2 Periodic review of chronic treatment

Jordan Mendkoff
Christene Jolowsky

Jordan Mendkoff
Student Pharmacist, Class of 2019.
University of Minnesota College of Pharmacy

Christene Jolowsky
System Pharmacy Director. Hennepin Healthcare.
Past-President, ASHP

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1. Background

The Centers for Disease Control and Prevention (CDC) report noted that 3.8 billion prescriptions are written annually in the US. Roughly one out of every five new prescriptions is never filled. Approximately 50% of the prescriptions filled are taken incorrectly when considering the dosage, frequency, duration, and timing of each dose.[1] While non-adherence rates in the United States have remained stable for the most part, direct health care costs associated with non-adherence have grown to approximately $100–$300 billion of U.S. health care dollars spent annually per the CDC.

Healthcare costs caused by improper and unnecessary use of medicines exceed $200 billion per year in the United States (US) and some of the key contributors are medication non-adherence, medication errors, and delayed evidenced-based treatment practice.[2] Pharmacists are well equipped to serve an integral role in the care of patients with chronic conditions such as these that require regular prescription medication use.

2. Role of the pharmacist

The CDC report also referenced a recent study where patients were assigned to receive team-based care. Services included pharmacist-led medication reconciliation and patient education, collaborative care between pharmacist and primary care provider (or a cardiologist) and two types of voice messaging: educational calls and medication refill reminder calls. The patients receiving this team-based care were found to be significantly more adherent to their medication regimen 12 months after hospital discharge (89%) compared with patients not receiving team-based care (74%). The team-based care resulted in patients feeling more comfortable asking questions of their care team. They raised concerns about their current medication regimen and worked together with their care team to develop their treatment plan.[1]

To address individual patient needs, it is the role of the pharmacist to perform an assessment of a patient's medication-related needs, identify any problems relating to a patient's medications, develop a care plan with individualized goals of therapy and interventions, and follow up with the patient as appropriate to make sure their goals of therapy are met. This CDC report outlines several of the issues that patients have with medication use, starting with filling the prescription order through to the patient's adherence to the medication regimen. These issues, combined with the question of the effectiveness of the chosen therapy, support the pharmacists' role in periodic review of medication therapies with the patient. The presence of medication issues brings opportunities for pharmacists, which begin in the hospital and carry into the ambulatory care setting.

Pharmacists have a role in working with other health care providers and with patients and their families and caregivers, to ensure that the patient is making progress toward the intended outcomes, and that any problems related to medication use are identified early in the process. This often starts when the patient is in the hospital, with new medications started or changes in therapy

made, based on the patient's status. Often the pharmacist is involved with the education of the patient prior to discharge.

However, this is not always the ideal time for a patient to receive, and remember, education around medication use. A study conducted in the late 1990s showed a deficit in patients' understanding of their medication care plan, with a large gap in their understanding of the expectations of medication use, including side effects and what to avoid.[3] This study was completed over two decades ago, and health care and therapies are more complex now. This further supports the follow-up needed with patients after discharge, to verify understanding of medications and to provide ongoing review of the medication-related therapies.

As noted, there are gaps in the care received. In an outpatient setting, these often go unnoticed and unreported. The pharmacist is the ideal health care provider to work with patients on the medication use component of their care.

The table below (Table 1) shows key quality of care domains to be addressed by the pharmacist, and the impact that this has on the overall care of the patient.[4] The pharmacist's role is to review the patient's prescribed medications and the overall management of medications, with a focus on the six areas noted in the table. The pharmacist verifies that the patient is taking the medications as prescribed and that the results are as intended.

The outcome of each interaction with a patient may vary, based on both the patient's adherence to regimen and clinical outcomes. The pharmacist may recommend adjustments or changes in order to avoid medication errors, to improve the patient's adherence to prescribed regimens (based on understanding, costs, and timeliness) and to ensure that other health issues are identified and appropriately addressed.[4,5]

In order to be effective in providing care to patients, it is imperative that pharmacists practicing in direct patient care develop a rapport with the patients under their care, as well as a good working relationship with other caregivers.[3] Having a strong relationship between the patient and pharmacist allows for the patient to trust the recommendations made by their pharmacist and increases the likelihood that the patient will follow these recommendations. In addition, the patient will feel more comfortable discussing any concerns with the pharmacist, which will also help to identify medication related problems early.

Domain of Quality	Areas of Ambulatory Care Pharmacist Contributions
Safety	Adverse drug event rates, transitions of care
Effectiveness	Medication adherence, rehospitalization rates
Patient-centeredness	Patient knowledge of medication self-management, useful medication list
Timeliness	Immunizations, appropriate monitoring
Efficiency	Rehospitalization rates, emergency room and hospital visits
Equity	Disparities in medication access

Table 1.

How Ambulatory Care Pharmacists Can Improve the Quality of Healthcare.[4]

3. Areas of focus

Per the ASHP Guidelines for Ambulatory Care Pharmacy Practice, pharmacists provide direct patient care or disease state management services, which help to optimize patient outcomes, prevent adverse drug events, increase medication adherence, and promote patients' understanding of their medications. Specifically, pharmacists can perform services which include, but are not limited to, the following:[6]

- Comprehensive medication reviews.
- Performing patient health status assessments.
- Formulating medication treatment plans.
- Select, initiate, modify, discontinue, or administer medication therapy (under Collaborative Drug Therapy Management agreements).
- Educate patients, provide resources and information on using medications safely and effectively.

To ensure proper care transitions, pharmacists are responsible for documenting the care provided to their patients as well as communicating with others on the patient's care team, to ensure optimal patient care.[6]

4. Need for Periodic Medication Reviews

As established above, the ongoing involvement of the pharmacist with the patient will help ensure that the patient's medication regimen remains appropriate, based on the patient's response, actions and clinical needs. The initial meeting between the pharmacist and the patient serves to establish the intended goal for treatment, determine the patient's understanding of the therapy and identify any real or potential problems. The first encounter may be in the hospital, when the patient is ready for discharge. An initial follow-up visit within a short time after leaving the hospital will help to reinforce teachings initiated in the hospital, and to respond to any questions a patient may have. Routine follow-up medication reviews serve as touch points on progress and issues.

A pharmacist will have an initial meeting with the patient, to review new and current medications, and provide recommendations and interventions regarding their medication therapy. At the initial meeting, it is important to schedule follow-up evaluations. This is especially true with patients with chronic conditions. These follow-up visits can take place either via telephone or in person.

The follow-up evaluation allows the pharmacist to evaluate the results of therapy, assess the status of any concerns from the initial (or previous) meetings, as well as focused time with the patient to identify any new concerns. This is also a time to speak with the patient about the need for ongoing care, to provide continued assessment and monitoring. Based on the patient's clinical outcomes vs. the expected outcomes, as determined by the pharmacist and the health care team, the patient is re-evaluated to determine progress in meeting their medication therapy goals, and whether any new problems have arisen relating to the patient's medication therapy.[5]

Any follow-up evaluation needs to occur with a reasonable time after any intervention occurred (new medications, changes to the regimen, etc.) The pharmacist will want to set a safe window of time after the change,

to assure that the patient understands the therapy, is taking their medications safely and appropriately and has their questions answered. They also need to allow adequate time for the drugs to have an impact on the patient, so clinical outcomes can be assessed.

The follow-up time frame and the frequency of follow-up sessions are determined based on the patient's individual therapy goals, and the current state of their conditions. This needs to be agreed on between the patient and their pharmacist.[5]

5. Plan to support a pharmacist practice model for review of chronic care

To extend pharmacist services from hospital, there needs to be both a business case for the clinical services, along with a business plan for implementation.

The clinical case involves advocacy for the role. The pharmacy leader needs to advocate for the expanded role of the pharmacists in the care of the patient. This involves educating decision makers and stakeholders about the value of the pharmacist on the clinical, quality and safety outcomes in the care of the patient.

In a hospital, the pharmacy is often seen as a support department, with the primary role of obtaining, preparing and dispensing medications to the patients. It is also considered a cost department, due to the expense of medications. Often hospital administrators are not well versed on the clinical impact that pharmacists have on the care of the patient, which in turn translates into better outcomes and decreased overall costs for both patients and the health system. It is the responsibility of pharmacy leaders to educate others on the pharmacists' impact, and to advocate for expanded roles. It is important that this advocacy be done not only within the care institution, but also with governmental and regulatory authorities, to support expanded pharmacy services.[4,7]

As part of this advocacy, the pharmacy leader should gain stakeholder support from other stakeholders to provide this service. Stakeholders include people who will support the service, through referrals and working with pharmacy to identify patients to receive this care. This includes hospital and clinic-based physicians, nurses and other disciplines, who may be involved in providing care to the same populations of patients. This may also include administrative support, if the pharmacist will depend on others for patient information or documenting care, for example. Support from these stakeholders will help in the approval and maintenance of pharmacy services.[10]

Appendix 1 provides a list of references and a summary of the findings demonstrating quality and financial impact of pharmacists on

the overall care of various patient populations. These examples, in addition to relating services to a specific population, can help decision makers to understand the impact of pharmacists and to visualize how their services are applicable to their patients. They also support the justification of the expanded roles for medication review. The role of the pharmacists starts with the patient's inpatient hospital stay and should continue periodically outside of the hospital, to assure an optimal outcome for medication use.

The other important step is having an overall business plan for the pharmacy service. The plan delineates the scope of the service, the financial and clinical impact, and an overall plan for services. It lays out the need for the pharmacist-provided service in the patient population served, assesses resource needs, and provides a roadmap to the implementation, assessment and expansion of pharmacy services. Key components of the business plan are:[6,7]

1. Having the vision and leadership for the service.
2. Identifying stakeholders, for support of the project (administrative support) and for the actual delivery of services (physicians and other care providers).
3. Determine human resources required, both for initial services and expansion. Gain commitment for staffing.
    a. Determine roles for pharmacists and other support personnel.
    b. Establish desired competencies for staff.
4. Identify service model, to include structure, policies and procedures.
5. Determine targeted patient population.
6. Create a business model, to determine how to financially support and sustain the service.
7. Identify infrastructure needed, including information, documentation and billing systems.
8. Identify success measures and metrics for the service.

Creating and selling a vision aligns with advocacy for pharmacy services. The vision starts with establishing the need for the pharmacy service and identifying the patient population for the service. Who are the patients who would most benefit from pharmacist care? How is this population affiliated with the supporting organization? This would help to establish the scope of the project, determine the best use of limited resources and demonstrate the impact of pharmacists' services in an ambulatory care setting.[8]

This plan includes identifying resources needed to implement, hire, train and expand the pharmacist services. The staffing needed is dependent on the scope of the service, the size of the patient population, how these interface with the work of the pharmacists in the hospital. In addition to pharmacists, a business model includes other support staff, to help with scheduling, documenting and, if appropriate, billing for services. These people may exist in a clinic setting, and the pharmacy could work with established systems to start their practice outside of the hospital.

The model would address service logistics, such as hours of operation, what services will be provided, and policies to address both

patient care practice and service. What skills and training should the pharmacist possess? What is the communication process between the pharmacist, the patient and the physician or other care providers? Legally, what can a pharmacist do, and is there a collaborative practice agreement necessary to support pharmacy practice? Where is information on recommendations documented, and how are they activated?[6,7]

6. Patient identification

There are many approaches to identify a targeted patient population. In the broad sense, the pharmacist's role is to assure that any patient who is prescribed medications is taking them appropriately and safely. Potentially any patient on medications is in a clinical situation that would benefit from a pharmacist's intervention. The business plan should identify patient populations that would benefit from pharmacy services and would be financially beneficial to the organization. This may include several factors not necessarily related to outcomes, such as location of patients or the service. However, it is better to identify patient populations who would benefit more from this service. High risk patients include:[8]

- Patients with multiple conditions being treated with medications.
- Patients taking multiple medications (six or more).
- Patients on complex treatment regimens.
- Patients with a known or suspected history of medication use issues, including adherence, access, understanding or ability to pay.

In targeting a patient population, another approach would be a focus on outcomes. From a cost standpoint the focus of ongoing interventions would show an impact on:

- Decreasing readmissions.
- Decreasing visits to ER.
- Improvement of outcomes.
- Problematic areas seen with the hospitalized patient populations and the service community.

The business plan centers on the pharmacy leader identifying patient populations that would benefit most from the pharmacy services. What are the greatest opportunities to provide care? This should be considered with regard to the clinical needs of the patient population, the location of the patient population/ access to the pharmacist, and what other systems are available through existing institutions and in the community, as a partnership for the pharmacist. This supports the success of the service, both in terms of patient outcomes, financial success and the opportunity to grow the service into

other areas. The plan would include how the service is to be delivered, the infrastructure needed for documentation, and, if required, billing system. Lastly, in presenting the business plan, the pharmacy leader needs to have a mechanism to demonstrate success.[6]

7. Summary

The role and the impact of the pharmacist is well established in a hospital setting. There are structures and processes in place for both the delivery and administration of medications and in the pharmacist's ability to review charts, speak with other care providers and make recommendations on medication therapy needs for patients.

As more patients receive continued medical treatment outside of the hospital setting, the need for chronic care increases. Pharmacists have a role in the quality, safety and clinical outcomes of medication-related care. A formal structure for pharmacist-patient interactions is not always available outside of a hospital. Patients get medications and instructions upon discharge, and go into their community to have their prescriptions filled. There are many potential medication-related problems that may occur, ranging from ensuring that the medication prescribed was the optimal one for treatment, to medication-related problems to patient adherence to the prescribed regimen.

The hospital pharmacist is an ideal person to expand their services into the ambulatory care setting. They have participated in the care of the patient, and understand the goals of the therapy. This can be reinforced with scheduled meetings with the patient, outside the hospital setting. The purpose of these interactions is to assure that the patient understands and follows the prescribed regimen, and to evaluate whether there are any medication related problems. This evaluation also includes verifying if the prescription has been filled, and if there are any concerns regarding therapy.

The system for pharmacist care outside the hospital is not fully established in many communities. The role and the benefits are well documented, as is the need for periodic review of the patient and their therapy. The impact of this service is seen in decrease in readmissions to the hospital, increased success with intended outcomes and improved quality of care.

Pharmacy leaders need to seek support for these expanded roles, from the hospital and health system administration, and from the regulatory authorities, who often oversee both the scope of practice for care providers and the financial support of such services. There are guidelines and standards in place to support pharmacy leaders in developing formal plans to advance pharmacists' roles and to improve the scope of patient care.

8. Appendix

Reference articles showing impact of pharmacists on patient health outcomes.

Article	Summary
Bunting BA, Smith BH, Sutherland SE[9]	Long-term MTM helped patients with hypertension and dyslipidemia achieve sustained clinical improvements with blood pressure, cholesterol levels, and reduced risk of CV events
Cranor CW, Christensen DB[10]	Patients receiving pharmaceutical care services for diabetes in community pharmacies resulted in improved a1c values
Kolhatkar A, Cheng L, Chan FKI, Harrison M, Law MR[11]	Medication reviews by community pharmacists did not have a significant impact on patient use of prescription medications
Tsuyuki RT, Al Hamarneh YN, Jones CA, Hemmelgarn BR[12]	Medication Therapy Management review from a pharmacist and CVD risk assessment and education improved patient's risk for CVD events
Ifeanyi Chiazor E, Evans M, van Woerden H, Oparah AC[13]	Evidence suggests a potential for substantial benefit in diabetes and hypertension from community pharmacists' interventions
Cranor CW, Bunting BA, Christensen DB[14]	Patients receiving ongoing pharmaceutical care services in community pharmacies maintained a1c improvement over time
Hatah E, Braund R, Tordoff J, Duffull SB[15]	Majority of studies showed fee-for-service medication reviews by a pharmacist improved medication adherence and showed positive benefits on patient outcomes
Viswanathan M, Kahwati LC, Golin CE, *et al*[16]	MTM interventions may reduce frequency of medication-related problems but evidence is insufficient to determine if it improves health outcomes
Chisholm-Burns MA, Graff Zivin JS, Lee JK, *et al*[17]	Systematic review of literature assessing the economic impact of the pharmacists providing direct patient care. In spite of study limitations identified, the majority of studies showed positive economic impact of pharmacist interventions.

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