

# New Developments in Community Pharmacy Practice in the United States: Increasing the Function of Community-Based Pharmacists

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## Abstract

*Changing healthcare needs, new policies and efforts to provide patients with cheaper and more accessible care are bringing about a revolution in community pharmacy practice in the United States. As a result of this change, community-based pharmacists now provide comprehensive clinical services, manage ongoing diseases, prevent illnesses, supervise medication therapy, give vaccinations and extend public health outreach. Thanks to new service models such as appointments for medication order synchronization, team agreements and including digital solutions, pharmacists play an active role in supporting all members of a healthcare team. They are especially useful in under-served regions, since CBPPs work to address important shortages in primary care. Covid-19 emphasized the important role of pharmacists, who saw both advantages in regulations and a broader area of work. Even so, there are hurdles to overcome in getting reimbursed, being recognized as healthcare providers and creating standard training across countries. It brings together fresh improvements, current policies and research on the expanding clinical, financial and public health roles of community pharmacists in the U.S. and recommends building a sustainable system to ensure their full inclusion in healthcare.*

**Keywords:** Community pharmacy, pharmacist practitioner, pharmacy practice innovation, primary care, collaborative practice agreements, medication therapy management, public health, healthcare access, digital health, pharmacy services integration, healthcare workforce, United States.

## 1.Introduction

In the last two decades, community pharmacy practice has been completely transformed, moving from just dispensing medications to focusing on delivering healthcare that centers on patients and their health. This change stands out because community pharmacists have begun to serve as essential healthcare providers, supplying accessible and affordable medical care with scientific proof to people in urban, suburban and rural areas. In the past, pharmacists simply dispensed medicines to people(1). Today, they act as healthcare professionals, managing many kinds of problems, helping patients manage chronic illnesses and collaborating with other medical workers.

Contemporary community pharmacy now offers many clinical services that go beyond handing out medicines. Local pharmacists today are main healthcare providers offering medication therapy management, assessments, immunizations, a range of testing, care for chronic diseases and personal healthcare services for their local population. The changes are mainly due to people recognizing pharmacists' clinical skills, the need for more complicated medication plans, demand for improved and convenient healthcare and successful results of pharmacist intervention in both reducing costs and improving how patients feel and function.

Community pharmacies have made a major difference by helping to reach people with limited access to health care and addressing health care differences among populations. By being close to where patients work, live and shop, community pharmacies easily become accessible alternatives for anyone with challenges in getting regular healthcare. Studies keep proving that community pharmacies are used much more often than primary care clinics by patients. In some cases, the frequency of patient-community pharmacist meetings is up to 10 times more than with other healthcare providers. Privacy policies open the way for pharmacists to quickly recognize health problems, guarantee proper treatment, maintain regular dialog with patients and ensure that patients stay on their medication as instructed.

Nowadays, community pharmacists take on many roles, offering programs for optimizing medication, healthy living and illness prevention, chronic care support, emergency care, patient learning and specialized health services. Patients receive these services because healthcare experts use technology, teamwork and proven treatment methods to make care safer and more effective. Routine services now offered by community pharmacists include medication

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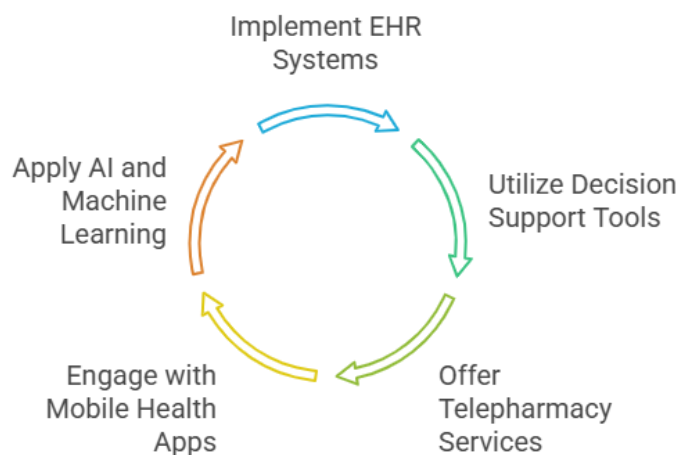
therapy management, in-depth reviews of medications, synchronizing prescriptions, immunizations, point-of-care tests, managing chronic illnesses and helping patients during transitional care to prevent unnecessary hospital visits and emergency department stays.

### 2. Digital Health Integration and Technology-Enhanced Pharmacy Services

Combining digital health technologies and electronic health systems has made a big difference in community pharmacy, letting pharmacists boost patient care, improve health results and make healthcare procedures more efficient for people from many backgrounds. Many community pharmacies today are using advanced electronic health records, helpful decision-making tools, telemedicine, health apps and artificial intelligence to improve the way pharmacists assist patients(2). Because of these advances, community pharmacists can now capture patient care activities, stay in touch with other medical teams, follow how patients respond over time and deliver full clinical support for both urgent and long-term health situations. Because of digital transformation, pharmacy practice now allows care coordination without many old challenges and gives pharmacists greater roles in healthcare teams.

Integrating electronic health records has become vital for current community pharmacy practice, so pharmacists can view complete patient health records, examine laboratory findings, check if patients are using their medicines properly, track how patients' health changes with treatment and communicate better with other healthcare specialists. Thanks to technological integration, pharmacists can now join care teams more freely and confidently plan treatment for patients based on their detailed medical records, test results, treatment plans and ongoing care routines. Now, detailed clinical decision support systems give pharmacists warnings in real time about drug interactions, how much medicine to give and other important information, leading to fewer errors and greater patient safety and cost savings. Algorithms and guidelines that rely on evidence help these systems understand patient data and supply recommendations to pharmacists that aid in their professional medical choosing and improve patient pharmaceutical care(3).

### Digital Transformation in Pharmacy Care



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**FIGURE 1** Digital Transformation in Pharmacy Care

Thanks to telepharmacy, pharmacist care is now available to many more people in areas where traditional healthcare services are scarce and difficult for patients to come by. Using digital technology and remote systems, community pharmacists are able to give patients full medication consultations, coordinated chronic disease care, medication

programs and other assessments, even if the patient cannot come to the pharmacy. Telepharmacy services help pharmacists take care of patients and keep everyone safe by providing care over the phone in emergencies and during natural disasters. Evidence from research indicates that people using telepharmacy are able to take their medications on time, are more content with their care, spend less on healthcare and do better clinically than people who visit pharmacies traditionally.

With mobile health apps and digital platforms for patients, interacting with community pharmacists and monitoring their medicines are now more convenient, accessible and easier to use for everyone. Patients can now use pharmacy mobile apps to refill prescriptions online, organize their vaccinations and appointments, look up their medications, receive reminders for taking medicines, monitor their health measurements, contact pharmacists safely and get customized health suggestions using the app. Because of these digital tools, more patients are able to follow their treatment as advised, are more satisfied with the healthcare they receive, make fewer medication errors and experience better care designed for them by their pharmacist. Joining wearable devices, fitness trackers and health monitoring apps to pharmacy systems has made it easier to keep an eye on health and act quickly to prevent or address early signs of health issues.

Community pharmacies now use artificial intelligence and machine learning to spot patients whose health could be affected by their medications, forecast medication adherence difficulties, pick the best drugs for individuals and support clinical outcomes by using data analytics. Using these advanced technologies, pharmacists can review patient information, history, prescriptions, test results and outcomes to find patterns that might not be recognized by a single doctor, so they can put in place interventions and prevention programs that benefit their patients. These algorithms can show medical professionals which patients might react badly to drugs which drug doses might be most effective, what therapeutic options to consider for non-responders and give suggestions for personalized care based on information like genetics and lifestyle. Blockchain technology used in pharmacy has made the medication chain more secure, improved checking for fake prescriptions, lowered the risk of fake drugs to patients and made exchanging information between healthcare providers and pharmacy systems easier(4).

### **3. Collaborative Healthcare Models and Interprofessional Practice**

Thanks to new teams and frameworks, community pharmacists can now work more closely with other healthcare professionals to ensure every patient gets quality and coordinated care for their many health concerns. They see that the best health results happen when healthcare teams are united and people share both duties and decision-making power to deal with the rising health problems affecting patients in the present. Community pharmacist practitioners add value to these teams by sharing their knowledge about drugs, clinical advice and skills in caring for patients. As a result, the outcomes from treatments improve, healthcare becomes better, mistakes at work are prevented and the cost of healthcare is lowered. A main reason for collaborative practice is that it's obvious no one healthcare provider has every skill needed to start or support the health of patients with multiple illnesses, complex drugs and varied social situations.

These agreements now support the delivery of expanded clinical services by pharmacists working together with doctors, nurse practitioners and other healthcare workers in a legal and safe way. They outline what tasks pharmacists can do independently or as part of a team, what documented patterns should guide their patient care, the standard rules for patient communication, the services pharmacists are trained for and ways to guarantee maximal patient results. With these comprehensive agreements, pharmacists in the community can handle medication therapy, run certain lab exams and scans, offer vaccinations and preventive health programs, perform thorough evaluations, manage illnesses such as diabetes, hypertension and abnormal cholesterol, as well as help patients move from one treatment setting to another without interrupting their treatment. Studies have confirmed that working together in collaborative practice agreements results in improved health outcomes, greater patient satisfaction, reduced medical costs and better use of healthcare resources when pharmacists take specific roles in the teams(5).

Because pharmacists now play a role in medical homes, accountable care organizations and other value-based models, they have more ways to help with patient health management, better care and effective care that puts patient well-being ahead of how much they do. Working as part of these progressive teams, community pharmacists work hand in hand with doctors, specialists, nurses, coordinators, social workers and other professionals to provide

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medication management to patients, review medications carefully, address any challenging issues with medicines, help patients get the best outcomes from their treatments and support efforts to improve the entire care process for patients. Working in such teams has repeatedly shown that patients are better able to control their health issues, spend less time in the hospital, pay fewer visits to the emergency department, be more likely to take their medication, enjoy better ratings of satisfaction and result in healthcare organizations and insurers saving a lot of money. Good results from these models have increased understanding of pharmacists as vital extensions of the healthcare team and promoted reforms that help them do more and be better compensated for their work.

To ensure that all team members in healthcare collaborate well, special educational programs have been prepared and are being put into action. All of these educational programs stress important communication skills, team-centered decision making, various conflict resolution methods, team problem solving, learning about different cultures and effective leadership skills needed for providers to cooperate on patient safety. As a result of these interprofessional education programs, community pharmacists learn new skills in working as a team, coordinating care, communicating in clinical situations, collaborating with other professionals, improving teamwork and using different healthcare systems. In addition such programs help staff from different professions communicate and collaborate well, acknowledge each one's expertise and appreciate all the strengths offered in patient care. The curriculum is made up of using case-based activities, practicing in simulations, participating in clinical rotations and doing structured reflection, all of which helps people develop what they need to work effectively with others(6).

Quality improvement measures and broad systems for assessing performance have been introduced purposefully to ensure that team-based care models are effective, opportunities for improvement are spotted, patient safety is tracked and collaborative practice settings really lower costs and enhance patient care. With these systems, we can monitor a number of results related to treatments, how patients feel, safety, budgets, how happy the providers are and how well different services are coordinated. These quality improvement efforts rely greatly on community pharmacists because they record patient interaction data, take part in planning and review sessions, introduce improvements that improve quality and team up with other members to eliminate barriers blocking the best patient care. Ongoing updates and progress in collaborative care models ensure that they respond to new patient needs, advances in medical technology and improved ways of caring for people together.

### **4. Patient-Centered Care Models and Personalized Medicine**

As patient-centered care models and personalized medicine gain popularity, communities now count on community pharmacists to provide tailor-made treatment plans, detailed medication schedules and unique health services for every patient in their communities. This method moves away from standard approaches and instead places patient well-being at the center, understanding that healthcare effectiveness depends on paying attention to clinical aspects, what affects health in society, patients' personal beliefs and habits, health understanding, their money matters, household life and various other personal situations that can shape health outcomes, drug use and overall interest in seeking care. Because they are surrounded by their patients in familiar community settings, community pharmacist practitioners are able to strongly focus on each patient's unique needs and improve their care.

Due to frequent consultations with patients, strategic access to local communities and the expertise to link medicines, patients' characteristics and health results, community pharmacist practitioners give highly personalized care. Community pharmacists perform a broad evaluation of a patient's health using medical history, check prescription and over-the-counter drugs, any factors affecting treatment, social resources, costs of medications and what treatment goals mean to the patient to create individually tailored treatment plans that avoid side effects, dangerous drug combinations and other issues with medicines. When making these plans, health professionals look at medical evidence, but also at cultural background, language, health beliefs, prior treatments received, current way of life and personal health aims. Making a care plan for one person requires plenty of conversations with the patient, working out decisions together, often changing the treatment and communicating with other healthcare workers to provide complete care.

Community pharmacists now use pharmacogenomic testing and precision medicine, helping them prescribe medicine tailored to each person's genetic make-up, metabolic traits, likelihood of possible side effects and genetic factors governing the effectiveness and safety of medicines. Now, community pharmacists can order, understand

and apply results from advanced pharmacogenomic tests that give important and usable data about a patient's response to specific drugs, helping them choose the best ones, plan smart dosing, avoid side effects and eliminate useless treatments fast. This way of handling medication therapy is showing real promise by improving treatments, lowering risky side effects, reducing money spent on ineffective medication and helping patients feel better about their medications(7). For pharmacogenomic testing to be used in community pharmacy, pharmacists must receive new training, the right technology should be purchased, proper clinical protocols should be made and systems for sharing results in easy-to-understand ways should be set up.

Pharmacists now include cultural awareness and health equity efforts as important aspects of their work, because they know they should give special care to patients in culturally appropriate ways and strive to provide all their patients with equal access to excellent pharmaceutical services. Pharmacies are making sure that language barriers do not get in the way by using professional interpretation and employing staff who speak multiple languages, they respond to cultural practices that can interfere with medicine adherence and health habits, they support patients with different religious needs and they ensure every patient gets the same top-quality pharmacy services, considering their racial, ethnic, socioeconomic, educational or cultural backgrounds. To this end, teams work on staff education, create patient information in many languages, cooperate with cultural groups and focus on inclusive and courteous healthcare practices for every patient(8).

Engaging patients and letting them join in decisions on their care is important for care models to be successful. Community pharmacists make these team approaches possible by delivering clear information about medications and health conditions, having in-depth discussions with patients about the options available to them, including what works best for them, valuing their preferences, helping them make decisions about their care that are both informed and relevant and encouraging them to manage their health. Through numerous scientific studies, it has been demonstrated that using these patient engagement strategies improves medication adherence, pleases patients with the healthcare received, helps patients recover better from different health problems, decreases health-related costs by improving treatment results and supports lasting, healthy relationships between patients and their doctors.

## 5. Discussion

A careful examination of recent changes in community pharmacy reveals that healthcare delivery has been fundamentally changed, so that pharmacists now serve as key figures who give patient-focused care across many community locations. This significant advance in care reflects how combining a broader scope of service, using new technology and practicing teamwork can help face key healthcare challenges including too few healthcare workers, rapidly rising expenses, unsafe prescription drug incidents, managing many diseases and issues of adequate access in certain groups. This analysis has consistently demonstrated that community pharmacists are able to use their ease of access, continual relationships with patients, drug knowledge and links to the community to offer excellent care that helps patients and saves money. They have come about by relying on proven methods, using the latest innovations, forming strong connections with other health professionals and putting patients first in every care decision.

Community pharmacies now benefit greatly from using digital health technologies with electronic health systems, as this integration makes better care coordination, clinical decision support, higher patient engagement and high-quality monitoring possible, all of which were impossible in traditional pharmacy models. Currently, community pharmacies rely on electronic health records, clinical decision support, telepharmacy resources, mobile apps and artificial intelligence to document care for each patient, interact with healthcare professionals, observe treatment effects and tailor advice to patients' personal preferences. Thanks to these advances, pharmacists can now play a stronger role on care teams which has also improved the safety and effectiveness of drug therapy. By making it easier for pharmacists to serve more people, telepharmacy has highlighted how technology can work to close healthcare gaps and create health equity for many. With artificial intelligence and machine learning now used in pharmacies, it is now possible to predict treatments, tailor medical advice and act early to help prevent health problems(9).

Thanks to collaboration and cooperation between healthcare professionals, community pharmacists now work more closely with other providers to ensure that today's patients receive the right care for their often advanced and diverse

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health issues. The available information shows that community pharmacists can both improve their clinical roles and ensure excellent patient care and safety thanks to these new partnerships. For years, these team-based collaborations have led to better results for patients, made people more satisfied with care, lowered healthcare expenses and used important resources more efficiently. Interprofessional education and training has been very useful in overcoming old work divisions and encouraging everyone to appreciate the unique skills all healthcare professionals use in caring for patients. Both quality improvement projects and performance measurement systems have ensured that collaborative care models keep changing and improving, keeping both patient-centered aims and cost savings a priority.

Community pharmacists today lead in personalized care because they focus on what matters to every patient and aid in closing the gaps between various healthcare advantages and disadvantages. When utilizing pharmacogenomic testing and precision medicine in community pharmacy, pharmacists can now offer customized medication treatment to each patient. Care for diverse patients is improved by these programs which confirms the need to focus on social factors and cultural aspects in drug care delivery. When healthcare providers involve patients and let them participate in decisions, individuals feel more respected, the desired outcomes are reached and healthcare results improve.

As a result, community pharmacy practices contribute to broader improvement of the healthcare system, adjustments in regulations and training necessary for the advancement of pharmaceutical care. There is strong evidence from achievements in patient care and lower healthcare bills that leaders should support further changes such as updating regulations and reimbursement schemes, to help pharmacists practice at their full level. As more people appreciate community pharmacists' role in healthcare, it will boost healthcare workforce planning, change professional education and encourage partnerships needed to tackle coming healthcare issues like elderly populations, higher rates of diseases, provider scarcity and changing expectations for customer service in healthcare. Innovative practice models underline the necessity for more research and thoughtful evaluation to choose best practices, manage care and update pharmacy practices as health needs and opportunities change everywhere. Please make sure you have correctly completed all the exercises.

### **6. Conclusion and Future work**

The evidence gathered in this analysis reveals that community pharmacy has experienced a major shift from regular dispensing of products to offering comprehensive, advanced and clinically-guided care in many community-based locations. Rather than just small steps ahead, this progression means that community pharmacists are now essential healthcare providers, sharing evidence-based knowledge, taking care of complicated drug regimens for patients, helping with healthcare transitions and serving all patient groups wherever they live. The findings indicate that community pharmacists have skillfully made use of their available resources in health systems—close contact with patients, expertise in medicines, easy accessibility and involvement in local communities—to deal with important problems like adverse effects from medicines, hardships managing chronic diseases, inequalities in access to healthcare, rising health costs and issues with a limited healthcare workforce.

Community pharmacists can now offer much higher levels of personalized care, immediate monitoring, many preventive strategies and easy coordination of care by making use of advanced technologies, electronic health records, clinical decision tools, telepharmacy and AI applications. Through these technological developments, pharmacists are now better able to join collaborative teams and offer higher quality, safer, more efficient and more effective drug treatment to patients suffering from a wide range of health problems and in many healthcare environments. The success in reaching more remote communities with specialized pharmacist services by telepharmacy services suggests that technology-based practice models may address barriers to healthcare that many at risk groups face.

Synergy among community pharmacists and other healthcare professionals has increased because of the adoption of new cooperative healthcare models, systems and practical frameworks that help everyone deliver targeted, coordinated care for today's diverse patient populations. It is clear from the data that working together through collaboration, integrating medical homes, joining accountable care and using new partnership models, allows community pharmacists to perform more clinical duties and still satisfy the high expectations for safety, quality of

care and accountability. These partnerships have exhibited tangible gains in patient health, raised patient satisfaction, cut expenses, improved resource distribution and made healthcare more efficient, giving good reason to grow pharmacist involvement in team-based and value-based healthcare.

Because of their emphasis on patient-centered approaches, personal medicine and adjusting therapies to individuals, community pharmacists are now recognized for delivering highly customized healthcare services that respond to many different factors affecting each patient. When community pharmacies begin to implement pharmacogenomic testing, follow precision medicine guidelines, focus on cultural awareness and encourage shared decisions, they make a huge step toward offering personalized care that properly uses a patient's unique features, genes, metabolic background and personal choices.

### **Future work**

To push community pharmacy practice forward, we will rely on more research, creative pharmacy models, updated policies and improved educational programs that use what we have learned so far in pharmacy practice. Further studies should analyze the lasting results of using pharmacists more widely across many types of patients, care areas and situations to support decisions on how pharmacists should be utilized and what resources should be provided by policy makers, healthcare leaders and professional associations. Researching how community pharmacy services shape population health, medical expenses, patient experiences and health equity helps establish that pharmacist care is useful long term and increases the need for more pharmacy services.

There is a major need to study advanced integration of technology, mainly to develop more efficient artificial intelligence, machine learning, predictive analytics and precision medicine that can enable pharmacists to make better decisions for their patients. Major goals for the research are to develop and verify systems that share valuable pharmacogenomic information, patient monitoring records in real-time, EHR data, plus evidence-based guidelines so pharmacists can offer simple steps for optimal drug therapy, adverse side effects prevention and personal care. Investigating blockchain solutions in the pharmaceutical supply chain, drug verification and communication of health information will help ensure safety, prevent fake medicines and ease collaboration among health providers.

Investigations into the collaborative practice model should explore the methods for selecting the best team setup, efficient team communications, suitable role division rules and practical systems for checking team performance so that both team members' roles are clear and patients stay protected. Studies going forward should assess examples like pharmacist-led clinics, joining pharmacies with medical practices, providing specialized services in accountable care and partnerships between pharmacies and leaders in health care and insurance to recognize the best models for continued, large-scale collaboration. Data from studies on how collaborative services affect organization costs, analyze savings versus costs and reveal how healthcare is used will show the value of pharmacy practice innovations in money terms.

It is important for patient-centered care research to create and test strategies to involve patients, share options with them, recognize people's cultural backgrounds and support health equity in providing pharmacy services to patients with varying requirements. Science is evolving, making it important to check the outcomes of personalized medicine approaches in pharmacies such as by testing and comparing pharmacogenomic test use, accurate customized dosages and monitoring patients individually to improve medicine outcomes and cut healthcare costs. Work that explores social influences on health and their impact on how medications are used, treatment success and healthcare visits will inform the development of directed services that target these risk areas.

Such research should focus on defining the correct ways to give pharmacists more responsibilities, set new payment methods, make specific quality assurance rules and secure professional liability for pharmacists as they grow their clinical practices. Future research should review and test various new payment models that might supplement pharmacy services such as valuing treatment results, fixed payment structures and incentives based on strong outcomes. Examining international ways of practicing pharmacy and evaluating their application to many healthcare systems will give policy makers and practitioners helpful knowledge for adapting strategy improvements in varying settings.

It is important for educational research to create and examine training programs, skills tests and pathways for further education that support pharmacists in new duties and ensure they keep current knowledge and proficiency as their careers develop. Future research should focus on choosing curriculum strategies, resident training models and

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speciality certification programs to train pharmacists in many different and emerging healthcare positions. Investigating how interprofessional education, team-based learning and skill building for collaborative practice benefit healthcare teams will ensure new healthcare professionals can successfully work together and coordinate care in complicated healthcare systems.

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### **Conflicts of interest**

The authors have no conflicts of interest to declare

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