Association of Colleges of Pharmacy reported. And in most states, pharmacy licensure can be transferred from one state to another, although “additional tests or criteria may be required.”

7. You'll work at the cutting edge of new pharmaceutical innovations driven by genomic-based drug development, new research in biotechnology and advances in patient-specific, targeted drug therapies. In many practice sites, you'll also be working with state-of-the-art technologies.

8. You'll have the respect of your community. Armed with a doctorate in pharmacy — and the advanced knowledge and patient-care skills that come with it — you'll enjoy the authority and trust that comes with being a professional, caring health provider.

9. You'll be a key member of today's integrated healthcare team, working with doctors and other health professionals to improve patients' outcomes and keep them healthier. “Numerous studies have proven that the presence of a pharmacist on hospital rounds as a full member of the patient care team ... [can] prevent drug errors and reduce costs,” the AACP reported.

10. You'll make a difference. As the most accessible health professional, pharmacists positively impact their communities and even save lives by applying their knowledge and oversight to the medication therapy and everyday care of their patients. It's a big responsibility, but the rewards speak for themselves.