



FEATURE

The pharmacist of the future

Unlocking the profession's potential to improve patient care

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A REPORT FROM THE DELOITTE CENTER FOR HEALTH SOLUTIONS

In Deloitte's Future of Health vision, the emphasis will be on prevention over treatment, and care will happen in the home or community. As some of the most accessible and trusted health care professionals, pharmacists can play a major role.

Executive summary

Most people don't realize that pharmacists can perform a range of complex clinical functions around therapy optimization, not just dispense pills. Today, 53% of US-licensed pharmacists are doctors of pharmacy,¹ who receive as much classroom clinical instruction as medical doctors.

If more pharmacists were to operate to the full potential of their professional education and skill sets, they could play an important role in elevating the well-being of health care consumers, in alignment with Deloitte's Future of Health™ vision. In this future, we expect health care to emphasize prevention over treatment and care to increasingly take place in the home or community. As some of the most accessible and trusted health care professionals,² pharmacists can help people stay healthy, better manage their chronic conditions, and age in place.

The COVID-19 pandemic has created an opportunity for pharmacists to deliver more hands-on care and for the profession to redefine its role. But is the industry taking advantage of this opportunity? We set out to answer this question through a series of interviews with 36 experts from all parts of the industry: pharmacies, providers, payers, academia, and trade groups.

We learned that the profession is at a crossroads. Interviewed experts question the value of today's product-focused role of the pharmacist and call for

the industry to move toward clinical services. They say opportunities abound for pharmacists—trusted providers who sit in the center of many communities—to contribute to public and population health:

- **Primary care:** Pharmacists can supplement or extend the services of primary care providers in chronic condition management, prevention and wellness, diagnosing and treating minor acute illnesses, supporting mental health, and aging in place.
- **Specialty care:** As therapies become more complex, pharmacotherapy expertise will be in great demand in specialty areas such as oncology, cell and gene therapy, and rare diseases.
- **Digital health:** Pharmacists could provide access to some point-in-care diagnostics, prescribe digital therapeutics, and help customers identify digital health tools for their needs. They might even help with the setup and configuration of medical devices and health apps, as well as interpreting the data from these tools.
- **Population health analytics:** Pharmacists can also move into analytical roles to identify health improvement opportunities, develop algorithms for clinical decision support and population health analytics, and design programs that improve population health.

Today, promising developments toward these future roles exist primarily in two sectors: independent community pharmacies and fully integrated delivery systems.

These innovations require considerable business model transformation, but so far, we see little commitment from large drug store chains and payers to make these changes. That said, several market developments may nudge the industry to innovate: continued margin erosion, competition from digital pharmacies and mail order, pressure from employers and government payers to deliver value, and progress toward interoperability and data sharing. Organizations that wish to reimagine their pharmacy business should make operational investments in workflow and staffing, revenue model, and technology systems. Doing so could be a win-win for all: for the pharmacist profession, payers, providers, and the public.

Introduction: The future of the pharmacy practice is at a crossroads

Most people see pharmacists behind the counter dispensing pills and occasionally giving advice on prescription and over the counter (OTC) medications; they may sometimes remind customers of preventive screenings or flu shots. But pharmacists are capable of much more. As part of their professional degree, they receive extensive training on medication management to optimize treatment options, manage medication side effects, interactions and duplications, interpret lab results, perform physical exams, and administer vaccines.

In Deloitte's **Future of Health™** vision, health care will shift away from treatment and toward prevention and well-being, with care increasingly taking place at home or in the community. As the most accessible and highly trusted health care professionals,³ pharmacists can play an important role in this future.

The pandemic increased opportunities for pharmacists to deliver hands-on care. The Department of Health and Human Services (HHS) gave pharmacists the authority to order and administer COVID-19 tests, childhood vaccines (3–18 years of age), and COVID-19 vaccines.⁴ Subsequently, pharmacists, interns, and pharmacy technicians were on the front lines, testing for COVID-19, giving shots, and educating the public, all the while keeping their doors open throughout the pandemic. These efforts elevated the public's perception of pharmacists and offset the burden on other parts of the health care system, providing an opportunity for the profession to redefine its role and value.⁵

But is the industry making the most of this opportunity? We set out to answer this question.

ABOUT THE STUDY

The study aims to understand future roles for pharmacists, explore innovative practices and emerging models, uncover barriers, and offer ideas for how to overcome them. Between June and September 2021, the Deloitte Center for Health Solutions interviewed 36 industry experts, representing independent pharmacies, payers, providers, large retail chains, technology developers, pharmacy associations, and academia.

Future pharmacist roles: Optimizing patient care

Our research participants spoke of several future roles for pharmacists. We put them in four categories: primary care, specialty care, digital health, and population health analytics (figure 1).

PRIMARY CARE

Many of our respondents see an opportunity for pharmacists to supplement or extend the services of primary care providers, helping people better manage their health conditions before they require

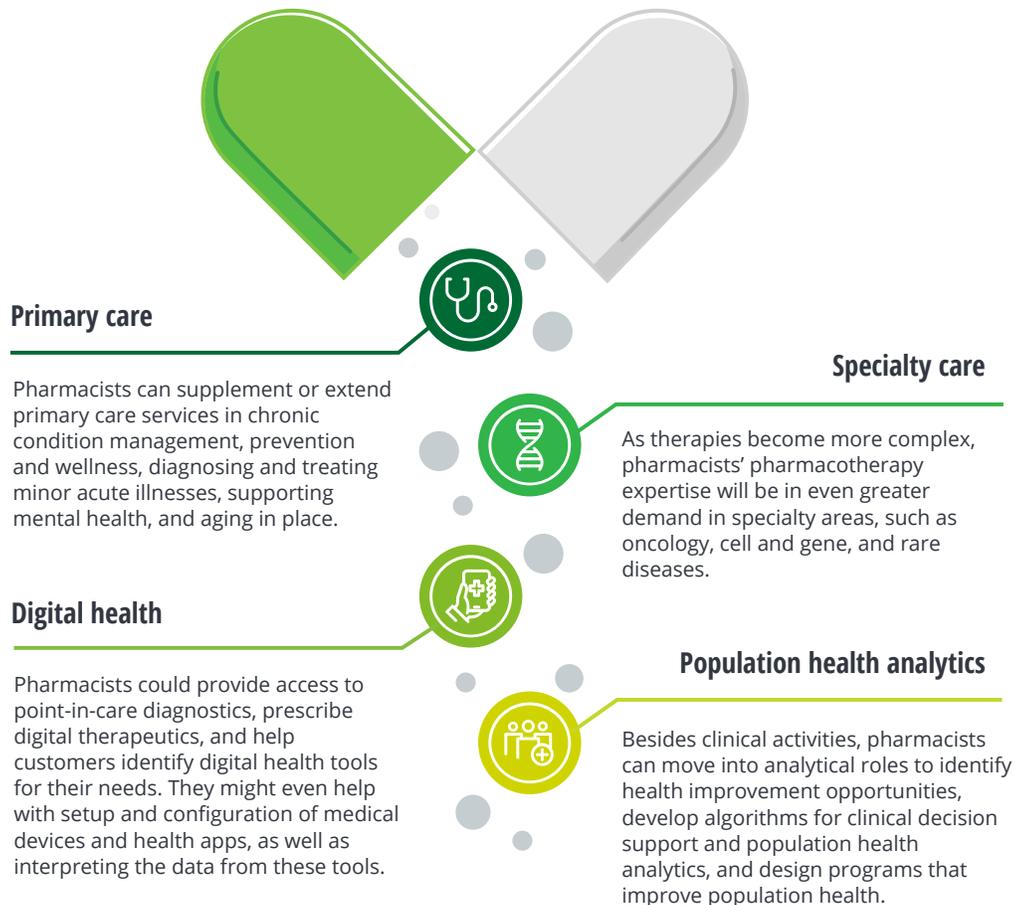
acute or complex care. Easy access positions community pharmacists well for primary care. Within this model, our respondents envision several types of activities pharmacists can perform.

“I would argue that pharmacists are not seen as authority figures the way that doctors are seen. And, in a way that’s probably sad, but what it means is that the pharmacist is more approachable than the doctor and that can be really useful.”

— Educator and research scientist, medicine and digital biology

FIGURE 1

Opportunities for pharmacists to contribute to public and population health around



Source: Deloitte analysis.

Chronic condition management: Pharmacist-led chronic care management could focus on conditions that are medication-heavy or involve multiple medications. For instance, in diabetes, pharmacist-led care management has resulted in lower total cost of care and fewer hospitalizations.⁶ In this model, upon diagnosis and referral from a physician, a pharmacist acts as the main care provider, with full autonomy around diabetes-related prescribing and testing. Other examples include COPD, hypertension, high cholesterol, depression, pain, HIV, Hepatitis C, and opioid use disorder. Some of our respondents called for medication therapy management (MTM)⁷ to become far more comprehensive and common than it is today⁸ and for pharmacists to perform activities such as prescribing and de-prescribing, changing doses, ordering refills, and therapeutic substitutions.

“Just because a supplement doesn’t require a prescription doesn’t mean it doesn’t have a metabolic effect on your body.”

— Independent consultant

“Medication is the one way that we’ve got to treat chronic diseases and keep patients productive, having good quality of life, continuing to go to work, and staying out of the hospital. So, we have to get the pharmacist much more in the forefront of doing real-time medication management.”

— VP, pharmacy business services,
health care system

Prevention and wellness: Pharmacists can also play a role in community wellness. Our respondents suggested that pharmacists can conduct annual wellness visits and routine health checks to screen and educate patients and help them reduce the risk of developing chronic

conditions as well as support medication adherence. Developments in personalized medicine and food-as-medicine could allow pharmacists to intervene upstream, guiding patients around genetic testing, interpretation of results, and coaching on lifestyle and diet.⁹

Minor acute illnesses: Respondents suggest that pharmacists should be able to diagnose and prescribe treatments for flu, bladder infections, rashes, and other uncomplicated illnesses for which diagnosis and treatment are protocol-driven and easy access to care is valuable to patients.

Behavioral and mental health: Pharmacists can work closely with psychiatrists to optimize medication therapy, which is a big chunk of psychiatrists’ work. In ambulatory clinics, embedding pharmacists can allow psychiatrists to see more patients. Even in community settings, pharmacists can perform a range of interventions from simple activities, such as administering a depression screening questionnaire, to interpreting pharmacogenomic tests that predict patients’ response to medications, to managing polypharmacy common among mental health patients, to minimizing side effects associated with stopping and starting medications. We also see the emergence of behavioral health pharmacy as a standalone business or service line.¹⁰

“We had pilots with depression screening in pharmacy and we received unbelievable response. Our pharmacists would say ‘Wow, I’ve known this patient for years, and [doing the depression screening] just opened up a totally different conversation. I had no idea they were dealing with these issues. Now, I understand why this patient isn’t taking their meds optimally. And it felt really good.”

— Executive director, national pharmacy network

Aging in place: Pharmacist expertise can be valuable for elderly patients who see multiple providers. These patients are on multiple drugs and their ability to metabolize them changes with age, increasing the chances of drug-related adverse events. By partnering with local social services organizations, home health agencies, or by adding home health nurses to their staff, pharmacists can help older patients age in place. Deploying digital tools, such as smart medication packaging that passively tracks medication adherence and dispatches real-time alerts, can further expand opportunities for supporting aging in place.

“Not being able to manage their medications is one of the reasons [older adults] are unable to stay in the home that they love. And pharmacists can help them stay there longer, intervene, even if we have to send nurses out.”

— EVP, independent pharmacy chain

Addressing drivers of health and enabling equitable health access:¹¹ Trusted relationships allow pharmacists to have deep conversations with patients, identify the root causes of health problems, and help overcome barriers to health. We heard of examples and ideas of how this can be done. Some community pharmacies work with local social service departments to develop approaches that measure drivers of health (also known as social determinants of health) and connect people with resources. The pharmacy refers patients to health care navigators for social resources or assistance, and the navigators refer patients to the pharmacy for basic health care services.

To be able to perform these activities, the scope of practice should be expanded to include authority to order and interpret lab tests (such as A1c, blood pressure, cholesterol); perform screenings (mental health, smoking, annual wellness visits); and prescribe, change, or discontinue therapy (such as birth control, antibiotics, flu, inhalers).

“Today, pharmacists can only dispense what the patient has on the record. But if I took my Lasix and my ankles are still three times as large as they should be, and I can’t walk across the room, do I need to go to the emergency room? Or maybe, a good bolus of Lasix¹² could do the trick. This is something pharmacists should be able to do.”

— Pharmacy contracts and operations manager, health care system

Interviewed experts point out that in areas experiencing shortages of medical providers—such as inner-city neighborhoods and rural communities—community pharmacies can fill many gaps.¹³

SPECIALTY CARE

Specialty care is the most likely evolution of the clinical pharmacist role; it would build upon the best practices of some health systems that have brought pharmacists into care teams. Interviewed experts described a future in which a physician makes a diagnosis and a pharmacist takes it from there. Knowing the patient’s diagnosis and other clinical circumstances, the pharmacist recommends optimal therapy and monitoring.

“10–15 years from now, as I look at this time I would say ‘Oh my gosh, I can’t believe we dispensed medications without actually doing a cheek swab.’ I think that’s going to be a very antiquated way of looking at how we prescribe.”

— EVP, pharmacist provider division, technology provider

Even today, pharmacists manage treatments that require a complex dosing schedule and close patient monitoring. Pharmacist-led anticoagulation clinics have produced better patient outcomes, cost savings, and patient experience.¹⁴

“One of the most complex medications that we manage is warfarin,¹⁵ and it costs pennies so we don’t call it specialty but holy moly if there ever was a specialty drug, warfarin should be on that list!”

— Division director, department of pharmacy,
health care system

We also heard of good practices and opportunities for greater pharmacist involvement in specialty therapies—for instance, around complex treatment protocols in oncology that involve targeted or combination therapies or testing for biomarkers. Many other therapeutic areas represent opportunities for pharmacist-supported interventions.¹⁶

DIGITAL HEALTH

Soon, many medications could come with [digital companions as part of the treatment regimen, and digital therapeutics may be used first line](#) before pharmaceuticals.

This can transform the patient care experience and expand the pharmacist’s role from medication management expert to digital health curator and coach. Pharmacists in this role can help patients find the most appropriate digital health product, assist with setup, and educate on usage, self-management, result interpretation, and data submission into electronic health records (EHRs). And when customers experience issues with these tools, pharmacist could help troubleshoot.

Some digital health technology may still be too expensive, bulky, or complex for individuals to own. Such technology could be available at a community pharmacy for onsite use or rental. Consider 3D printers that can produce individual batches of customized medication combos, or virtual reality booths or sets for treatment of depression and post-traumatic stress disorder, or next-gen diagnostic equipment such as a point-of-care MRI.

POPULATION HEALTH ANALYTICS

Pharmacists at payer organizations and integrated delivery systems play key roles in population health. Several respondents said that pharmacists’ ability to evaluate clinical evidence and think in terms of numbers needed to treat or the level of penetration that would bring improvement at the population level makes pharmacists well-suited for population health roles. Today, pharmacists in these roles analyze health outcome data, identify trends, and design and test population health interventions that may involve care management, case management, or updating clinical pathways to incorporate the latest evidence base. In the future, it’s expected that pharmacists in these roles will design and test algorithms that could automate such analysis, including greater involvement in the development of decision-support tools beyond pharmacy. The role may grow to include design and evaluation of nonclinical interventions and broader public health programs.

The state of the practice: Focus on dispensing

For years, retail pharmacies’ main source of revenue has been from selling drugs. However, reduced reimbursement and dispensing fees, rising direct and indirect remuneration (DIR) fees, and growing competition has suppressed profitability. The industry have responded by increasing the volume of prescriptions. Yet even though the average per-store volume has increased,¹⁷ for many pharmacies the corresponding revenue has not been profitable, prompting exits in recent years, particularly among independent drug stores and supermarkets.¹⁸

Although COVID-19 opened new opportunities, it also increased the demands on community pharmacists and pharmacy workers, adding to the workload and even causing some to leave the workforce.¹⁹

“Pharmacists cannot survive in the current model. There is a multitude of tasks; it used to be just filling prescriptions, but now it’s also adherence, testing, and vaccination.”

— Area pharmacy director, pharmacy retail chain

In clinical settings, pharmacists’ work also tends to be product-focused: Many perform drug dispensing, formulary, and inventory management, whereas involvement in direct patient care is a relatively small share of their responsibilities.²⁰

“The counseling piece needs to be 50% of the job of the pharmacist.”

— Independent consultant

BARRIERS TO MOVING FROM DISPENSING TO CLINICAL SERVICES

Our respondents acknowledge many barriers to the future vision of pharmacists as clinical service providers. And while no one downplays the difficulty, a few feel it’s a matter of motivation on the part of the industry and the profession to reimagine its own future.

Structural barriers

Existing payment models that assign greater value to the product dispensed than to clinical services that improve patient outcomes are perhaps the biggest barrier to pharmacy business model innovation. The segregation of medical and pharmacy benefits creates disincentives for payers and providers to consider pharmacy as a component of care, reinforcing the silos between community and clinical pharmacy. Furthermore, retail and mail-order pharmacies owned by prescription benefit managers (PBMs) often directly compete with non PBM-owned pharmacies. And product-related revenue opportunities—drug rebates, DIR fees, spread pricing, and 340B—appear to be more tempting than service-related ones.

“In some states the scope of practice is pretty much everything except diagnosing. Pharmacists have the ability to prescribe medications, change doses, discontinue medications, give immunizations to any sort of patient, any age. But why pharmacists don’t do more of this is because there’s no payment incentive to do it.”

— CEO, technology provider

Most respondents suggest that employers and regional health plans without a PBM line of business are the most likely type of payers to see value in pharmacy services.

“In our direct contract with an employer, we bypass the PBM altogether. It’s a cost-plus model. And the beauty of it is it allows us to embed clinical services to help manage the patients optimally. It’s easier for us to work at the local level or with a regional payer, because they’re looking to reduce overall health care costs so they’re thinking ‘Okay, you can help me on the medical side. I’m not even going to worry about the PBM side. We will pay out of the medical dollars.’ It is a much cleaner business model.”

— Pharmacy owner, independent pharmacy

The degree to which pharmacy is core to one’s business is another barrier. For instance, for mass merchandisers and grocery retailers, pharmacy tends to be a loss leader that drives sales of other products. For providers in ambulatory settings, pharmacy hasn’t been a core competency, and although direct contracting and value-based payment models are beginning to change the incentives, the cost of the investment and lack of familiarity with how to optimally incorporate pharmacists into care models can be a detractor.

Operational and technical barriers

Not having access to a patient's health record is a significant handicap. One dean of pharmacy suggested access to clinical information is the reason for mixed results from pharmacy-led interventions. Programs where pharmacists have such access (e.g., in Veteran's Administration or integrated delivery systems) are more likely to demonstrate positive health-economic outcomes than those that don't.

"Pharmacy management systems don't track or integrate with clinical data, so you're asking Epic to spit out to the pharmacist 'patient should take this medication.' But we're supposed to monitor their renal function, yet we have no access to it, so we ask patients to tell us, but do they even know what their renal function is?"

— Associate professor of pharmacy practice

Productivity metrics at pharmacies that place value on the speed and quantity of prescriptions dispensed may further serve as a disincentive for pharmacists to perform clinical activities because they would slow them down.

Lastly, for pharmacists to provide services that get paid through medical benefit, there needs to be real-time claims adjudication, and pharmacy systems should be adapted to submit medical claims. While emerging technology solutions are beginning to bridge this gap, there are administrative hurdles. For instance, pharmacists may need to enroll in health plans' medical provider networks, which requires an individual National Provider Identification (NPI) number and credentialing, contracting, and privileging.²¹



Regulatory barriers

Many respondents believe it a hindrance that pharmacists are not recognized as providers at the federal level.²² Additionally, the uneven regulatory landscape and scope of practice can be a complication for pharmacy organizations working across state lines. At the same time, states with more favorable regulations can be a test bed of innovation.

Several of our respondents noted that the pharmacy profession doesn't speak with one voice. Frequently, trade groups that represent clinical pharmacy, chain drug stores, and independent retail pharmacies have vastly different agendas and priorities. One of the needs according to our respondents is to educate the public and the medical community about the pharmacist profession.

"The profession has an identity crisis between one that just dispenses a drug that they are told to dispense versus the other that performs high-level clinical functions. The public really has no idea what patient-focused pharmacists do."

— Dean, school of pharmacy

Innovating the pharmacy practice

Interviewed experts spoke about innovative models adopted pre- and postpandemic, such as:²³

- Pharmacist-led care management programs performed by community pharmacies in collaboration with health insurers and employers
- Coordination between community pharmacies and social service agencies around identifying social barriers and connecting individuals with resources

- Embedding pharmacists in care teams in patient-centered medical homes
- Embedding pharmacists in care teams in specialty clinics

The two most likely places for innovation to occur today are independent community pharmacies and fully integrated delivery systems. We illustrate these innovations with two case studies.

CASE STUDY 1: CHALLENGING THE STATUS QUO IN COMMUNITY PHARMACY BY PROACTIVELY COLLABORATING WITH PAYERS

Thrifty White Pharmacy, a six-state pharmacy chain, has collaborated with several payers to improve population health. While the pharmacy fills many prescriptions, services represent a considerable portion of the business: patient counseling and MTM, immunizations, long-term care pharmacy consulting, community outreach, and specialty pharmacy.

Justin Heiser, PharmD, executive vice president, shared how they collaborated with a major regional health plan to use community pharmacists in new ways. *"By building upon our relationships in the community, we were able to improve medication adherence, Star measures, CAHPS scores, health outcomes, and provide additional education and counseling."*

In this value-based arrangement, patient attribution²⁴ is based on where patients filled most of their prescriptions. The health plan provides a monthly data feed of members to engage and specific gaps to close. Thrifty White pharmacists assess and address statins, high-risk medications, and medication nonadherence, and provide education on physical activity, depression, fall prevention, and device use. They screen for and help close gaps in preventive services such as immunizations, A1C testing, mammograms, eye exams, and colonoscopies. Pharmacists also perform comprehensive medication reviews,²⁵ which affect Star ratings.

To build required capabilities, Thrifty White developed an AI-based solution that performs daily workload balancing, squeezes waste out of dispensing tasks, and streamlines many aspects of documentation and provider outreach associated with delivering clinical services. This gives pharmacists 20%–30% more time for clinical work.

CASE STUDY 2: GROWING A HEALTH SYSTEM'S ENTERPRISE PHARMACY FROM 16 TO 500+ PHARMACISTS

"We are not practicing fee-for-service medicine. We are all working for the betterment of our patients and the best clinical outcome for them."—Mike Evans, chief pharmacy officer

Geisinger's pharmacy practice model started small, when a group of pharmacists noticed that patients on warfarin were readmitted with blood clots or bleeding. They pulled those patient charts and presented their analysis to the medical team. When physicians were not convinced that the current approach was not producing the best outcomes, the pharmacists went back, got IRB approval, and manually assembled six months of data to show that there indeed was a problem. The second presentation went better, and with support from neurology (which saw patients readmitted with brain bleeds), they received approval to comanage a small panel of patients.²⁶

The program resulted in improvements not only in clinical outcomes but also in physician productivity and patient satisfaction. Geisinger expanded the practice to all warfarin patients and eventually to other therapeutic areas, following the same approach: Identify an opportunity, design a pharmacist-led intervention (including pharmacist training, credentialing, and care pathways), measure outcomes, and convince physicians to enter collaborative practice agreements with pharmacists to comanage patients.

As of 2020, over 500 pharmacists deliver 30,000+ patient encounters each month across nine hospitals, two ambulatory surgery centers, 14 infusion centers, and many ambulatory clinics.²⁷ Clinical programs include primary care, critical care, hematology-oncology, antimicrobial stewardship, opioid stewardship, emergency bedside response, and others.

Geisinger's robust technological infrastructure and commitment to evidence-based medicine enabled the pharmacy practice to continue innovating. To that end, they established the Center for Pharmacy Innovation and Outcomes. Nonetheless, moving this practice forward even today requires getting physicians on board, one at a time, says Mike.

Rethinking the pharmacy business model

Our research indicates that for pharmacists to be able to perform their future roles, investments need to be made around workflow and staffing, revenue models, technology systems, and change management.

RETHINKING THE PHARMACY BUSINESS MODEL: COMMUNITY PHARMACY

Our respondents stressed that community pharmacies should make the investments *before* an organization pursues a new revenue model. In

many instances, the investments would be incremental, spanning several years; frameworks like *flip the pharmacy*²⁸ can offer a roadmap for business model transformation.

"If you wait until you have a payer on board, it's too late; you have to be prepared and have your site ready—you've got to change the practice before you can change the business model."

— Pharmacy owner, independent pharmacy

Workflow and staffing models that allow pharmacists to perform clinical activities

As pharmacy organizations shift to a clinical services model, staffing, workflow redesign, and change management go hand in hand. They might need to rethink the team structure; invest in technology and automation that can support new roles for pharmacists, pharmacy technicians, and ancillary pharmacy staff; reallocate or add new staff; conduct training around new technology, workflow, documentation, and handoffs, and develop clinical education programs. There may be a need for additional training and opportunities to pursue clinical specializations. For instance, as a condition for engaging with a community pharmacy, a provider or payer may want proof that the pharmacy staff have credentials around specific conditions, are trained in motivational interviewing, and have processes that ensure the interventions are evidence-based.

“Despite the fact that they may have a doctoral degree, once they go into community practice, their knowledge dips extensively. And the reason is most of these institutions [retail chains] don’t empower the pharmacist to have better education, to keep up with new practices. A lot of learning in health care is self-driven.”

— Associate professor of pharmacy practice

Independents who have adopted new models say the workflow should allow for a mix of appointment, walk-in, and virtual customer interactions. One example of a simple workflow modification is medication synchronization: When a patient picks up all their medicines together, it can be an opportunity to discuss how to take them, how they may interact, review their other OTC drugs and supplements, and offer suggestions. Other changes with workflow implications may

involve sending a text reminder about medication pickup; alerting patients about a pharmacist counselling opportunity; or even offering the option to schedule the counseling session, receive it on a walk-in basis, or decline.

Developing clinical services and prioritizing them over dispensing could be a big shift for many businesses, both culturally and operationally. They should ensure that pharmacy staff are prepared and supported to make this transformation.

Revenue models that monetize clinical activities and generate value for the system

The Thrifty White example (case study 1) and others like it demonstrate that value-based arrangements between community pharmacies and payers are possible. They may involve per-member per-month payments or direct contracting. Additional revenue opportunities for community pharmacies may be in:

- Long-term care pharmacy consulting
- Relationships with local employers around care management, worksite clinics, or large-scale events, such as health fairs or vaccination clinics
- Opportunities that leverage scope or practice flexibilities at the state level, such as point-of-care testing and prescribing (see Appendix)

Technology supporting workflow and business model transformation

Technology needs to deliver multiple capabilities: Exchange clinical information and connect to EHRs; support decision-making; and automate dispensing, clinical, and administrative activities that are patient-facing, payer-facing, or required for contracting or reporting.

Below are a few examples of technological solutions and concepts we heard about in our research.

- **Analytic tools** are used across different settings. Risk stratification algorithms identify patients at risk of medication-related events. Other tools estimate drug risks from combining multiple medications as opposed to pair-wise drug-drug interactions.
 - At one pharmacy chain, a **clinical rules engine** pre-identifies most of the medication therapy problems; so when a pharmacist talks to the patient, she can uncover things that are not in the dispensing or drug history data. A team of clinical pharmacists regularly evaluates the clinical rules and identifies new types of signals or events that should be tracked in the data and flagged for frontline pharmacists.
 - For pharmacists who have been dispensing for much of their career, **clinical decision support** can help them transition into clinical services. It can give them the assurance that they are following the latest, most appropriate clinical guidelines. At the same time, it can ensure that across the organization or network, pharmacists deliver consistent services with minimal clinical variation.
- **Interoperability solutions** bring patient health information within pharmacists' reach.
 - One respondent said that recent e-prescribing standards offer a backdoor channel to digitize **communications with prescribing physicians**. They have leveraged the connection with the prescribers' EHR to recommend therapy changes so that the prescriber can act on them sooner. For example, start, stop, or change a therapy or modify the dose.
 - Today, pharmacy quality metrics are not standardized and come with delays, making it hard to enter **value-based care arrangements with payers**. Some innovators are developing ways to connect pharmacy systems to sources of patient data, leveraging new interoperability standards, and providing monthly performance feedback (see Appendix).
- **Smart medication packaging** can support medication adherence monitoring in real time. The technology involves blister packaging with embedded electronic chips and a gateway device in the patient's home that transmits data to the pharmacy. A low energy Bluetooth chip that communicates with the gateway device alerts the pharmacist when the wrong bubble is popped, a package isn't opened by a certain time, or when medications that should have been discontinued are opened. This triggers a text or phone call to the patient and/or their caregiver.
- We heard that **central fill** may finally be gaining momentum in community pharmacy. A central fill pharmacy serves multiple retail locations by centralizing drug fulfillment on behalf of the originating pharmacy, mainly for maintenance medications. The medications are then delivered to the originating pharmacy or to patients' homes. Central fill works best in a hub-and-spoke model and uses automation to process high volumes. The benefits are more time for retail pharmacists to perform other services, reduced inventory costs, lower cost to fill prescriptions, and increased accuracy of dispensing.

Some technology developers aim to shorten the time to ROI for pharmacies by allowing for new revenue opportunities within months of implementing new technology. In the Appendix, we provide a few examples of technology-based solutions that aim to do just that. These innovators focus on both technology and business side, developing solutions that address pharmacist workflow, decision support, revenue generation, and accounting for state-level disparities in regulatory requirements and scope of practice.

RETHINKING THE PHARMACY MODEL: PROVIDER SETTING

Experience from Geisinger's (case study 2) and others' success at incorporating pharmacists into care teams offers lessons.²⁹ We suggest that organizations start with an assessment of their existing service lines, growth plans, and quality performance to identify areas where adding or reallocating pharmacy resources would make the most sense. For instance, in primary care, embedding pharmacists in patient-centered medical homes or collaborating with community pharmacies might be a consideration. For inpatient services, transitions of care and reduction in readmissions may be valuable.

Below we offer a few considerations for provider organizations around workflow and staffing, revenue and cost, and technology that we heard about in our research.

Workflow and staffing

In ambulatory settings, workflow should enable pharmacists to be part of care teams and support care transitions and communications with community pharmacists. At large health systems, pharmacists embedded in ambulatory care teams can be shared by several practices and many pharmacist consultations can be virtual. Our participants also had some advice. In-person

pharmacist-patient interactions are valuable at the outset because they help establish trust and rapport. Another good practice is continuity of relationships: In their experience, patients who saw the same pharmacist had significantly better outcomes than those who bounced around between different pharmacists.

Not all physician practices can add pharmacists to their staff, as pharmacists can be at least as expensive as nurse-practitioners or physician assistants. Even health systems with large pharmacy resources may find value in working with local community pharmacies, especially around care transitions from inpatient into community or long-term care settings. Developing robust communication and information exchange processes is critical in such collaborations. One pharmacy owner who has partnered with academic clinics uncovered considerable information gaps on both sides and said, "*by communicating and collaborating we could optimize medications better than if we were trying to do this alone.*"

Revenue and cost considerations

Some pharmacy investments could support revenue generation, others could lead to cost savings; in many cases, it would probably be a mix. Existing and future arrangements with payers could inform where to invest, and new types of contracts may be needed. Collaborations with community pharmacists, or even in-house pharmacists, may require collaborative practice agreements and three-way arrangements with payers, with shared savings or bonuses tied to outcomes like hospital admissions or ER visits, as well as new patient attribution models. Internally, organizations may choose to measure additional outcomes, such as patient and clinician satisfaction, changes in panel size, wait times for specialist appointments, or resource utilization.

“Pharmacists are well-suited to help with Star ratings or ACO risk contracts. We have 40-plus pharmacists embedded into almost every single clinic: hematology-oncology, rheumatology, hepatitis C, HIV, transplant. They see patients, just like a provider does, and generate \$2 million in revenue from billing. But one of the key things that people forget is that it helps decrease the burden on the providers because they are freed up to see more new patients or more complex patients. A pharmacist can see a patient as many times as they need to, whereas a provider is booked for three to six months.”

— Director of specialty and hematology-oncology pharmacy services, academic medical center



Technology

Full access to electronic health information is an obvious requirement for pharmacists to perform clinical activities. For in-house pharmacists, that should not be a large obstacle. As organizations redesign their care models for the virtual environment, they should plan to make virtual health tools available to pharmacists and other clinicians, even if they aren't yet involved.

- Telepharmacy can help reduce pharmacist salary overhead and support activities around medication reconciliation, adherence, and coordination with retail pharmacies.
- Dispensing software should enable remote pharmacist verification. For instance, a pharmacy technician can be onsite to retrieve the medications loaded into the Pyxis machines³⁰ whereas the pharmacist would verify them remotely by video. Similarly, pharmacists could remotely verify intravenous preparations after the technician admixes them.

Market trends can accelerate innovation

Today, innovation happens in pockets. Our view is that certain market developments may nudge the industry to innovate: competition from digital disruptors, pressure from employers and government payers to deliver value, state-level regulations of PBMs, and progress toward interoperability and data sharing, bolstered by regulation.

- Traditional community pharmacies are losing market share to **online delivery and digital disruptors**.³¹ Many of the products sold at pharmacies, not just drugs, shifted to e-commerce during the pandemic, and some of those shifts can be long-lasting. Digital disruptors compete by targeting distinct customer segments and delivering specific

benefits. For instance, GoodRx and Amazon help consumers find low-cost drugs. Direct-to-consumer prescription services, such as Lemonaid and Hims&Hers, combine telemedicine with prescription delivery. And digital pharmacies, such as Capsule and NowRx, claim to deliver better customer experience. Reorienting toward clinical services could generate new revenue, bring more customers to the store, and support the retail drug portion of the business.

- We expect the **pressure from payers to achieve better value** in health care to continue, and it may even give rise to new arrangements and new forms of competition.³²
 - For instance, employers may carve out generic medications from their pharmacy benefit through direct contracting with low-cost online pharmacies or with local pharmacies. Such arrangements could include pharmacist-led care management services.
 - Other employers may look for an integrated approach to medical, pharmacy, and care management programs,³³ especially as new therapies and digital health tools are introduced.
 - Some employers might consider incorporating pharmacist-led services in worksite clinics via telepharmacy or arrangements with local pharmacies.
 - We also envision that the business model for health plans will shift from managing enrollment and assessing risk annually to taking care of members' health and

well-being over their lifetime. This will require payers to expand the timeframe for ROI on clinical interventions beyond the 12 or 24 months typical today.

- A recent Supreme Court decision in *Rutledge v. Pharmaceutical Care Management Association* created an opening for states to regulate PBMs beyond just the individual and group health plans and Medicaid programs.³⁴ It is possible that **state-level regulation of PBMs** could increase transparency, limit some of their practices, and even open the door to more competition among PBMs. That could potentially shift the focus from maximizing revenue opportunities from drugs to managing the total cost of care.
- **Improvements in interoperability** can reduce the barriers to care coordination between different entities and encourage organizations in the community to provide care management that has traditionally been done telephonically. Community-based care management can be especially effective at engaging disadvantaged patient populations.

Conclusion: Realizing the future

COVID-19 exposed major cracks in our public health and health care delivery systems. Pharmacists have stepped up to address some of these gaps, but they can be an even more powerful resource in our public health infrastructure. The industry should rethink its business model—operations, staffing, reimbursement, and technology—to take advantage of this resource. Doing so could be a win-win for all: the pharmacist profession, payers, providers, and the public.

Appendix

Examples of technological innovations in pharmacy

	Business challenge	Technology tool
<p>Bringing patient health information within pharmacists' reach for value-based care</p>	<p>Even for pharmacists who want to move into clinical services, existing information systems do not make it possible. Pharmacists require access to EHR and claims data to deliver meaningful clinical interventions. Furthermore, today's performance metrics in pharmacy come with significant delays.</p>	<p>DocStation helps pharmacists do value-based contracting with health plans.</p> <p>Using interoperability standards, the platform creates a unified patient record for the pharmacist by combining data from pharmacy dispensing, medical claims, laboratory data, regional health information exchanges, and EHRs. Built-in data-analytics capabilities help zero in on high-risk patients for pharmacist intervention. The interface allows for documentation of pharmacists' encounters with patients, which can then be used to measure outcomes (such as medication adherence for diabetic patients or asthma-related hospitalizations.)</p> <p>Pharmacists are paid at the end of each month based on how they performed compared to the rest of the pharmacy network on predefined quality measures.</p>
<p>Upscaling COVID-19 testing at pharmacies</p>	<p>Reimbursement for COVID-19 testing and vaccine administration was a new revenue stream for pharmacists, but it came with a lot of manual work around documentation, claim submission, and reporting to health authorities. Pharmacists needed a tool that could streamline the workflow, communicate test results to patients, provide reporting to health authorities, and submit claims to insurers.</p> <p><i>"We explored a lot of the hurdles to getting medical claims reimbursement and speeding up that process to make this experience easier for the pharmacy. It's a nightmare, and it should be so much easier."</i></p> <p>— Julie Eagle, founder, DragonflyPHD</p>	<p>DragonflyPHD, a cloud-based software provider, developed an online patient report management tool for pharmacies and clinics. This software helps health care professionals manage clinical workflow and includes features such as scheduling, automated reminders, reporting to public health agencies, data exchange with labs, clinical reporting, and communicating test results to patients. The platform interoperates with some EHRs and lab information systems.</p> <p>A customizable patient intake form creates the basis for the patient record. To generate medical claims, the form collects information on patient demographics and insurance, and pharmacists can add CPT codes and other information.</p> <p>Pharmacists currently use this software to schedule COVID-19 tests and vaccinations. One independent pharmacy increased testing from 50 to 500 per day within weeks of implementing this technology.</p> <p>Patients can use the tool to maintain a record of their COVID-19 tests and vaccines and grant access to their test results and/or vaccination to other users, such as employers.</p>

	Business challenge	Technology tool
<p>Taking advantage of state-specific scope of practice opportunities</p>	<p>Pharmacists across 50 states have varying levels of authority around prescribing, administering, and dispensing medications. Even when a state allows certain activities, common pharmacy workflow systems do not support them.</p> <p><i>“We’re looking at things which will have high touch, low risk, and high impact from a consumer service perspective.”</i> —James Lott, founder, Scripted.co by Script Health</p>	<p>Scripted.co has codified clinical guidelines into a digital cloud-based decision support platform for pharmacists. The platform accounts for state-specific pharmacy requirements. As a result, pharmacists will be able to confidently prescribe tests and treatments for common ailments, such as urinary tract infection, erectile dysfunction, birth control, or strep throat.</p> <p>Patients can be seen without an appointment, and they will be billed a cash fee for the visit and their insurance for the prescription.</p> <p>The workflow involves a digital protocol-based questionnaire that patients can complete on their own phones. Once the questionnaire is completed, the pharmacist reviews the responses, asks additional questions, prescribes, and dispenses the medication.</p> <p>The workflow is driven by clinical guidelines and includes state-specific adjustments, such as a notification to the primary care provider about the prescribed medicine or signed consent from the patient prior to using pharmacists’ clinical services.</p>

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