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Research Article

Improving Collaboration between Primary Care Providers and Community Pharmacists: A Cross-Sectional Survey

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Abstract

Introduction: Community pharmacists are highly trained and accessible health professionals. Over 95% of the US public is within 10 miles of a community pharmacy. This study characterizes current community pharmacist-primary care provider (PCP) communications, and PCP perspectives on establishing medication-related services and collaborative practice agreements (CPAs) with community pharmacists to improve public health. **Methods:** PCPs responded to an online, cross-sectional survey from December 2020 to January 2021. **Results:** Of 222 PCP respondents, nearly 50% of PCPs or staff members communicated weekly with community pharmacists about prescriptions, and 66% of PCPs were not aware of community pharmacists' capabilities to monitor and manage medications. Only 31% of PCPs were aware that community pharmacists use Collaborative Practice Agreements (CPA). PCPs with less than 16 years of practice experience agreed that community pharmacists working with a CPA could decrease their clinical workload burden. Facilitators of PCP support for community pharmacists providing medication monitoring and management services included positive patient feedback, patient outcome improvement, and patient perception of the community pharmacist as a primary care team member. PCP perceived barriers were the lack of PCP knowledge of community pharmacist clinical training, no dedicated pharmacist time to provide direct patient care services, minimal pharmacist experience in providing medication monitoring and management, and poor documentation of community pharmacist services in electronic health records. **Conclusion:** Opportunities exist for greater community pharmacist-PCP collaboration to improve chronic disease patient outcomes. Given their public accessibility, community pharmacist medication monitoring and management services should be considered to improve public health.

Keywords: Primary care; Community pharmacist; Interprofessional communication; Primary care providers; Collaborative practice agreements; Medication monitoring; Medication management; Integrated care team

Introduction

Community pharmacists work in over 60,000 US pharmacies as highly trained healthcare professionals, and they are highly accessible given that 96% of the US public are within 10 miles of a community pharmacy [1]. From a public health viewpoint, non-optimized medication therapy accounts for approximately 275,000 deaths per year and is estimated to cost $528.4 billion annually [2]. There is a critical need in primary care to proactively prevent, identify, and resolve poor medication-related outcomes [3,4]. However, only 4-18% of primary care practices [5] and 26% of US

family medicine physicians reported working with a pharmacist in their offices [6]. Furthermore, it is estimated that by 2033, the U.S. could see a shortage of between 21,400 and 55,200 Primary Care Providers (PCPs) [7] and PCP burnout further threatens patient access [8-11].

Beyond traditional dispensing roles, many community pharmacists have clinical training and professional expertise to collaborate with PCPs as extended primary care team members to resolve medication-related clinical challenges, optimize complex medication regimens, and enhance patient outcomes [12-14]. All 50 US states permit pharmacists to develop Collaborative Practice Agreements (CPAs) with physicians and other clinicians [15].

Little is known about current communications and collaborations between PCPs and community pharmacists. Our objectives were to survey Connecticut PCPs to: (1) describe the current type and frequency of communications between PCPs and staff members with community pharmacists, (2) characterize PCP perspectives on establishing medication-monitoring services provided by community pharmacists between PCP visits, and (3) determine PCP perspectives on the use of CPAs with community pharmacists.

Methods

The study population included PCPs with active licenses and were currently practicing adult primary care in the state of Connecticut. The data source was the state licensure database, which did not include information about PCPs who were retired, part-time clinicians, no longer practicing in the state, or no longer working in primary care settings. Therefore, we used responses on returned surveys to determine the study population.

Survey Design: The survey was designed using Qualtrics survey software (https://www.qualtrics.com) based on studies that assessed PCP communication with pharmacists and their perceptions of direct patient care services [16-21]. The survey had 36 questions in 4 domains: respondent demographics (7), PCP-community pharmacist communications (14), PCP perspectives on community pharmacist medication monitoring (7), and PCP perspectives on the use of CPAs with community pharmacists (8).

IRB approval: The UConn Institutional Review Board determined this study to be exempt since responses were completely anonymous.

Distribution

Online survey responses were collected for 5 weeks between December 2020 and January 2021.

Statistical Analysis

Only fully completed surveys were used for analysis. Frequency distributions were calculated for all responses and were tested for association with categorical variables using X2 tests of association. Other analyses included multiple linear regression models for numeric responses, logistic regression for binary (yes/no) responses, and multinomial logistic regression for multi-level (categorical) responses with multiple predictors. All statistical analyses were conducted in R version 4.1.0 (R Core Team, 2021, https://www.R-project.org/), and significance was determined at a p-value <.05.

Results

Survey Response

A total of 782 surveys were received, however, 206 were ineligible based on exclusion criteria listed above and 354 were incomplete for analysis. Therefore, a convenience sample of 222 completed surveys was analyzed.

Demographics

The demographics for the 222 respondents are shown in Table 1. Most respondents were primary care physicians (41%) and nurse practitioners (46%) who worked in office practice settings (57%) with one to seven PCPs (65%). Sixty percent of respondents had practiced for less than 16 years.

Discipline	
Nurse Practitioner (APRN)	46% (101)
Physician (MD or DO)	41% (92)
Physician Assistant (PA)	13% (29)
Practice Setting	
Office Practice	57% (126)
Community Health Center	24% (52)
Hospital Outpatient Clinic	16% (34)
Other Primary Care Setting	4% (8)
Practice Size	
1-3 PCPs	30% (66)
4-7 PCPs	35% (77)
8-11 PCPs	14% (30)
12 or more PCPs	22% (49)
PCP Training / Specialty	
Family Medicine	51% (113)
Internal Medicine	49% (108)
Geriatric Medicine	1% (1)
PCP Years of Practice	
5 years or less	32% (70)
6-10 years	16% (35)
11-15 years	12% (25)
16 -20 years	10% (22)
More than 20 years	30% (66)

Table 1: Respondent Demographics (N=222).

PCP-Community Pharmacist Communications

The survey defined a community pharmacist as one who worked in a retail pharmacy setting with dispensing responsibilities. The most frequent PCP communications were with community pharmacists in chain pharmacies (29%), mass merchandise stores (17%), grocery stores (17%), independent pharmacies (16%), and mail order pharmacies (15%). Most PCPs or office staff (47%) communicated with community pharmacists at least once a week. In large practices (>12+ PCPs), 51% of PCPs or office staff contacted the community pharmacist on a weekly basis compared with 43% of PCPs in smaller practices (P=0.002).

Product-related communications

Approximately 37% of PCPs reported that they or staff members never call the community pharmacist with questions about drug products. PCPs who did contact the community pharmacist asked about drug-drug interactions (79%), dosage (76%), and new drugs (71%), whereas RNs and MAs asked if drugs were in-stock (59%) (P=.03).

Prescription-related communications

Approximately 36% of PCPs reported that they or staff members never call the community pharmacist with questions about prescription issues. When PCPs contacted the community pharmacist, they asked about medication substitutions (58%) and refills (43%), whereas nurses (RNs) and medical assistants (MAs) asked about prior authorization (58%) and refills (49%) (P<.001).

Patient-related communications

Approximately 20% of PCPs reported that they or staff members never call the community pharmacist about patient affordability assistance and 21% never call about patient medication co-pays. PCPs who did contact the community pharmacist asked about patient refill history (49%), whereas RNs and MAs asked about refill histories (47%) and patient co-pays/affordability (46%) (P=0.02).

Medication regimen optimization communications

An average of 55% of PCPs stated that they or staff members never communicate with community pharmacists about medication monitoring, 49% never communicate about comprehensive medication review 32% never communicate about medication therapy plans, and 24% never communicate about medication reconciliation (24%) (P<.001). PCPs who did contact the community pharmacists discussed medication therapy plans (56%) and medication monitoring (46%), while RNs and MAs communicated about medication reconciliation (38%) (P<.001). The smaller the practice size the higher likelihood of communication to optimize medication regimens (P<.001)

PCP Perspectives on Pharmacist Monitoring

The survey presented a scenario of a patient taking diabetes and hypertension medications with community pharmacist patient monitoring services between PCP visits that included: (a) performing monthly blood glucose and blood pressure monitoring, (b) sending monitoring reports to the PCP, and (c) providing the PCP with medication recommendations based on monitoring results. Based on the scenario, PCPs were asked about the following topics:

PCP Awareness. 66% of PCPs were not aware that community pharmacists are capable of providing patient monitoring services. PCPs in outpatient hospital clinics (42%) were more aware than PCPs in office practices (31%) and community health centers (36%) (P=.03).

Implementation Comfort

66% of PCPs would be comfortable implementing community pharmacist monitoring services between PCP visits. PCPs with less than 16 years of practice experience (76%) would be more comfortable compared to PCPs with more practice experience (56%) (P=.01).

Usefulness of Monitoring Services

79% of PCPs agreed that community pharmacists could provide useful medication monitoring reports and actionable recommendations between PCP visits to improve patient outcomes. PCPs with less than 16 years of practice experience (89%) agreed compared to PCPs with more practice experience (65%) (P=.03).

Facilitators

PCPs indicated the top 3 reasons to use the monitoring services were positive patient feedback about the services, receipt of timely data between PCP visits, and patient outcome improvement with pharmacist recommendations. PCPs in community health centers (68%), office practices (62%) and hospital clinics (27%) agreed that timely reports and medication regimen recommendations would facilitate use of community pharmacist monitoring services (P=.001). PCPs with less than 10 years of experience stated community pharmacist access to the patient's EHR would facilitate PCPs' use of monitoring services (P<.001).

Barriers

PCPs indicated the top 3 reasons that would limit the use the monitoring services were the lack of pharmacist's dedicated time to monitor patients, lack of pharmacist experience in monitoring patients and providing recommendations to PCPs, and lack of pharmacist's access to a patient's EHR. PCPs in larger practices (>12 PCPs) stated that the community pharmacist's lack of access to the patient's EHR would limit utilization of a monitoring service between office visits (P=0.004). Regardless of practice setting, PCPs stated that the community pharmacist's lack of access to the patient's EHR would limit utilization of a community pharmacy monitoring service (P=0.02).

PCP Perspectives on Using CPAs

The survey presented a scenario of a patient taking diabetes and hypertension medications where there the PCP had a written CPA

with the community pharmacist to: (a) perform blood glucose and blood pressure monitoring, (b) use evidence-based guidelines to adjust medications as needed between PCP visits, (c) document patient interactions and any medication changes immediately in the patient's EHR, and (d) discuss any urgent patient safety issues or medication discontinuation with PCP. Based on the scenario, PCPs were asked about the following topics:

PCP Awareness

Across all practice settings, only 31% of PCPs were aware of a community pharmacist's ability to provide direct patient care services with a CPA (P=.008).

Implementation Comfort

49% of PCPs agreed with being comfortable signing a CPA with a community pharmacist for monitoring and managing diabetes and blood pressure medications between PCP visits. PCPs with 16 or more years of practice experience were less comfortable creating CPAs than PCPs with fewer years of practice experience (P=.002).

Patient Outcomes

57% of PCPs agreed that community pharmacists would make appropriate medication adjustments to achieve therapeutic goals and improve patient outcomes between PCP visits. However, 58% of PCPs with 16 or more years of practice experience did not believe that community pharmacists would provide appropriate medication adjustments. (P=.001). Only 49% of physicians, compared to 71% of APRNs and PAs, agreed that a community pharmacist working with a CPA could improve patient outcomes (P=.03).

PCP Workload

56% of PCPs indicated that a CPA with community pharmacists would decrease PCP workload burden for managing patients with diabetes and blood pressure medications. While 70% of PCPs with fewer than 16 years of practice experience agreed that a community pharmacist working with a CPA would decrease their workload burden, only 35% of PCPs with more practice experience agreed. (P<.001). Also, 70% of PCPs in large-sized practices (12 or more PCPs) agreed that a community pharmacist working with a CPA would decrease their workload burden (P=.01).

Facilitators

PCPs indicated the top 4 facilitators to use CPA monitoring and management services would be timely monitoring reports between PCP visits, improvements in patient outcomes, positive patient feedback, and having the community pharmacist viewed by patients as a member of primary care practice's team. PCPs with less than 16 years of practice experience were more likely to state that the ability to see more patients with new conditions/concerns would promote having a CPA with a community pharmacist (P=.01).

Barriers

PCPs indicated that the top 4 reasons that would limit the use of CPA-directed monitoring and management services were lack of community pharmacists' dedicated time for these services, lack of community pharmacist's training and experience with CPAs, poor documentation of community pharmacist activities in EHRs, and patients not viewing community pharmacists as members of primary care teams. Regardless of practice setting, 82% of PCPs stated that a lack of community pharmacists' available time to monitor patients and manage medications would limit utilization of a CPA (P=.004).

Discussion

PCP-Community Pharmacist Communications

The literature is scant on the type and frequency of communications between primary care team members and community pharmacists. In our previous work, frequent communications between primary care staff and community pharmacists were related to prior authorizations [20]. Another study reported that 21% of physicians rarely had contact with community pharmacists and 79% of communications were with an office nurse [22].

In this study, PCPs communicated most frequently about drugs, dosages, therapeutic substitutions, and drug interactions that relate to prescribing decisions. Both RNs communicated most frequently about prescription renewals, refill history, and patient copays, and MAs communicated about prior authorizations and product availability. Current communications with pharmacists relate to prescription processing topics rather than patient-specific monitoring or medication regimen optimization.

PCP Perspectives on Pharmacist Medication Monitoring

Even though community pharmacists predominantly operate in a retail setting that is located separately from other health care providers, studies have demonstrated that pharmacists, physicians, and patients collaborated to improve clinical outcomes and health care costs for patients with diabetes [23-27] hypertension [27-29] and high cholesterol [27,30].

In this study, most PCPs were not aware of community pharmacist training and capabilities to perform blood glucose and blood pressure monitoring. PCPs in hospital clinics, who often work with pharmacists on care teams, were more aware of community pharmacist monitoring capabilities than PCPs in office practices and community health centers. PCPs with less than 16 years of practice experience were more comfortable using community pharmacist monitoring services to provide useful medication reports and actionable recommendations between PCP visits. It is plausible that PCPs who had interdisciplinary training or hospital work experience with pharmacists had a positive perspective on the usefulness of community pharmacist monitoring services.

Factors that would facilitate PCP use of community pharmacist monitoring services included positive patient feedback, timely reports of medication recommendations between PCP visits, and patient outcome improvement. PCPs in community health centers and office practices were in highest agreement to consider community pharmacist monitoring services; hospital clinic PCPs may already receive services from hospital pharmacists.

Overall, PCPs indicated that the highest limiting factor to using community pharmacist medication monitoring services would be the lack of pharmacist's dedicated time to monitor patients. Some PCPs expressed skepticism about community pharmacists' capacity to deliver non-dispensing services given recent community pharmacy closures, reduced hours of operation, and limited staffing patterns. Community pharmacists have used scheduled patient appointments for immunization services; a similar approach could be used to provide uninterrupted pharmacists' time for medication monitoring services.

PCPs in larger practices and all primary care settings indicated that lack of EHR access would limit use of community pharmacist monitoring services. Nearly all PCPs use the EHR to obtain monitoring data, order medications, and report patient outcomes. Therefore, PCPs and community pharmacists would need to implement a seamless workflow for electronic data exchange of updated medication monitoring results and medication recommendations to facilitate an integrated care team approach. Some PCPs commented that fax communications would deter them from working with community pharmacists for patient monitoring and medication management services. If PCPs and community pharmacists have established CPAs, remote EHR access may support the uptake of community pharmacist monitoring services.

Some PCPs shared concerns about uncompensated time to review community pharmacists' monitoring reports and recommendations. This reflects the downside of a fee-for-service payment system where the PCP's time to review pharmacists' communications is not compensated. However, a PCP working with value-based payment arrangements (i.e., pay-for-performance, shared savings, capitation) may welcome the pharmacist's actionable recommendations to prevent adverse drug effects or improve medication-related patient outcomes. As value-based payment arrangements focus on improved population health outcomes and chronic disease management, community pharmacists are highly accessible clinicians who can collaborate with PCPs as members of an interdisciplinary care team. Several models of pharmacist integration – from part-time contractual services to full-time employment – have been described [31-33]. With any model it is imperative that community pharmacists are fully integrated as extended members of the primary care team to avoid further patient care fragmentation.

PCP Perspectives on Use of CPAs

All 50 US states have laws that authorize pharmacists to develop CPAs with physicians and other clinicians [15]. In Connecticut, physician-pharmacist CPAs began in 2012 with expansion to APRNs in 2019. However, our study found that only 31% of PCPs were aware of a pharmacist's ability to practice with a CPA. A North Carolina study reported 36% of PCPs were familiar with pharmacist CPAs [34].

Nearly 60% of PCPs agreed that a community pharmacist working with a CPA would make appropriate medication adjustments to achieve therapeutic goals and improve patient outcomes between PCP visits. APRNs and PAs were more favorable toward PCP-community pharmacist CPAs, which may be related to their own CPA experience. PCPs with 16 years or more years of practice experience did not believe that community pharmacists using a CPA would provide appropriate medication adjustments to improve patient outcomes. These PCPs may not have any interdisciplinary training or work experience to recognize pharmacists' clinical expertise and team-based roles.

PCPs in larger practices and less than 16 years of practice experience agreed that a community pharmacist working with a CPA would decrease their clinical workload burden. CPAs clearly specify functions that are delegated to the pharmacist (e.g., initiating or modifying medications, ordering/interpreting lab tests) [15] and can free up PCP time. It is estimated that PCPs spend approximately 37% of their time on activities related to chronic care management, which often includes managing complex medication regimens [35]. With PCP shortages and clinician burnout, there may be a growing interest to expand primary care teams where clinical responsibilities are shared with other clinicians working at the top of their training [36] to improve PCP and practice efficiencies [37. It is plausible that PCPs in large practices and newer practitioners are open to innovative care delivery models with the momentum toward value-based payment arrangements and a greater focus on clinical quality and practice improvements.

PCPs indicated that facilitators to developing CPAs with pharmacists would include improved patient outcomes, which aligns with population health programs. In addition, PCPs indicated the community pharmacist needs to be viewed by patients as a member of the PCP's care team to avoid further care fragmentation. Finally, PCPs denoted that positive patient feedback about the community pharmacists' services would facilitate CPA use.

Barriers to Community Pharmacist Integration

Our survey identified four barriers preventing community pharmacists from serving as members of integrated primary care teams. These include the lack of: (1) PCP awareness of community pharmacist training and capabilities for medication monitoring and management, (2) community pharmacists' dedicated staffing for monitoring and managing patient medications between PCP visits, (3) PCP awareness about pharmacist CPAs, and (4) interoperability of patient EHRs between PCPs and community pharmacists (Table 2).

PCP Awareness of Community Pharmacist Capabilities
66% of PCPs were not aware of a community pharmacist's capability to monitor A1C and BP for patients with diabetes and hypertension. "I'm not familiar enough with a pharmacist's clinical training to determine if they would make appropriate medication adjustments."
PCP Perception of Community Pharmacist Availability
78% of PCPs do not perceive community pharmacists to have time to monitor patient medications.
"Pharmacists don't have time to perform [medication monitoring] services. "
PCP Awareness of Collaborative Practice Agreements
69% of PCPs were not aware of community pharmacist's ability to practice with a CPA.
Info Exchange Between PCPs and Community Pharmacists
64% of PCPs stated that community pharmacist's lack of access to the patient's EHR would limit utilization of community pharmacist patient monitoring services. "I do not want faxes, not helpful means of communication now with EHR."

Table 2: Barriers to Community Pharmacists as Members of Integrated Care Team.

Studies have noted that the community pharmacist's clinical training was a critical factor for PCP adoption of collaborative practice [18,34]. As an extended member of primary care teams, PCPs expect the community pharmacist to have clinical training in medication management and practice experience as a provider of direct patient care services.

The lack of community pharmacist's time to provide clinical services was cited by White, et al. [37]. The success of CPA services would require innovative community pharmacist staffing arrangements with dedicated time for medication monitoring and management services without dispensing responsibilities.

Patients visit community pharmacies approximately twice as frequently as they see their PCPs [38] and have trusted relationships with their pharmacists [39]. PCPs and pharmacists should consider forming collaborative, multidisciplinary teams within the community -- using shared electronic patient health records -- to prevent and manage chronic disease.

Study Limitations

A limitation of this study was the recruitment method using a statewide licensure database with insufficient data to identify exclusion criteria for a targeted study sample. The survey was conducted in one state where most PCPs are primarily compensated under fee-for-service payments so results may not be generalized to PCPs with several value-based care payment models. The survey was distributed during the Covid pandemic that may have limited responses. The invitation email may have been too impersonal, which can decrease survey response rates [40]. Also, the length of the survey instrument may have discouraged participation or resulted in incomplete responses [41].

Conclusion

There is substantial evidence that pharmacists can perform medication monitoring and management services to improve public health, consistent with their training, and in collaboration with PCPs [42,43]. However, there is a need for greater PCP awareness of community pharmacists' clinical training and capabilities for medication monitoring and management, and use of CPAs. Community pharmacists, working at the top of their license, are positioned to ease the PCP shortage by collaborating with PCPs to alleviate PCP workload burden for chronic medication monitoring and management. However, community pharmacist employers need to assure interested PCPs that pharmacists have dedicated time to provide direct patient care services and have shared access to EHRs. New primary care delivery and value-based payment arrangements need to consider the role of community pharmacists as members of extended primary care teams.

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