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RESEARCH

Physician experiences with clinical pharmacists in primary care teams

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ABSTRACT

Background: Improving medication management is an important component of comprehensive care coordination for health systems. The Managing Your Medication for Education and Daily Support (MyMeds) medication management program at the University of California Los Angeles addresses medication management issues by embedding trained clinical pharmacists in primary care practice teams.

Objectives: The aim of this work was to examine and explore physician opinions about the clinical pharmacist program and identify common themes among physician experiences as well as barriers to integration of clinical pharmacists into primary care practice teams.

Methods: We conducted a mixed quantitative–qualitative methods study consisting of a cross-sectional physician survey ($n = 69$) as well as semistructured one-on-one physician interviews ($n = 13$). Descriptive statistics were used to summarize survey responses, and standard qualitative content-analysis methods were used to identify major themes from the interviews.

Results: The survey response rate was 61%; 13 interviews were conducted. Ninety percent of survey respondents agreed or strongly agreed that having the pharmacist in the office makes management of the patient's medication more efficient, 93% agreed or strongly agreed that pharmacist recommendations are clinically helpful, 71% agreed or strongly agreed that having access to a pharmacist has increased their knowledge about medications they prescribe, and 75% agreed or strongly agreed that having a pharmacist as part of the primary care team has made their job easier. Qualitative interviews corroborated survey findings, and physicians highlighted the value of the clinical pharmacist's communication, team care and expanded roles, and medication management.

Conclusion: Primary care physicians valued the integrated pharmacy program highly, particularly its features of strong communication, expanded roles, and medication management. Pharmacists were viewed as integral members of the health care team.

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Health care reform is challenging health care systems to increase access to care for all Americans and at the same time to achieve the “triple aim” of improving quality of care, reducing overall costs, and enhancing patient satisfaction with care. Although these aims are critical, they place increased

demand on physicians, particularly those in primary care.¹ Primary care physician burnout is already common,² so physician satisfaction is important to maintain as health systems work to enhance team care. These increased demands on primary care may lead to more physician burnout and lower quality of care.³ A new “quadruple aim” includes enhancing primary care workforce satisfaction and preventing workforce burnout.³ One way to improve access to care and maintain physician satisfaction is by implementing team-based models⁴ of primary care that include clinical pharmacists.⁵

Demonstrations of team-based models of care show promise and point to an important strategy to meet the increasing demands on the primary care system.^{6–8}

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Key Points**Background:**

- Demonstrations of team-based models of care show promise and point to an important strategy to meet the increasing demands on the primary care system.
- One way to improve access to care is by implementing team-based models of primary care that include clinical pharmacists.
- Gathering health system perspectives on physician satisfaction with clinical pharmacists embedded in primary care practice teams can help health systems implement team-based care.

Findings:

- Primary care physicians had high levels of satisfaction and endorsement of the clinical pharmacists embedded in primary care teams.
- Qualitative interviews corroborated survey findings: physicians highlighted the value of the clinical pharmacist's expanded roles and medication management expertise.
- Physicians highly value the contributions of clinical pharmacists in providing comprehensive patient-centered care in the primary care setting.

Population-based studies^{9,10} and randomized controlled trials^{11–15} show that besides improving access to care, clinical pharmacists can help improve disease-specific processes and intermediate clinical outcomes^{12,16–18} in integrated health care settings such as the Veterans Administration^{19–22} and staff-model health maintenance organizations.^{23–27}

Although the addition of pharmacists to the care team has been recognized as a potentially valuable approach, the effect of such interventions on physician satisfaction in primary care practices remains unclear. Exploratory qualitative research conducted in the vertically integrated Veterans Affairs health system included interviews with multidisciplinary care team members and reported barriers in pharmacist integration and the need to improve knowledge of and attitudes toward pharmacists' role on care teams.²⁸ More research is needed to address physician satisfaction and perceptions of pharmacists and pharmacy services in primary care.

The objectives of the present study were to examine physician satisfaction with the clinical pharmacists embedded in primary care practice teams and to explore common experiences among physicians.

Methods*Setting*

The University of California Los Angeles (UCLA) Health System embeds ambulatory clinical pharmacists in primary care practices as part of its Primary Care Innovation Model (PCIM). The PCIM incorporates population health, care coordination, and clinical pharmacy into the primary care practice.

Three full-time ambulatory clinical pharmacists (FTEs) provide services in 28 sites with in-office collaboration with physicians and care coordinators and are integrated into a team. Three of the practices are small and are supported on an as-needed basis. The primary care offices include family medicine, internal medicine, and a geriatric practice.

The pharmacist conducts medication therapy management collaboratively with physicians, provides education, addresses cost-related issues, conducts medication reconciliation, and corrects potential medication problems. Since 2012, the ambulatory clinical pharmacists have conducted almost 7000 patient consultations.

Study design and sample

We conducted a mixed quantitative–qualitative methods study using a sequential explanatory design consisting of a cross-sectional survey followed by semistructured one-on-one physician interviews. We used mixed methods because we were interested in details that would not be captured if we used only the structured survey. The interviews helped explain the survey results.

The survey was pretested by means of cognitive interviews with volunteers to examine the flow and readability. The survey underwent a review process with reconciliation meetings to evaluate for existing evidence of reliability and validity. The reconciliation process focused line by line on the survey, ensuring that each item was properly reviewed. Questions were modified after pretesting for flow and readability.

The 12-question survey was conducted in May and June 2014. The physician inclusion criteria for the study were 1) active in providing patient care at least part-time, 2) practicing in a UCLA primary care practice, 3) not in training as a resident or fellow, and 4) comanaged at least 4 patients with the clinical pharmacist. A total of 69 physicians from 8 different practices qualified for the survey based on the inclusion criteria. Our final analytic sample size consisted of 42 physicians (family medicine and general internists) who met inclusion criteria and completed the survey, for a response rate of 62%. The UCLA Human Research Protection Program approved the study.

Survey measures

We assessed physician experiences and satisfaction with the clinical pharmacist program using 12 survey items (Table 1) that asked questions about team care (2 items), communication (3 items), medication management (3 items), workflow (2 items), and overall thoughts (2 items). Physicians were able to rate the pharmacist on a 5-point Likert-type scale (response options: strongly agree = 5; agree = 4; feel neutral = 3; disagree = 2; or strongly disagree = 1). Questions also asked the physicians for their overall thoughts about having a pharmacist work alongside them in clinic and if they would recommend their services to other colleagues.

The survey also captured physician gender (male vs. female), years in practice (continuous), practice size (≤ 4 physicians, 5–10 physicians, or > 10 physicians), hours in patient care (part time vs. full time), and primary care medical specialty (family medicine, general internal medicine, or medicine-pediatrics).

Table 1
Mean scores of physician satisfaction with clinical pharmacist team care survey questions

Survey question	Mean score (SD)
Team care	
Pharmacist is a valuable member of primary care office	4.4 (0.9)
Pharmacist makes management of patients' medication more efficient	4.4 (0.9)
Communication	
Satisfied with electronic communication from pharmacist	4.5 (0.8)
Satisfied with verbal communication from pharmacist	4.6 (0.7)
Medication recommendations by pharmacist are clinically helpful	4.4 (0.7)
Medication therapy management	
Pharmacist recommendations have helped to control cardiovascular risk factors of patients with diabetes (A1C and/or blood pressure and LDL)	3.8 (0.8)
Pharmacist helps with comanagement of complex patients	4.5 (0.7)
Access to pharmacist has increased my knowledge about medications I prescribe	3.9 (0.9)
Workflow	
Pharmacist consults have decreased amount of time spent addressing medication-related problems	3.8 (1.0)
Pharmacist as part of the primary care team has made my job easier	4.1 (0.8)
Overall thoughts	
I would recommend the MyMeds pharmacist to my colleagues	4.5 (0.7)
Satisfied with the care provided by the MyMeds clinical pharmacist	4.5 (0.7)

Response options: 5 = strongly agree; 4 = agree; 3 = neutral; 2 = disagree; 1 = strongly disagree.
Abbreviations used: A1C, glycated hemoglobin; LDL, low-density lipoprotein.

Semistructured interviews

We conducted semistructured face-to-face interviews with physicians that met the same inclusion criteria for the survey. Interview participants were identified after completion of the survey by querying them about their interest in an interview to obtain richer detail about the clinical pharmacist program. Each interview lasted an average of 20 minutes.

Fourteen potential participants were identified as interested in an interview, and we were able to interview 13 of them. One researcher (S.L.), who is not a pharmacist, conducted the interviews with a protocol that included open-ended questions and probes that were asked if needed. All interviews were audio recorded. We prompted interviewees to comment on their experience with clinical pharmacists in their primary care practice, how the clinical pharmacist contributed to team-based primary care, opinions about the quality and timeliness of clinical pharmacist communication, perceptions about the medication management conducted by the clinical pharmacist, impact of the clinical pharmacist on workflows in the practice, and any overall opinions about the clinical pharmacist in their primary care practice.

Analysis

Descriptive statistics, including frequencies, means, and ranges, were calculated for all survey variables. We used Stata 11.1 software (College Station, TX) for all analyses and considered a *P* value of < 0.05 to indicate statistically significant differences when comparing groups.

All interviews were transcribed verbatim and deidentified. Two researchers (S.L. and C.V.) and 1 faculty member (G.M.) independently analyzed the transcripts for themes. The reviewers read the transcripts several times and used standard qualitative content-analysis methods to identify recurring concepts with the use of ground theory principles as a guide. The concepts were categorized into codes that were then used to label discrete quotes in all of the interview transcripts. Any discrepancies in coding of the transcripts were adjudicated by

an experienced investigator (G.M.) on the research team. Finally, we put the codes into broad domains (team work, communication, medication management, and workflows). ATLAS.ti 6.0 software (Berlin, Germany) and Microsoft Excel were used to organize the data.

Results

The survey response rate was 61% (*n* = 42/69). [Table 2](#) reports characteristics for physician survey respondents. [Table 2](#) also presents the characteristics of physicians who participated in the semistructured interviews. Among physicians interviewed, 69% (9/13) were female, the overall mean number of years in practice was 15, and 77% (10/13) were in a practice site location with 5 to 10 other physicians. The specialties were general internal medicine (46%, 6/13), family medicine (23%, 2/13), and medicine-pediatrics (31%, 4/13).

[Table 1](#) presents the mean scores (range 1-5) for the survey questions that queried physicians about satisfaction with the clinical pharmacist program. A higher score (4-5) indicates physicians' favorable attitudes toward a survey question. Physicians agreed that pharmacists are valuable members of the primary care office (mean 4.4) and help to make management of patients' medications more efficient (mean 4.4). Physicians responded favorably to the question about the quality of electronic (mean 4.5) and verbal (mean 4.6) communication with the clinical pharmacist. Physicians found recommendations made by clinical pharmacists about medication management to be clinically helpful (mean 4.4), especially to control complex patients (mean 4.5). Physicians also indicated that they would recommend the pharmacist to their colleagues (mean 4.5) and were satisfied with care provided by the clinical pharmacist (mean 4.5). Survey responses did not vary by physician specialty, years in practice, gender, or practice size.

For the qualitative analysis, 3 major themes emerged in the review ([Table 3](#)) of the interview transcripts: 1) communication, 2) team care and expanded roles of pharmacists, and 3) medication management. We further categorized these themes into

Table 2
Characteristics of survey respondents (n = 42) and semistructured interview participants (n = 13)

Physician characteristics	Survey respondents (n = 42)	Interview participants (n = 13)
Gender, n (%)		
Female	23 (55%)	9 (69%)
Male	19 (45%)	4 (31%)
Years in practice, mean	16.7	15.1
Practice size, n (%)		
≤4	9 (21%)	1 (8%)
5-10	27 (64%)	10 (77%)
>10	6 (14%)	2 (15%)
Specialty, n (%)		
Family medicine	15 (36%)	3 (23%)
General internal medicine	16 (38%)	6 (46%)
Medicine—pediatrics	6 (14%)	4 (31%)
Geriatrics	5 (12%)	0 (0%)
Number of physicians in practice, mean	9.6	9.4

10 corresponding subthemes. [Table 3](#) lists these with illustrative quotes for each of the major themes.

Communication

Physicians frequently commented on the advantages of being able to communicate with the pharmacist both verbally and electronically. They described how regular face-to-face communication fostered the development of a personal and trusting relationship with the clinical pharmacist in a way that may not have been possible with solely electronic communication or the telephone. Having the clinical pharmacists speaking to physicians directly in person either before or after patient visits about medication recommendations incorporates the pharmacists into the model of team-based care and ultimately improves coordination of care. [Table 3](#) has representative quotes made by physicians about both electronic and in-person verbal communication.

Team care and expanded roles of pharmacists

Quotes for this domain were categorized into one of the following themes ([Table 3](#)): multidisciplinary primary care team, same-day covisits with physicians, prerounding meetings or huddling with physicians, or education and academic detailing. In response to questions about pharmacists' impact on team care, responses often centered around pharmacists' contributions to the comprehensiveness of care as well as their role as a source of medication-related knowledge for other members of the primary care team. The pharmacists' detailed knowledge about medications, drug interactions, and practice guidelines was highly valued by physicians. Other physicians commented on the pharmacists' ability to improve efficiency of care by reducing the time constraints felt by primary care physicians during office visits. Physicians also had numerous ideas for expanded roles for pharmacists, including the development of "physician education seminars" in which pharmacists could periodically educate physicians and clinic staff on current medication issues and new medication guidelines.

Medication management

Interviews illuminated the perceived impact of pharmacists on medication regimen optimization, patient education, and cost assistance. One physician described the role the pharmacist played in explaining medication regimens and improving medication adherence. Another gave an example of a patient with diabetes and the benefit that patients received from meeting with the pharmacist. Multiple physicians also commented on pharmacists' influence on decreasing medication costs by contacting third parties for prior authorization in cases of potential claim rejections, informing patients about similar \$4 refill options, and simplifying medication regimens when possible.

Discussion

In both phases of this study, we found that primary care physicians had high levels of satisfaction and endorsement of the clinical pharmacists embedded in primary care teams. In the qualitative survey phase of the study, we found that physicians were highly satisfied with clinical pharmacists as a team member, pharmacist management of complex patients, the impact on efficiency of medication comanagement, and communication and medication recommendations. The results from the qualitative phase were in general agreement with those of the surveys. To our knowledge, this is one of the first studies to explore primary care physician satisfaction with clinical pharmacists in interdisciplinary team-based primary care. This study focused on practices of varying sizes in a nonvertically integrated health system. Other studies have focused on implementation barriers and facilitators of collaborative drug therapy management.^{29,30}

This study focused on physician satisfaction and experiences with the clinical pharmacists' role on primary care teams. A multidisciplinary model of care has the potential to improve the medication management for complex patients and increase physicians' ability to focus on patients' other clinical concerns. By decreasing the workload on physicians, the inclusion of clinical pharmacists in team care can improve physician and patient satisfaction and help to alleviate contributors to physician burnout.^{28,31} The results of this study can be used to inform the implementation of team-based care teams that include clinical pharmacists. A similar study has shown that medication counseling, adherence assessment, cost and access, and educational services are the types of clinical services that providers consider to be worthwhile for pharmacists.³²

Two areas in which clinical pharmacists scored the lowest in the survey ([Table 1](#)) were whether clinical pharmacists' medication recommendations helped to control the cardiovascular risk factors of patients with diabetes and whether this clinical pharmacy service decreased the amount of time spent addressing medication-related problems. One explanation of these results is that much time was spent with medication reconciliation and medication counseling for a majority of the patient visits as opposed to solely focusing on medication titration and adjustments. This is similar to studies that have found that barriers for pharmacist integration into the primary care setting include availability of pharmacist time in response to referral volume, uneasiness with pharmacist competency to manage disease states, and poor patient understanding of the

Table 3
Illustrative quotes from semistructured physician interviews (n = 13) by major themes and subthemes

Communication: “How would you describe the communication you have had with the clinical pharmacist? Can you describe the interaction you would have with the pharmacist for a typical patient from start to finish?”
Verbal communication: “They [the pharmacists] have been excellent ... they come and talk to us, but they also send us a great note afterwards which basically reviews everything they've discussed with the patient ... they've just been able to walk down the hall and talk with me, and vice versa.” (P6, male, 11 years in practice, general internal medicine) “I like the way they write their notes and they basically say this is the action item. And so, like, answer yes or no, please respond, and so they do try to highlight where we have to say something back to them, which is really nice.” (P10, female, 9 years in practice, family medicine)
Electronic communication: “They are very available over e-mail ... so we can touch base with them if we absolutely have any questions for them.” (P12, female, 22 years in practice, internal medicine—pediatrics)
Team care and expanded roles of pharmacists: “Has the clinical pharmacist improved team-based care at your clinic? If so, how? What impact, if any, has the clinical pharmacist had on your personal workflow and workload?”
Multidisciplinary primary care team: “I have ... patients who now talk about their pharmacist as another provider that they rely on.” (P1, male, 15 years in practice, internal medicine—pediatrics) “Like for many busy primary care physicians, by having another colleague that's going to drill down and do a deep dive in an area such as medication reconciliation and management ... I feel a sense of relief and confidence ... I find it unleashes a burden from me.” (P3, female, 18 years in practice, general internal medicine)
Same-day covisits with primary care physician and clinical pharmacist: “They saw them before me ... so it does save a lot of time ... I can focus more on medical necessity rather than all the refill issues.” (P2, male, 15 years in practice, internal medicine and pediatrics)
Pre-rounds with physicians “They give a different perspective on how a patient is using or not using a medication, and they add strongly an educational component that's not always easy for a physician.” (P4, female, 12 years in practice, general internal medicine)
Physician education seminars and academic detailing: “We [physicians] should develop educational materials in conjunction with pharmacists that might apply to a larger number of patients ... so that [with] one-on-one counseling we might make stuff available.” (P11, female, 16 years in practice, general internal medicine)
Medication management: “What role has the clinical pharmacist played in the management of complex patients and patients with chronic conditions such as diabetes?”
Medication changes, refill requests: “I think that what the pharmacist brought to us, which was always lacking ... is the intensity and the very clear way in which the pharmacist approaches medication.” (P13, female, 16 years in practice, internal medicine—pediatrics)
Protocols and autonomy: “They've ... changed the regimens on several of my patients that probably made the quality of the care better. And sometimes it's as simple as just changing the time that they take the dose.” (P9, female, 19 years in practice, family medicine)
Patient education: “Sometimes it's been helpful for patients to hear from an expert other than me that they really were supposed to be taking the medications that were prescribed.” (P5, female, 8 years in practice, family medicine) “[Pharmacists] have helped to educate patients and reinforce the adherence to medications ... helped to get authorization for medications that were not originally approved ... followed up with patients to both reinforce adherence and tease out problems or side effects.” (P8, female, 18 years in practice, general internal medicine)
Cost assistance: “They have been great in helping us find accessible and affordable medicines for a lot of our patients.” (P9, female, 19 years in practice, family medicine)

role of pharmacists.³¹ One way to improve the survey item scores for these domains includes having clear protocols and expectations about the types of patients the clinical pharmacist would follow. Another possible way to improve these specific scores could be in reserving appointment slots for patients with uncontrolled cardiovascular risk factors.

A critical question that remains unanswered is determining the optimal pharmacist-to-primary care physician ratio needed for a successful ambulatory clinical pharmacist program. Although the present study was not designed to answer this question, we took the approach of having 1 FTE to cover a different practice each weekday. The goal was to have 1 FTE cover 5 practices that were geographically clustered or located close to each other. If a practice had 2 physicians or fewer, then the pharmacists would provide clinical care only 1 half-day per week.

This study has several limitations. The small survey sample size and cross-sectional design did not allow for inference of causal relationships. We used self-reports, which are subject to recall bias and socially desirable answers. Our results were also subject to selection bias and cannot be generalized to all primary care physicians or extended to services provided by other ambulatory pharmacists not in primary care

practices. We focused on an ambulatory care setting, and the results may not be generalized to the inpatient hospital setting or other health systems. We did not formally validate the survey by means of psychometric analyses. Our qualitative sample consisted of a small convenience sample of physicians who self-selected for the semistructured interviews. Although we used standard qualitative methods in this study, interpretation of the qualitative transcripts are subject to bias from investigators.

In summary, both interviews and surveys indicated that primary care physicians had high levels of satisfaction with the clinical pharmacists embedded in their primary care teams. Our results from both phases of this study suggest that physicians highly value the contributions of clinical pharmacists in providing comprehensive patient-centered care in the primary care setting.

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