Primary Care Teams and Pharmacist Staffing Ratios: Is There a Magic Number?

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Abstract
Primary care physician (PCP) shortages are predicted for 2025, and many workforce models have recommended the expanded integration of nurse practitioners and physician assistants. However, there has been little consideration of incorporating clinical pharmacists on primary care teams to address the growing number of patient visits that involve medication optimization and management. This article summarizes various estimates of pharmacist staffing ratios based on number of PCPs, patient panel size, or annual patient encounters. Finally, some steps are offered to address the practice- and policy-based implications of expanding primary care pharmacist activities at the local and state levels.

Keywords
clinical pharmacy, health care policy, personnel management, pharmacist/physician issues, ambulatory care

Primary Care Shortages
The US Health Resources and Services Administration and the Robert Graham Center have estimated that there will be a shortage of 20,400 to 52,000 primary care physicians (PCPs) by 2025 if we deliver care in the same manner as today.1,2 Many models have been developed to alleviate the shortage by expanding the primary care team with advanced practice nurses and physician assistants. However, physicians would remain the dominant providers of primary care, only decreasing from 77% of the primary care services in 2010 to 72% in 2020.1 With the growing elderly population and use of multiple medications for chronic conditions, there is an opportunity for clinical pharmacists to enhance the primary care team workforce.

In the outpatient setting, 23% of patients are using 3 or more prescription drugs, and 12% are using 5 or more prescription medications.3 However, in elderly patients, 67% of patients use 3 or more prescription drugs, and 41% use 5 or more prescription medications. PCPs are estimated to spend approximately 37% of their time on activities related to chronic care management, which often includes managing complex medication regimens.4 Typically, PCPs do not have sufficient time to update, verify, or discuss extensive medication lists with a patient. During an office visit, physicians spend an average of 49 seconds (less than 1 minute) talking about a new prescription with the patient.5

Primary Care Pharmacist Staffing Ratios
Primary care leaders have recommended that primary care teams incorporate health care practitioners who have complementary skills to those of the physician, including pharmacists, to achieve quality improvement goals and improve physician productivity.4 Although nurses or medical assistants can assist PCPs by contacting pharmacies on the clinicians’ behalf, they do not build capacity because clinician time is still needed for monitoring labs, reevaluating dosage changes, and initiating, modifying, or discontinuing medication therapy. Some practices engage pharmacists to provide such medication management and optimization services by instituting collaborative practice agreements (CPAs)6—thereby adding substantial capacity without new demands on the PCP’s time.

So what is the ideal pharmacist staffing ratio on a primary care practice team? Several organizations and researchers have made recommendations based on consensus panels as well as studies. This ratio of pharmacists has been estimated from many vantage points: the number of PCPs, patient panel size, annual patient encounters, and risk adjustments. Risk adjustment is a process used to protect practices from actuarial risk and reduce any incentive to avoid complex patients. Payers usually provide the practice or provider organization with risk adjustment reports based on age, gender, diagnoses, comorbidities, and utilization claims data.

It should be noted that there is no magic number for a pharmacist staffing ratio! Table 1 summarizes recommendations

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for pharmacist staffing ratios on primary care teams based on several variables.

The Comprehensive Primary Care Initiative surveyed its 500 practices and noted that pharmacists tended to be involved in larger practices—58% of the practices with 7 or more FTE physicians reported that they integrated practice-based pharmacists. However, this survey did not make any assessment for pharmacist staffing ratios.

In 2010, the Patient-Centered Primary Care Coalition (PCPCC) empaneled a task force that recommended the allocation of 0.25 FTE pharmacists per risk-adjusted panel size of 1250 to 1500 adult patients per full-time PCP. Although specific pharmacist services and integration methods are not listed, PCPCC has developed guidelines for team-based integration of pharmacists for comprehensive medication management (CMM).

In the Veteran’s Administration Patient Aligned Care Teams, the staffing model is based on a conservative estimate of 1 FTE clinical pharmacist relieving the PCP of 1600 encounters per year (based on 30-minute encounters). Pharmacists provide direct patient care services, with independent prescriptive authority that can achieve beneficial clinical, financial, and provider experience outcomes. This has resulted in approximately 28% of primary care appointments being shifted from physicians to clinical pharmacists for medication management.

LeRoy studied the optimal workforce configuration for 4 active patient populations: a typical primary care panel, a high percentage of geriatric patients, a high percentage of patients with sociobehavioral needs, and a rural population. The estimated staffing ratio for pharmacists was 1.0 FTE for the typical panel. For high geriatric and social need panel models, the ideal staffing ratio was estimated as 1 FTE pharmacist and 1 FTE pharmacist assistant. The pharmacist assistant (role can be filled by an existing practice staff member or pharmacy technician) could schedule pharmacist appointments, obtain medication history or lab value reports, attend to refill requests or prior authorization requests, communicate medication changes or recommendations to the patient’s other health care providers or pharmacies, and make any follow-up calls for care continuity between office visits. In a rural practice, the estimate was for 0.5 FTE pharmacists.

### Table 1. Primary Care Pharmacist Staffing Ratio Recommendations.

<table>
<thead>
<tr>
<th>Source (Reference)</th>
<th>Pharmacist Ratio/1 FTE Physician</th>
<th>Pharmacist Integration and Services</th>
<th>Physician Patient Panel Size</th>
<th>Risk Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCPCC</td>
<td>0.25 FTE</td>
<td>Not listed, yet PCPCC has developed guidelines for team-based integration of pharmacists for CMM</td>
<td>1250-1500 Adults (total panel)</td>
<td>Yes</td>
</tr>
<tr>
<td>Patel et al¹⁰</td>
<td>0.50 FTE</td>
<td>Proposed model based on pharmacists embedded in the primary care practice to focus on medication management and chronic disease care</td>
<td>2500 Patients (total panel)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>0.20 FTE</td>
<td></td>
<td>2150 Patients (risk-adjusted panel)</td>
<td>Yes</td>
</tr>
<tr>
<td>Morreale¹¹</td>
<td>1.0 FTE</td>
<td>Pharmacists working on primary care teams for chronic disease medication management; have independent prescriptive authority</td>
<td>1600 Patient encounters/year</td>
<td>No</td>
</tr>
<tr>
<td>LeRoy¹³</td>
<td>1.0 FTE</td>
<td>Proposed model based on pharmacists embedded in the primary care practice to focus on medication management and chronic disease care</td>
<td>1000-1300 Adults (active panel)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>1.0 FTE</td>
<td></td>
<td>700-900 Geriatric patients (active panel)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>1.0 FTE</td>
<td></td>
<td>900-1100 Sociobehavioral need patients (active panel)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>0.50 FTE</td>
<td></td>
<td>625 Rural patients (active panel)</td>
<td>No</td>
</tr>
</tbody>
</table>

Abbreviation: PCPCC, Patient-Centered Primary Care Coalition.

*Comprehensive medication management (CMM) is the standard of care that ensures that all the patient’s medications (ie, prescription, nonprescription, herbal products, vitamins, or nutritional supplements) are individually assessed to determine that each medication is appropriate, effective, and safe and is being taken as intended. CMM results in an individualized care plan (ie, includes goals of therapy, with appropriate follow-up to determine actual patient outcomes) that is shared with the patient/caregivers and patient’s providers. CMM is usually provided for several chronic conditions (eg, hypertension, hyperlipidemia, cardiovascular disease, coagulation disorders, diabetes, depression, chronic obstructive pulmonary disease and asthma, pain, substance abuse, smoking cessation).
When estimating a feasible pharmacist staffing ratio, Table 1 can provide guidance based on the size and type of patient panel.

**Pharmacist Staffing Considerations**

As a starting point to determine the best pharmacist staffing ratio in a primary care practice, there are 3 main factors to consider, as discussed below.

**Patients With High Modifiable Medication Risks**

Patients who have high, modifiable risk for medication-related problems can be preidentified through electronic medical records (EMRs) or chronic disease registries, or referred by PCPs based on selection criteria such as recent or frequent care transitions, failure to achieve therapeutic goals, use of high-risk medications, potential for adverse drug events, complex medication regimens, and poor adherence trends. Some additional factors to consider are the presence of renal dysfunction that requires dosing modifications, complex coordination needs resulting from multiple prescribers, or prior adverse drug reactions.

Reports that identify high-risk patients from payers or EMR data analytics should be triangulated with PCPs to identify their patients who are best candidates for pharmacist services based on the criteria listed above.

**Pharmacist Services Provided**

In primary care practices, pharmacist-provided comprehensive medication management services can be delivered through direct patient-pharmacist encounters, virtual team consultations, or population health activities. Many pharmacists are involved in PCP and office staff education, quality improvement projects, or committee activities.

Direct patient care is the provision of medication optimization or management services when the patient is in the office or available in real time via a teleconference connection. The pharmacist works with the patient to complete an updated and accurate medication list, reconciles medication discrepancies, and identifies and resolves any potential or existing drug therapy problems.

In addition to scheduled patient-pharmacist encounters, a coincident referral—sometimes called a warm handoff—may occur when a PCP asks the pharmacist to meet with the patient during or at the conclusion of a primary care appointment. The pharmacist makes medication recommendations to the referring provider that can be implemented at the same visit.

Virtual team consultations by qualified pharmacists who are not colocated have become feasible with remote access to EMRs. PCPs may not be able to afford hiring a clinical pharmacist, or the required pharmacist expertise may not be available nearby. Yet the PCP may need to engage a medication therapy specialist just as they would consult a cardiologist or endocrinologist. The virtual team pharmacist would need to be credentialed as any other clinician and would receive a consult request from the PCP. Through remote access to the EMR and lab results, the pharmacist would provide medication optimization recommendations, usually within 48 hours, that can be implemented by the PCP. At times, the pharmacist may need to talk by phone with the patient to gather updated medication or adherence information. With the move toward value-based practice models, a pharmacist virtual team consultation may provide a more timely and lower-cost care option than sending a patient to a medical subspecialist.

Population health activities are becoming more common for pharmacists employed by accountable care organizations or integrated health networks that are in value-based care contractual arrangements with payers. Pharmacists are focused on providing medication optimization and management services targeted for high-risk patients that will improve patient health outcomes, meet quality improvement and performance measures for specific populations (eg, patients with diabetes, Medicare beneficiaries, self-insured employees), and contain costs. Population health pharmacists may work on care management teams with nurses and social workers as well as be involved in organization-level educational programs, quality improvement services, and outcomes research.

Provider education and committee activities are additional responsibilities that pharmacists perform in primary care settings. Many pharmacists conduct regular educational seminars or write newsletter articles for providers and other practice staff members on new drug products, therapeutic controversies, or patient case studies. In addition, pharmacists serve on committees that address formulary issues, quality improvement initiatives, medication safety policies, antibiotic stewardship, or patient education/engagement.

**Use of Collaborative Practice Agreements**

CPAs create a formal practice relationship between pharmacists and prescribers (usually a physician) that include specific delegated patient care services to the pharmacist. The CPA may also include pharmacist education and training qualifications, documentation and notification requirements, and pharmacist-prescriber communication procedures.6,14

The CPA allows qualified pharmacists to implement delegated services without requiring additional prescriber time for review or approval of every specified patient care service. The use of CPAs can improve practice efficiencies through team-based care, enhance care coordination, and contribute to provider and patient satisfaction.
Although state laws vary for CPAs, some common patient care responsibilities delegated to pharmacists include performing patient assessments, counseling, and referrals; ordering laboratory tests; administering drugs; authorizing refills for chronic conditions; and selecting, initiating, monitoring, continuing, and adjusting drug regimens.6

**Staff Estimation Scenario**

A primary care practice has 4 providers, each with a panel of 2500 patients. They are interested in having a pharmacist provide comprehensive medication management services with a CPA for approximately 800 patients (8% of the total practice patient panel) that have been identified with high-risk, modifiable medication issues.

Initial visits: 800 patients × 1 h/visit = 800 hours = 100 days
Follow-up visits: 1600 follow-up visits × 30 min/visit = 800 hours = 100 days
Committees/educational/administrative time: 4 h/wk × 49 weeks = 196 hours = 24.5 days
Vacation: 168 hours = 21 days
Total time = 245.5 days

On an annual basis, a full-time employee who works an average of 40 hours per week and has 3 weeks of vacation/paid time off will be paid for 1960 hours (245 days). Based on the scenario described, a realistic estimation for pharmacist staffing to provide pharmacist services is 1 full time (1.0 FTE) pharmacist for the practice or 0.25 FTEs per provider. This scenario is consistent with the staffing estimates in Table 1.

**Action Steps**

There are both practice-based and policy implications of integrating clinical pharmacists as primary care team members. Because all health care is local, some action steps that can be addressed in communities or states to initiate or expand primary care pharmacist activities are given below.

**Practice-Level Activities**

1. Explore practice partnerships between pharmacy school faculty or pharmacists with ambulatory care clinical practice experience and accountable care organizations, community health teams, large PCP groups, or independent practice associations.
2. Discuss with potential partners the integration of clinical pharmacists to achieve medication-related quality performance measures and payment incentives that are components of the primary care practices’ value-based contracts.
3. Estimate pharmacist FTEs based on practice panel size, number of patients with high-modifiable medication risks, range of pharmacist services offered, use of CPAs, and feasible payment sources for pharmacist clinical services.

**Policy-Level Activities**

1. Meet state-level leaders for primary care reform initiatives—governing’s office, state Medicaid, public and behavioral health agencies, state innovation models, health information exchanges—to assess opportunities for pharmacist involvement in pilot projects, policy committees, learning action networks, and educational programs.
2. Join a working group (ie, state agency committee, multipayer taskforces, legislative subcommittee) to learn about current primary care needs and medication-related opportunities.
3. Volunteer to lead a primary care initiative to position medication-related work (eg, medication optimization standards, medication reconciliation use case for health information exchange, or medication-related core quality measures) as a high priority.
4. Testify at public hearings to introduce primary care medication-related topics with high policy relevance that can educate the public and other health care professionals about the synergistic role of clinical pharmacists as members of primary care teams.
5. Network with legislative and consumer advocacy leaders to raise the conversation about important medication-related care gaps, patient safety concerns, and cost implications that can be addressed by clinical pharmacists.
6. Offer to serve as an independent evaluator for any medication-related aspects of pilot projects, public databases, and planned health services research programs.

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