Are community-based pharmacists underused in the care of persons living with HIV? A need for structural and policy changes

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Abstract

Objective: To describe community pharmacists' perceptions on their current role in direct patient care services, an expanded role for pharmacists in providing patient care services, and changes needed to optimally use pharmacists' expertise to provide high-quality direct patient care services to people living with human immunodeficiency virus (HIV) infections.

Design: Cross-sectional study.

Setting: Four Midwestern cities in the United States in August through October 2009.

Participants: 28 community-based pharmacists practicing in 17 pharmacies.

Interventions: Interviews.

Main Outcome Measures: Opinions of participants about roles of specialty and nonspecialty pharmacists in caring for patients living with HIV infections.

Results: Pharmacists noted that although challenges in our health care system characterized by inaccessible health professionals presented opportunities for a greater pharmacist role, there were missed opportunities for greater level of patient care services in many community-based nonspecialty settings. Many pharmacists in semispecialty and nonspecialty pharmacies expressed a desire for an expanded role in patient care congruent with their pharmacy education and training.

Conclusion: Structural-level policy changes needed to transform community-based pharmacy settings to patient-centered medical homes include recognizing pharmacists as important players in the multidisciplinary health care team, extending the health information exchange highway to include pharmacist-generated electronic therapeutic records, and realigning financial incentives. Comprehensive policy initiatives are needed to optimize the use of highly trained pharmacists in enhancing the quality of health care to an ever-growing number of Americans with chronic conditions who access care in community-based pharmacy settings.

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Health care delivery in the United States is challenged at multiple levels by poor access to affordable services, concerns about patient safety and quality of care, escalating costs, a disconnect between costs and quality, provider workforce shortages, and increased incidence of chronic diseases.[1,2] Chronic disease is the leading cause of mortality and morbidity in the United States, and a key driver of health care expenditures.[1,3] The number of Americans living with at least one chronic health condition increased by 8%, from 133 million to 145 million, between 2002 and 2009.[3–5] This number is expected to increase substantially as the baby boomer generation continues to age. Medications play a central role in the treatment of chronic conditions.[6] Of the billions of prescriptions filled annually in the United States, 91% are used to treat chronic conditions.[2,6]

Key Points

Background:

- Pharmacists working in community-based settings where people with chronic conditions including human immunodeficiency virus infections live, are strategically positioned to play an important role in chronic disease management given their drug therapy expertise and access to both patients and medication refill histories, and can reinforce adherence messages received from other health care providers.
- Conversely, prior research indicates that pharmacists are underused in the health care delivery system given their education-level and experience, and despite evidence that pharmacist-initiated interventions improve patient outcomes, have significant economic benefits, and are cost-effective.

Findings:

- The level of pharmaceutical care in community-based pharmacy settings is suboptimal and reflective of a health care system characterized by patients' lack of access to health professionals, inadequate patient monitoring and follow-up, and incomplete health care information.
- An expanded pharmacist role in providing direct patient care services would include involvement in therapeutic decisions, managing medication therapy, and providing quality assurance.
- Structural-level policy changes are needed to remove legislative, legal, regulatory, and financial constraints that preclude pharmacies from being designated as patient-centered medical homes or being incentivized to maintain electronic health records, in order to provide direct patient care services to patients in community-based settings.

Medication-related problems are a challenge to managing chronic conditions. For each $1 spent on medications, another 80 cents is used to treat medication-related problems.[1] Drug-related morbidity and mortality cost the U.S. health care system $200 billion in 2000.[7] About one-third of medication-related problems are preventable. Poor adherence–the most common medication-related problem, affecting nearly one-half of patients on medications–is responsible for 125,000 deaths each year, 10% of hospitalizations, and 23% of nursing home admissions.[8] Persons with chronic conditions are more likely to have medications from multiple prescribers, placing them at risk for adverse drug interactions.[6]

Because the majority of medication use occurs in community-based settings,[9] it is important to understand pharmacists' current role in patient care, and their perception of the quality of patient care services available in real-world community-based pharmacies. To this end, we interviewed 28 pharmacists working in diverse pharmacy settings where care was being provided to persons living with infections of human immunodeficiency virus (HIV).

HIV infection is a complex chronic condition that affects 1.2 million Americans. The number of people living with HIV (PLWH) in the United States is growing, and because drug therapy that controls HIV has made this a chronic disease, this population is aging. Estimates are that, starting in 2015, the proportion of Americans living with HIV who are 50 years or older will exceed one-half.[10] Because individuals are living longer with HIV, they are more likely to develop a wide range of multiple and overlapping age-related chronic illnesses (e.g., diabetes and heart disease).[10–14] To successfully manage HIV infection and prevent morbidity and mortality, PLWH are required to strictly, persistently, and consistently adhere to a lifetime regimen of antiretroviral therapy (ART).[9,15,16] Inadequate ART adherence can lead to poor clinical outcomes, development of drug-resistant virus, opportunistic infections, and transmission of HIV to others.[16,17]

Because of the challenges associated with long-term management of HIV infection, there is a great need for providers who can manage medication therapy, identify and resolve adherence barriers, and address medication-related problems (e.g., adverse events, side effects).[18] Pharmacists in community-based settings where PLWH live are ideally positioned to play that role.

Pharmacists are the third largest health care professional group[9] and are recognized drug therapy experts who have doctoral-level clinical training in pharmacology, therapeutics, clinical problem-solving, medication use, and laboratory monitoring.[18] Pharmacists have the potential to play an important role in chronic disease management given they are the most accessible and frequently visited member of the health care team, and are generally well trusted by the public.[15–20] According to a 2010 survey of 2,000 pharmacists in eight major countries, an overwhelming majority (>90%) believed pharmacists have an important role

in improving population health.[21] Prior research findings indicate that pharmacists are underused in the health care delivery system given their education-level, training, and accessibility in the community.[3,21–26]

The research presented here is part of a larger project that examined pharmacists' involvement in promoting adherence to ART.[27–30] In summary, pharmacists in our study were aware of and identified patient-specific (cognitive factors), therapy-related (adverse effects) and structural-level barriers (strained provider relationships) that influenced PLWH's access to ARTs, self-efficacy in adhering to therapy, and motivations to actively participate in their therapy.[27] Some community-based pharmacists–especially in specialty settings–routinely provided adherence promotion activities, including adherence assessments using prescription refill history and patient self-reports (e.g., missed doses in the past week), monitoring activities through follow-up telephone calls to new patients and regular telephone calls to all patients, and individually tailored interventions (e.g., education about managing adverse effects of ARTs and the importance of adherence, referrals to other providers including case managers).[27,28] Despite a willingness to conduct adherence promotion activities, nonspecialty pharmacists faced many pharmacy-level barriers–including inadequate staffing, time pressure, heavy workload, lack of private consulting space, and lack of communication with health care providers–that prevented them from conducting adherence promotion activities.[27–29]

Objectives

In this article, we describe pharmacists' perceptions on their current role in patient care services, an expanded role for pharmacists in patient care services, and changes needed to optimally use pharmacists' expertise to provide high-quality patient care services to PLWH in community-based settings. Based on pharmacists' perceptions of an expanded role and changes needed for this increased involvement, we discuss the implications of our study findings with regard to bridging the gap between the current versus ideal level of pharmacists' patient care services in real-world community-based settings where many people with chronic conditions access their medications.

Methods

Recruitment

We recruited a purposive sample of 28 community-based pharmacists working in 17 diverse pharmacy settings–specialty, semispecialty, and nonspecialty pharmacies–that represented the range of community-based pharmacy settings where HIV-infected patients have their antiretroviral medication prescriptions filled.

Specialty pharmacies were defined as those that provided personalized value-added services, such as disease management, to chronically ill and expensive-to-treat patients who require close monitoring for adherence and therapy response[31,32]; semispecialty pharmacies were those that dispensed both specialty and regular medications; and nonspecialty pharmacies were those that dispensed prescriptions not requiring specialized administration. The designation of a pharmacy as specialty, semispecialty, or nonspecialty depended on the type of pharmacy services offered, and the level of specialty versus nonspecialty business. For example, specialty pharmacies offered services not typically provided by nonspecialty pharmacies, including home deliveries for medications, individualized patient consultations, and monitoring follow-up.

Pharmacists were recruited from two major pharmacy chains located in four Midwestern cities (Chicago, IL; Columbus, OH; Kansas City, MO; and Minneapolis, MN). Using qualitative sample size criteria set forth by Morse,[33] we determined that 28 participants was adequate for qualitative individual interviews to achieve theme saturation and to answer the study-specific aims.

Upon obtaining permission to recruit pharmacists from the corporate head offices for the two pharmacy organizations, we contacted regional directors for each pharmacy organization, who in turn identified specific pharmacies that met our criteria (i.e., providing patient care to PLWH). We then contacted each pharmacy manager who gave us the names of specific pharmacists for the study. Finally, we contacted each pharmacist and invited him or her to participate in the study. All pharmacists contacted met the study eligibility criteria (i.e., were licensed pharmacists and provided services to HIV-infected patients) and consented to participate in the study. The first author interviewed the 28 pharmacists individually at their pharmacy location between August and October 2009.

The overarching goal of our study was to document the nature and extent of pharmacist's role in promoting adherence to antiretroviral medications in real world pharmacy settings. Using semistructured interview guides, pharmacists were asked questions on the following broad topics: barriers to adherence from their perspective, how they addressed these barriers, other strategies they used to promote patient adherence, and the facilitators and challenges they faced while promoting adherence to antiretroviral medications. We also asked managers to provide general information on their pharmacy and patient demographics. For the purpose of this article, we focus on two open-ended questions:

1. Whether, in their opinion, there is an enhanced role that pharmacists can play in promoting patient adherence to ART
2. the kind of pharmaceutical services that would be of greatest benefit to patients on ART in an ideal world

We probed pharmacists to provide examples of patient care services for PLWH and to identify specific practices that could be improved upon. The first author conducted all interviews, which lasted between 40 and 100 minutes, and were digitally audiorecorded. All pharmacists who participated in the study received a gift card worth $25.

The Institutional Review Board of the Medical College

of Wisconsin approved the study procedures.

Data Analysis

The recorded interviews were transcribed verbatim and verified for accuracy by the first author. Coding of transcripts was done in MAXQDA (version 10; Verbi Software, Marburg, Germany), a software program for text-based data management and analysis. We extracted excerpts of pharmacists' responses to the two broad questions for further analysis.

We also conducted a lexical search of all transcripts using keywords such as "role of pharmacists," "ideal patient care," and "perfect world." We read all transcripts and coded text that expressed pharmacists' opinions about the ideal level of pharmaceutical care for PLWH.

We used the principles of grounded theory to code the extracted transcripts for major recurring themes in three stages. First, we grouped excerpts based on pharmacists' responses to the above two broad questions. In the second stage, based on emerging themes, we coded content areas under three broad categories: missed opportunities for greater pharmacists' involvement in patient care services; expanded pharmacists' roles in patient care services; and changes needed to permit optimal pharmacists' patient care services.

We reviewed the extracted transcripts for completeness of information by going back to the original transcripts. After identifying these broad themes, we reviewed the literature on pharmacists' roles in patient care services, pharmacists' participation and contribution to the health care team, and pharmacists' attitudes and perceptions towards an expanded role in patient care. In categorizing pharmacists' attitudes and perceptions, we made a distinction between the role and responsibilities of pharmacists as health care providers and the nature of patient care services provided to PLWH by pharmacists, and between external and internal factors that impeded pharmacists' patient care activities in community-based pharmacy settings.

In developing a final coding scheme, we contrasted the current and ideal role of pharmacists in HIV patient care, and the current and ideal level of patient care services in community-based pharmacy settings. In the final coding scheme, we classified themes in four broad categories: challenges in the health care delivery system create opportunities for a greater pharmacist role; increased pharmacist scope of work has resulted in missed opportunities for greater patient involvement; expanded pharmacist role in patient care; and changes needed to permit optimal patient care services provided by pharmacists.

We then imported coded transcripts to Microsoft Word for data analysis and consolidation of information. As a final step, we selected quotes to illustrate the range of recurring themes regarding missed opportunities for greater pharmacist involvement, ideal pharmacists' patient care services, and pharmacists' expanded roles in care of PLWH.

Results

Characteristics of the 28 pharmacists interviewed in this study are summarized in Table 1. They practiced in 17 community pharmacies.

One-half of the pharmacists were women, and one-half had more than 5 years of postlicensure experience. Although 17 pharmacists (61%) reported providing care to specialty patients (HIV, oncology, and organ transplant), only 10 pharmacists (36%) identified PLWH as constituting the majority of their patients. In terms of patient ethnicity, 11 pharmacists (40%) reported that the majority of their patients were white; 9 pharmacists (33%) served mostly minority patients; and 8 pharmacists (27%) had ethnically diverse patient populations. A total of 21 pharmacists (75%) provided care to HIV-infected patients of low socioeconomic status and on public health insurance.

Pharmacists' interview responses in three of the four broad themes identified above are presented in Table 2. Information on pharmacists' increased scope of work that has caused missed opportunities for patient involvement is presented below.

Health care delivery system challenges

Many pharmacists felt that gaps in the health care system could be filled by pharmacists taking on a greater role in patient care, particularly for PLWH. According to the pharmacist quoted below, patients are being lost in transition between health care settings:

HIV is something that definitely falls through the cracks. Patient disease state care falls through the cracks in chain pharmacies. (Nonspecialty pharmacist, 2 years' experience)

Pharmacists identified two reasons for what they perceived as failures in the health care delivery system: hurried and inaccessible health care providers and competitive forces in the pharmacy marketplace.

Table 1. Study participant characteristics

Pharmacist characteristics	Description	No. pharmacists
Type of practice	Specialty	11
	Semispecialty	9
	Nonspecialty	8
Practice setting	Onsite specialty pharmacy	5
	Offsite specialty pharmacy	6
	Semispecialty pharmacy	9
	Nonspecialty pharmacy	8
Job title	Pharmacist manager	15
	Pharmacist	13
Gender	Men	14
	Women	14
Race	White	26
	Other	2
Postlicensure experience	<5 years	14
	6–10 years	6
	>10 years	8

Table 2. Pharmacists' expanded roles in direct patient care services and potential changes needed for optimization

Expanded patient care roles for pharmacists	Changes needed for care optimization	Structural-level changes required for changes
More involvement in therapeutic decisions:		Pharmacists should be part of a multidisciplinary team
Drug expert support to both patients and physicians	Health care provider collaborations	
Medication therapy management:		Pharmacists should have access to electronic medical records
Patient education	Access to medical and laboratory information	
Management of drug therapy	Computer decision support systems	
Monitoring adverse events and adverse effects		
Adherence assessment and monitoring		
Provide quality assurance:		Both pharmacy and pharmacist reimbursement reforms to incentivize a greater involvement in patient care
Medication safety	Pharmacists' performance evaluation and pharmacy reimbursement reforms	
Provide patient information on medication therapy	Professional advocacy role	

Hurried and inaccessible health care providers. One pharmacist, who reported spending a lot of time thinking about his work after being contacted about the study, was of the opinion that the nature of the health care system was such that the patients who needed specialized care the most were the least likely to receive additional provider attention:

> *The health care system in general is failing a lot of people especially the people that need the intensive therapy the most, like HIV customers… because they are going to busy doctors' offices and they are taking their prescriptions to busy pharmacies cause it's the busy pharmacies that are in the innercity… so the people that need the most help are probably getting failed the most, unfortunately. (Nonspecialty pharmacist, 8 years' experience)*

A few pharmacists pointed out that many patients lack ready and quick access to health professionals. Compared with physicians and nurses, pharmacists are more readily available for face-to-face consultation with a patient, sometimes at a moment's notice:

> *People cannot access the doctor and it's getting the same way for nurses too. You can't even get to a nurse at most clinics; you have to wait for a call back. If you want to talk to me, you just walk in here [pharmacy] anytime–you don't need an appointment and you don't need to call ahead. Doesn't matter what is going on. There are certain times when I may say, 'It's going to be a couple of minutes,' but I'm not going to say it's going to be 3 hours. (Semispecialty pharmacist, 8 years' experience)*

Competitive forces in the pharmacy marketplace. A few pharmacists noted that lack of patient monitoring and follow-up in community-based pharmacies may be the result of factors beyond the control of individual pharmacists or pharmacies. Community-based pharmacies are competing with supermarket pharmacies among others, using advertising campaigns to win customers and increase market share. Patients, eager to take advantage of these deals, have an economic incentive to transfer prescriptions repeatedly among pharmacy establishments. Hence, a pharmacist may wrongly assume that a patient shifted their prescription to a competitor to take advantage of a "new customer" discount while in fact the patient has not had their prescriptions filled in a long time:

> *The discovery [of patient nonadherence] is being lost because we don't know where else [patients] are going. People are encouraged to have prescriptions in different places because of these [special offers]… Our patients on a regular basis are transferring prescriptions back and forth to our competitors so they can seek out a deal or a gift card that would get activated when they transfer a prescription. So that kind of numbs us to [monitor] noncompliance, unfortunately. I think it's a problem. (Nonspecialty pharmacist, 8 years' experience)*

Without electronic pharmacy records that track patient prescription refill history in different pharmacy organizations, it is difficult for an individual pharmacist to tell if the patient had a prescription filled at a competitor pharmacy.

Increased pharmacist scope of work: Missed opportunities

Many pharmacists in nonspecialty community-based settings acknowledged they were not providing the level of pharmacy care to HIV patients that is ideal and/or they would like to, given their pharmacy training and education level:

> *I'm one of the people that doesn't like the fact that I can't spend the time that I would like to spend [with patients]. I want to be there for my patients. I know that I can't deal with their problems and everything else, and that bothers me. (Nonspecialty pharmacist, 8 years' experience)*

Community-based pharmacists reported being overwhelmed by nonpharmaceutically related activities and underused in providing optimal patient care services to PLWH.

Overwhelmed by nonpharmaceutical activities. The scope of pharmacy practice has expanded as pharmacists assume more nontraditional roles–including providing vaccinations and immunization services–that have reduced available pharmacist time for one-on-one patient consul-

tations. One pharmacy manager explained that he was overworked and did not have time to provide additional pharmacy services because of extended administrative and marketing responsibilities:

> *As a manager, I already spend a lot more time than I actually am technically salaried for doing things that I need to do, and I am completely fine with that. I work on sales, I go to doctor's offices, and I detail on my own time. As a pharmacy manager, that is part of my job and I don't expect to be necessarily compensated for that. I'm an immunizer, I give flu shots, I don't get paid any extra for doing that, but that is okay because that is part of my role as a pharmacist. (Nonspecialty pharmacist, 4 years' experience)*

The excerpt above depicts the underlying tension between pharmacists' desire for an expanded patient role and the reality of an overburdened workload that inhibits the provision of direct patient care services.

Underused given their education and training. Many pharmacists pointed out that providing one-on-one patient consultations was in line with their pharmacy education and training, yet the bulk of their time was spent on activities that did not require the full scope and breadth of their training:

> *I feel like a lot of pharmacists are overeducated and underutilized. At least from my experience, a lot of school was how do you make these pharmaceutical treatment decisions, and then you get out and [in] most of the jobs you don't get to utilize it, and if you do, it's like every now and then. There are a lot of areas that we could be better utilized instead of counting pills all day. Pharmacists have a lot more skill than they are given credit for and utilize. (Specialty pharmacist, 1 year experience)*

One pharmacist noted that their current role has been reduced to reactive problem-solving, thus misdirecting pharmacists' energies away from proactive activities such as educating patients about HIV treatment and monitoring PLWH for nonresponsiveness to ART treatment. As such, pharmacists are missing out on opportunities to make valuable contributions to the health care team:

> *We need to spend the time and prove our worth as part of the health care team. Right now our worth is damage control, looking for the problems and just doing the bare [minimum], and not spending as much time with the patient as we should. The patients are walking out without our counseling. I think that's where pharmacists could definitely be of most benefit to review everything and make sure that we are standing in that pitfall and saying, 'We are here to catch you if something gives.' (Nonspecialty pharmacist, 8 years' experience)*

Expanded pharmacist roles

Pharmacists were univocal in their desire to go beyond the dispensing role to the clinical area and to be involved in every aspect of the medication-use process. Pharmacists cited adherence-promotion activities such as medication reconciliations, adherence and disease counseling and consultations, and medication therapy management as additional services that they would like to provide patients.

One pharmacist noted that because there is a growing recognition that helping patients adhere to their medications benefits society and keeps costs down, pharmacists can play an important intermediary role in bending the cost curve:

> *Getting a patient adherent cuts down cost; they aren't hospitalized as much. We are a very good intermediary for the public so we can help with the adherence tools on the outside and the education on the inside. I think pharmacists play a huge role in cost savings and patient adherence, and in just the management of life. (Specialty pharmacist, 1 year experience)*

According to several pharmacists, in an ideal world, their role should begin long before the decision is made to start new patients on ART therapy. When asked what he thought was the ideal role of pharmacists in HIV patient care, one pharmacist responded:

> *To me, it's everything. It starts with just education to making sure that [the medication] works, making sure that [patients] can afford it, making sure that they can get it, making sure that there are no barriers of any kind. (Specialty pharmacist, 11 years' experience)*

Pharmacists identified three broad areas in which they could have an expanded role: involvement in therapeutic decisions, managing therapy, and providing quality assurance.

More involvement in therapeutic decisions. Overwhelmingly, pharmacists wanted more involvement in therapeutic decisions. They expressed a desire for more direct relationships with physicians that would give them a voice in the patients' therapeutic options:

> *I would like a world where we would get to help more in making decisions on what meds the patients are going to be on, spend less time actually filling pills and more time counseling patients. (Specialty pharmacist, 1 year experience)*

As drug experts, pharmacists can provide support to both patients and physicians, including identifying and anticipating patient adherence barriers, communicating patient challenges/reservations in commencing therapy, and providing recommendations on the best course of action for PLWH starting ART treatment. A few pharmacists reported that they would like the freedom to talk with physicians about their own assessment of a newly diagnosed patient with HIV infection and their readiness to start therapy:

> *I think a pharmacist is ideal to be the first one to talk to them about [whether they are ready to start therapy], explain to them the importance of the medication, the different options that may best suit their needs based on their occupation and family support. I think that the pharmacist is the best person to educate them, and go over that with them, and give the doctor recommendations on what we think might work best for the patient. (Semispecialty pharmacist, 10 years' experience)*

Pharmacists have expertise in all types of medications, not just HIV medications. A few pharmacists noted that although infectious disease physicians have expertise in ART, they may not have a high level of knowledge about

other medications:

I just think that physicians have a lot more physiology and disease state training than we do, but don't really get nearly the amount of pharma therapy that we do. Most of the [infectious disease] doctors really know their HIV; they are usually experts on those drugs. But to go out of that scope of drugs they may not be as good. It's some of the other stuff I think that we could help with. (Nonspecialty pharmacist, 2 years' experience)

Medication therapy management. Pharmacists expressed a desire for a greater role in patient education and management of drug therapy, including monitoring for adverse drug events. Pharmacists wanted to have more one-on-one time to talk to patients about lifestyle, depression, and social support in order to identify and address potential barriers that might impede adherence.

Many pharmacists felt that it is important to occasionally check in with a patient and to make sure they were taking medications as prescribed and not experiencing any adverse effects. One pharmacist noted that pharmacists need to be more proactive in closely monitoring patients:

We just have to be more proactive; calling patients and asking the right questions. We need more time to focus on the patient. (Specialty pharmacist, 1 year experience)

One of the implications of pharmacists' lack of time for patient care is that pharmacists are not able, in some community-based settings, to review the patient's medication profile at the point of filling their prescription. As one pharmacist explained, there is a need to:

Create a situation where you would have the time to sit down with them [the patient] and pull up their profile and go over each and every medication, how they fit into the whole picture, and explain to them what to expect, and let them know what to look out for and ask them about side effects, and find out if they are struggling through the therapy. (Nonspecialty pharmacist, 8 years' experience)

Provide quality assurance. A few pharmacists commented about their important role in patient medication safety. They felt a responsibility to ensure that patients were thoroughly informed about their therapy. Referencing his professional pharmacy training, one pharmacist noted:

We are taught in pharmacy school never to assume the patient knows what they are doing, never assume that the doctor has enough time to go over it with them… There is no way of me knowing unless I spend those 15 minutes and see if they know what they are talking about, make sure that the doctor did everything correctly. We are the final check before they get the pill and put it in their mouth. (Nonspecialty pharmacist, 7 years' experience)

Changes needed to facilitate increased roles

Pharmacists identified several changes needed in community-based pharmacy settings for optimal patient care services to be feasible in community pharmacies. These included: health care provider collaborations, access to medical and laboratory information, computer decision support systems, pharmacists' performance evaluation and pharmacy reimbursement reforms, and professional advocacy role.

Health care provider collaborations. A few pharmacists noted that ideal pharmacist-delivered care would require a collaborative team of health professionals that included physicians, nurses, caseworkers, nutritionists, and pharmacists. A team approach to patient care would properly use the unique skill sets of different health professionals. As one pharmacist noted, it is the only way to provide holistic patient care:

There is no way that one individual profession is going to take something and run with it. You have to have a collaboration because there are things that you are going to find out as a physician or a nurse or as a social worker that I wouldn't know, and so I can't do my job effectively if I don't know these other issues. (Specialty pharmacist, 12 years' experience)

One pharmacist was of the opinion that the best care model would involve a division of labor in which the physician focused on diagnosis and the pharmacist focused on medication-related treatment. As part of the health care team, the pharmacist would be in charge of all medication-related aspects of patient care, including patient education and monitoring for adherence and health outcomes, and would communicate patient medication-related encounters with other members of the health care team:

A logical plan for a patient who is newly diagnosed would be to go to your doctor… and then go to your pharmacy and they take care of your medication-related issues [such as] 'teach me how to take my meds, why am I taking my medication, where do the medications work, why is it important to take all of their medicines.' Let me monitor the patient and make sure that they are taking their medications appropriately. And then as a group meet once a month and go over our patients that we are monitoring to make sure that they are where we want them to be. (Specialty pharmacist, 12 years' experience)

Access to medical and laboratory information. To provide high-quality care, pharmacists need ready access to health care records, including laboratory results and medical records:

In an ideal world, when [patients] get their labs sent out, I would get to see them right away without having to jump through the hoops and requesting it. (Specialty pharmacist, 1 year experience)

Pharmacists desired access to patient medical and laboratory information so that they could verify the appropriateness of therapy. According to respondents, gaining access to laboratory information could improve the quality of care:

We can make sure that if their CD4 count is below a certain level, we can call the physician and say, 'Do you have any interest in putting the patient on prophylaxis because their CD4 count is below here and these are the guidelines.' (Semi-specialty pharmacist, 4 years' experience)

That way you can tell who is taking their medications, who

is not, and who you need to sit down and talk to. (Specialty pharmacist, 12 years' experience)

One pharmacist noted that he would like more information on adherence and clinical outcomes for patients transitioning from hospital to outpatient settings to allow him to make a determination on the appropriateness of therapy:

When someone is discharged… how do they get discharged? Who decides if they are going back to their old regimen?… A lot of times I just get discharge orders, that's all I get. I want to know, 'Did they miss doses? What were their lab values?' (Specialty pharmacist, 1 year experience)

Computer decision support systems. Some pharmacists in community-based nonspecialty pharmacies do not have computer support software that enables them to document patient encounters and adequately monitor patient adherence:

I don't have any indicators on the computers that this person needs to be called. I don't have that system. (Nonspecialty pharmacist, 3 years' experience)

Pharmacists' performance evaluation and pharmacy reimbursement reforms. At present, both pharmacy and pharmacist performance is evaluated based on prescription volume. Providing patient care services other than medication therapy management (MTM) for those covered by Medicare Part D is not currently a reimbursable activity in many pharmacy settings. As a result, there is no incentive for pharmacists to spend additional time with patients. One pharmacist noted that until economic benefits are associated with the provision of one-on-one patient counseling, it would not be a priority in community-based pharmacies. Another pharmacist articulated the profit motive that influences pharmacy and pharmacist priorities in the excerpt below:

When they evaluate my store, it's profitability they look at, how many prescriptions we fill, how fast we fill them because patient satisfaction is directly related to how long they have to wait. There is no measurability of how much time you spend counseling patients. If I spend an hour a day counseling patients my supervisor isn't going to say, 'That's awesome that you do that,' they are going to see how many prescriptions you do, and how long those patients have to wait. The measuring metrics is not in place right now. If we were getting paid for it, that would start to change things. (Nonspecialty pharmacist, 4 years' experience)

As the pharmacist above noted, many pharmacies find themselves in a Catch-22 position: They cannot spend a lot of time with patients because patient satisfaction depends on how long they are kept waiting at the pharmacy, but because they spend limited time with patients, they cannot provide the level of patient care services they desire.

One pharmacist also noted that there is need to shift to an outcomes-based approach to evaluating pharmacy and pharmacist performance. Pharmacists need to assess and evaluate what processes and activities add value to patient care:

Having us focus on outcomes–is what we are doing making a difference and if it's not then we need to rethink what we are doing; if it is we need to continue to do the same and continue to improve it. I think we need to get to that point where we are really focused on the outcome. (Semispecialty pharmacist, 28 years' experience)

Professional advocacy role. Many pharmacists were quick to point out that the changes needed to increase their profession's role in patient care would require proactive and concerted efforts. One pharmacist felt that the profession needs to educate stakeholders on the important role that pharmacists are well positioned to fulfill:

We are more than just the person that verifies the correct drug and the correct prescription and the correct med for the patient. Because we see these patients every month–that's much more often than the physician sees them and much more often than they are ever seen in a hospital–we have a tremendous opportunity at nipping problems in the bud. (Semispecialty pharmacist, 28 years' experience)

Discussion

The community-based pharmacists interviewed in our study described the level of pharmaceutical care in community-based pharmacy settings as suboptimal and reflective of a health care system characterized by patients' lack of access to health professionals, inadequate patient monitoring and follow-up, and incomplete health care information. In their opinion, community-based pharmacists are often overworked doing activities (e.g., prescription dispensing) that could be done by pharmacy technicians, and spend considerably less time providing direct patient care services. Our study findings corroborate prior research indicating that pharmacists are underused in the health care delivery system given their education level, training, and accessibility in the community.[3,21–26]

Although our study focused on HIV–a chronic condition–the general principles of pharmacists' patient care discussed by pharmacists in our study are applicable to other chronic conditions. Consequently, we extend the discussion of the implications of our study findings for community-based pharmacists' role in patient care services in general, not just HIV care.

Not all community-based pharmacists are underused in providing direct patient care services. Pharmacists in community-based specialty and some semispecialty pharmacies are involved in providing patient services that are beyond medication dispensing services.[27,28] In addition to institutional settings where clinical pharmacists are typically part of the health care team, other health care systems in both the public sector (e.g., Veterans Affairs Administration, Department of Defense, and Indian Health Services) and the private sector (e.g., Kaiser Permanente) have leveraged the clinical expertise of pharmacists in providing direct patient care services.[2,9,34] Beyond the integrated health systems discussed above, there have been other attempts to expand the scope of services provided by pharmacists

in community-based pharmacy settings to include MTM and long-term management for certain chronic conditions (e.g., asthma, diabetes, hypertension, and hypercholesterolemia).[1,9] However, MTM services are only available to a subpopulation of persons with chronic conditions.[35] For example, only 13% of Medicare beneficiaries received MTM services in 2009.[35]

In the sections below, we discuss three broad initiatives that are needed to enhance community-based pharmacists' role in providing optimal care to patients, including changes in the multidisciplinary health care team, electronic medical records, and reimbursement reforms (Table 2).

First, pharmacists in our study expressed a desire for an expanded role in patient care–to be more involved in therapeutic decisions, provide direct care services and quality assurance as part of the patient care process–through collaborations with other health professionals and providers. To facilitate this expanded role in a more collaborative framework, pharmacists need to be included on the multidisciplinary health care team.

Even though most medication use occurs in community-based settings[9] and numerous studies support the inclusion of pharmacists on multidisciplinary health care teams,[1,6,18,26,36,37] many community-based pharmacists are excluded from these teams. Extensive literature reviews of pharmacist-based interventions have identified humanistic, economic, and safety benefits associated with including pharmacists as a part of the health care team.[36] Community-based pharmacists with 6 years of clinical doctoral training and a postgraduate pharmacy specialty residency in ambulatory care or community practice have the necessary clinical skills to provide individualized patient-centered interventions in the context of collaborative health care teams.[1,18,26,35]

As medication experts on a multidisciplinary team, pharmacists can complement and enhance the quality of patient care as well as reduce health care costs by eliminating unnecessary physician visits, delays in refilling prescriptions, and clinical problems by adjusting medication regimens in consultation with physicians; minimizing expenses associated with unnecessary, duplicative, or excessive pharmacotherapy by monitoring the drug-selection process; facilitating patient safety by identifying and resolving drug therapy problems; preventing drug–drug interactions by reviewing medication profiles for patients with multiple health care providers; enhancing the quality of patient care to ensure medication is appropriate for the patient and effective for the medical condition; and improving adherence to medications by identifying and resolving adherence barriers.[1,6,9,15–18]

Second, pharmacists noted that some of the changes needed to provide services and quality assurance in patient care would require their access to both medical and laboratory information. Because of the growing incidence of chronic disease, our health care system will need to adapt a holistic and systematic approach to chronic disease prevention. The growing use of electronic medical record systems will also need to be leveraged in support of complex treatment decision making and the exchange of patient information among health professionals and providers in multiple health care settings.[4,18] To prevent patients from falling through the cracks in the health care system, pharmacists also need to be connected to and provide health data input into health information exchanges.

Comprehensive and complete electronic health records must contain information that reflects the level of care provided to a patient by all health professionals, including pharmacists. The use of technology in pharmacy settings will need to extend beyond electronic tech-check-tech prescription dispensers, standardized prescription claim information, and electronic prescribing to the use of standardized electronic therapeutic records that document pharmacist–patient encounters, medication-related interventions, patient medication history, and patient adherence to medications.[1,38] Pharmacists must have the information necessary to make knowledgeable medication recommendations and to counsel patients more effectively.[1] Pharmacists can use electronic therapeutic records to identify patients who are nonadherent to therapy and make appropriate referrals.

Electronic health information should be accessible to all health professionals treating a patient, with patient consent, including pharmacists. However, issues of interoperability and communication among the systems of various providers and health care settings will need to be addressed.[1]

Third, pharmacists noted that both pharmacy reimbursement and pharmacist performance evaluation reforms are needed at multiple levels to support the provision of direct patient care services in community-based pharmacy settings, the coordination of care across multidisciplinary teams in a patient-centered medical home model, and the inclusion of electronic therapeutic records as part of the electronic health records available in the health information exchange. Pharmacists need to be incentivized to use their knowledge and expertise to provide patient care services through the use of performance evaluation metrics that link promotions and bonuses to the quality of patient care and health outcomes.[23,24]

In addition, pharmacies need to be encouraged to invest in electronic therapeutic records that document all patient encounters. Moreover, pharmacies should have ready access to all relevant patient information from other health professionals and providers in the health information exchange.[5] Health care payers might consider using a blended reimbursement system to encourage pharmacies to participate in a patient-centered medical home model. Alternatively, payers might consider a bundled payment system that pays a fixed amount for services provided to a patient,[39,40] excluding prescription ingredient costs. Research is needed to identify the reimbursement system that provides the best balance of incentives and that would be considered most cost-effective.

Community-based pharmacists will need to work with multiple stakeholders, including health professionals, patients, payers, policymakers, and lawmakers to raise awareness about how their extensive education and training has equipped them to provide direct patient care services.[1,35] Several pharmacy associations, including the American Pharmacists Association and the American Society of Health-System Pharmacists (ASHP), have issued policy statements to highlight and promote pharmacists' expanded role in patient care–in consultation with other health professionals –relating to public health promotion and chronic disease management. In the context of pharmacists' role in HIV patient care, ASHP issued a policy document in 2003 that outlined pharmacists' responsibilities and scope of practice, and the expertise needed to provide advanced pharmaceutical care to PLWH.[37]

Beyond issuing policy statements, pharmacists through their professional organizations need to conduct major advocacy initiatives for pharmacists to be recognized as primary care providers. Currently, pharmacists are not recognized as health providers by either the Social Security Act or the Centers for Medicare & Medicaid Services, nor are community-based pharmacy settings considered patient-centered medical homes.[2] This is despite the fact that many pharmacists in different pharmacy settings already function as de facto primary care providers to the extent that they provide patient care within the context of collaborative practice agreements with physicians, are involved in primary prevention activities (e.g., providing immunizations), and chronic disease management (e.g., diabetes, hypertension), among other activities.[2,7]

This lack of recognition of pharmacists as primary care providers affects both patients' abilities to access high quality pharmacy services and the ability of pharmacies to get reimbursed for patient-centered pharmaceutical care.[2,7] Related to this lack of recognition as a primary care provider is the fact that pharmacy information systems (outside of e-prescribing) have not been designated by the Office of the National Coordinator for Health Information Technology as electronic health records.[2,6,7,18,38]

As described above, the absence of pharmacist-generated electronic medical records suggests that health professionals might not have complete information regarding patient medication use–specifically, medication history and adherence.

Offering pharmacists an expanded role in patient care could advance and improve health care delivery and offer numerous benefits to the health care system, including improving outcomes, increasing access to care for vulnerable and underserved populations, allowing physicians to focus on critically ill patients, improving patient and provider satisfaction, assuring patient safety, and enhancing cost-effectiveness.[2,41,42]

Limitations

Limitations of this study include our interviewing of a purposive sample of 28 community-based pharmacists in four Midwestern cities; our findings may not be generalizable to other pharmacy settings. However, the current study provides perspectives of pharmacists with a broad range of training (e.g., those highly trained in HIV and non–HIV-trained pharmacists), with a wide range of experiences (e.g., newly licensed and those with many years of experiences), located in different settings (e.g., off- and on-site locations), serving diverse patient populations, and working in four different metropolitan cities.[27–30] Moreover, our study findings corroborate prior research indicating that pharmacists are underused in the health care delivery system given their education level, training, and accessibility in the community.[3,21–26] In addition, because this paper focuses on pharmacists' perspectives on the kind of pharmaceutical care services to HIV patients in an ideal world–not the actual patient care services provided–social desirability and self-presentation bias are not a real concern.

Conclusion

Community-based pharmacists can address quality of care challenges confronting the U.S. health care delivery system and play a more active role in bending the health care cost curve. Community-based pharmacists should be encouraged to use their education and training to help fill gaps in the primary care workforce, enhance the quality of patient care, and reduce preventable medication-related problems. Moreover, they should be recognized as an important and integral part of multidisciplinary health care teams.[1] Expanding the network of primary care providers to community-based pharmacy settings could help meet the growing demand for patient-centered care in chronic disease prevention and management.[1,2]

The ability of the U.S. health care delivery system to meet the challenges posed by the increasing prevalence of chronic illnesses will rest on the willingness of policymakers to adopt bold and far-reaching policy initiatives.[3,5] There is a need to remove legislative, legal, regulatory, and financial constraints that preclude pharmacies from being designated as patient-centered medical homes or being incentivized to maintain electronic health records, in order to provide direct patient care services to patients in community-based settings. Structural-level changes needed include realigning financial incentives to promote the inclusion of pharmacies as patient-centered medical homes and the extension of the health information exchange highway to include pharmacist-generated electronic therapeutic records. These initiatives align with provisions of the Patient Protection and Affordable Care Act to increase the number of Americans accessing health care, and are congruent with policy initiatives to increase access to health care, reduce health care costs, and increase patient satisfaction and experience with the health care system. Such bold and comprehensive policy initiatives will go a long way in optimizing the use of highly trained pharmacists in enhancing the quality of health care to an ever-growing number of Americans

with chronic conditions, including HIV, accessing care in community-based pharmacy settings.

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