

CHAPTER 3

ROLES OF AMBULATORY CARE PHARMACISTS

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Ambulatory care pharmacists may practice in a variety of settings, but similar skill sets are utilized throughout different practices. This section will review general pharmacy services which will be helpful in learning how they are applied in specific ambulatory care settings.

MEDICATION HISTORY AND RECONCILIATION

Before managing a new patient, pharmacists should obtain a comprehensive list of medications the patient is currently taking, which is referred to as the patient's medication history.¹ A medication history should include both prescription and over-the-counter medications, such as herbal products and nutritional supplements. Vaccines and injectable drugs may also be added to the list. It is important to note the route, frequency, and time that the patient is taking the medications. Additionally, any drug allergies and adverse reactions to drugs should be recorded.^{1,2}

A medication history can be obtained in several ways. You may be able to consult a patient on what medications they are taking, particularly if they carry a list of their medications with them and are able to say what they are or are not taking. However, speaking with the patient is not always possible or the patient may be confused about their medications.² In these instances, there are several other options. The patient's regular community pharmacy may have a list of prescriptions filled recently by the patient, which may indicate the patient is currently taking those medications. Prescribers may also be contacted to determine what the patient has been prescribed and should be currently taking. If the patient is coming from a hospital, it may be possible to obtain from the hospital the patient's prescriptions at discharge.^{1,2}

After this information has been acquired and documented, the process of medication reconciliation may begin. The Joint Commission defines medication reconciliation as:

“the process of comparing a patient's medication orders to all of the medications that the patient has been taking. This reconciliation is done to avoid medication errors such as omissions, duplications, dosing errors, or drug interactions. It should be done

at every transition of care in which new medications are ordered or existing orders are rewritten. Transitions in care include changes in setting, service, practitioner, or level of care.”²

In medication reconciliation, a pharmacist looks for discrepancies in the patient’s drug list. During this exercise, the pharmacist may find several possible errors: inappropriate drug therapy, duplicate therapy, drug-drug interactions, drug-disease state interactions, or incorrect doses.^{1,2}

Medication reconciliation is an important process in patient care. **Table 3-1** includes medication history discrepancies that may lead to issues in patient care.

Discrepancy	Result
A medication is listed in the patient’s history that the patient is no longer taking	This medication may continue to be dispensed to the patient <ul style="list-style-type: none"> • Could lead to duplicate therapy or drug interactions
The incorrect strength of a drug is listed	The patient may be getting too high or too low of a dose <ul style="list-style-type: none"> • Could lead to adverse side effects (dose too high) or inadequate therapy (dose too low)
The patient’s medication list may be incomplete and does not include all the medications the patient is taking	The pharmacist may not be able to identify all possible drug interactions <ul style="list-style-type: none"> • Meds not listed may interact with other meds Medications may be added that interact with medications not listed <ul style="list-style-type: none"> • Could cause drug adverse effects or decrease the effectiveness of drug therapy
How the patient is taking the medication may be incorrectly listed	If the patient is taking the medication more or less than listed, the patient may be getting too much or too little of the drug <ul style="list-style-type: none"> • Could lead to adverse side effects or

Discrepancy	Result
	<p data-bbox="781 285 1052 321">inadequate therapy</p> <p data-bbox="686 354 1406 516">If the patient is taking the medication at a different time of day than listed, the pharmacist may be unable to identify inadequate therapy or side effects related to the time of day</p> <ul data-bbox="735 527 1406 646" style="list-style-type: none"> <li data-bbox="735 527 1406 646">• Could decrease effectiveness of drug therapy or side effects (e.g. if a sedating drug were given in the morning) <p data-bbox="686 678 1354 798">The pharmacist may not be able to identify if the medication interacts with other medications the patient is taking</p> <ul data-bbox="735 808 1406 884" style="list-style-type: none"> <li data-bbox="735 808 1406 844">• Certain drugs need to be separated from one <li data-bbox="735 846 1406 884">• another and taken at different times
<p data-bbox="204 919 630 995">The incorrect dosage form of a medication is listed</p>	<p data-bbox="686 919 1406 955">The patient may be getting inadequate drug therapy</p> <ul data-bbox="735 963 1406 1125" style="list-style-type: none"> <li data-bbox="735 963 1406 1125">• Example: If an immediate release formulation is given instead of an extended release formulation, patient may not be getting enough drug

Table 3-1. Medication history discrepancies

By obtaining a thorough medication history and carefully checking through it, pharmacists can help to reconcile these and other errors that may have gone unnoticed.

MEDICATION THERAPY MANAGEMENT

Medication therapy management (MTM) involves a scope of activities with the goal of optimizing health outcomes for patients and helping patients manage their medications. Pharmacists and other healthcare professionals providing patient care are included in this process (Figure 3-1). Many patients may be eligible for MTM; however, patients who benefit most from MTM services include elderly patients, patients taking multiple medications, and patients with multiple or complex disease states.⁴ These patients may have more difficulty managing their medications and pharmacists can help with this task.

In ambulatory care, MTM services are generally provided via one-on-one patient appointments.⁴ Patients may be referred to an ambulatory care pharmacist by their health plan, physician, or other healthcare providers. Medication therapy management services are generally done in person but may also be provided over the phone. Although both in-person and phone appointments are possible, face-to-face interactions allow the pharmacist to visually observe the patient for potential health problems. Regardless of the type of visit, an MTM appointment typically includes a medication therapy review, developing an action plan, and referral to other health care providers.^{3,4}

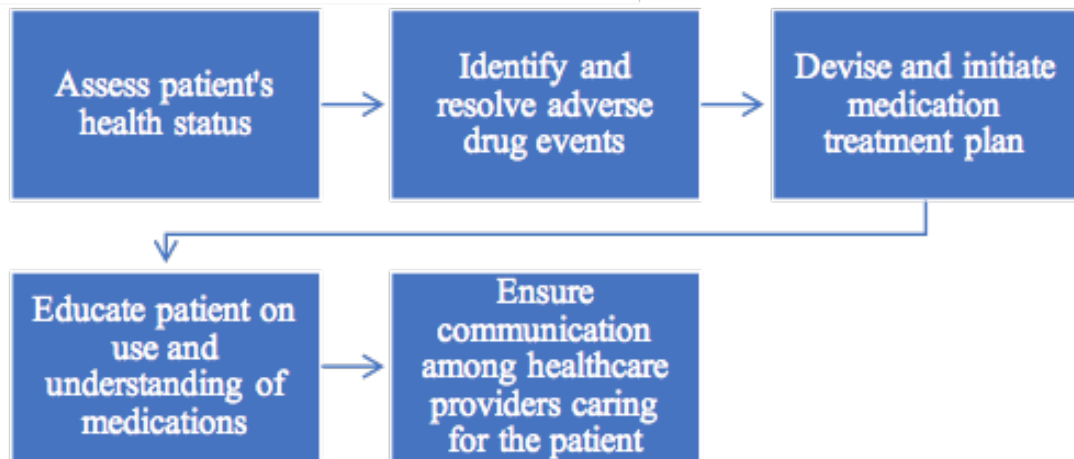


Figure 3-1. The MTM process³

Medication Therapy Review

Pharmacists review patient information and drug therapies to identify any medication-related problems.⁴ After obtaining an accurate medication history, the pharmacist can identify if problems or side effects experienced by the patient are related to their drug therapy.⁵ During this time, the pharmacist may also address patient adherence and identify barriers that may be preventing patients from taking medications as they should. Any issues the patient is experiencing could stem from incorrect use of the medications rather than the drug therapy itself; therefore, it is the pharmacist's responsibility to identify the source of medication-related problems.

Developing a Plan

After the pharmacist has identified drug-related problems, a plan for resolving the issues is then developed.⁴ During this process, the pharmacist works with the patient and the physician/healthcare provider to determine possible options for fixing the drug-related problems. These options may include discontinuing therapy that is ineffective for the patient or is causing side effects the patient cannot tolerate, adding drugs onto inadequate drug therapy, or adjusting doses. Medications that are discontinued may also be replaced with medications that can provide the same type of therapy. In other cases, drugs may be added onto current drug therapy if the patient has a health concern not being managed. The drug dose may also be adjusted according to the needs of the patient. Any type of drug therapy changes should be discussed and explained to the patient.⁴

Referral

Medication therapy management services include referral to other healthcare providers as deemed appropriate.⁴ These providers should be consulted if a patient's care goes beyond the extent of the pharmacist's scope of practice. In these instances, the patient should be referred to the appropriate provider.⁴

Situations that may require referral to another health care provider
The patient is experiencing a medical problem outside of the pharmacist's scope of practice
The patient is experiencing any type of medical emergency
The patient needs medication adjustments unable to be made by the pharmacist

Table 3-2. Situations requiring referral.

DRUG INFORMATION SERVICES

Another service commonly provided by ambulatory care pharmacists is providing drug information.⁶ As experts in medication knowledge, pharmacists are able to provide accurate drug information to both patients and healthcare providers. Pharmacists utilize primary

literature and medication databases to provide accurate drug information. Educating patients on their disease states and medications enables patients to better manage their health, and providing drug information to healthcare providers can help them to care for patients more effectively.⁶

DISEASE STATE MANAGEMENT

Many medications are used to treat chronic disease states. Pharmacist responsibilities include managing patient medications which translates into managing chronic disease. Disease state management may be accomplished through patient visits with a pharmacist and can occur in a variety of settings including, but not limited to: physician offices, pharmacist-managed disease state clinics, or community pharmacies. In pharmacist-managed clinics, the pharmacist is independently responsible for providing primary care via protocol with a physician, which includes ordering lab tests, modifying drug therapy, and following up with patients.¹⁴ Helping patients with their medication regimens can help to optimize disease state outcomes, such as:

- In one smoking cessation group clinic, pharmacists were able to assist patients in quitting smoking, with 47.6% of patients smoke-free at 3 months and 52.4% of patients smoke-free at 6 months.¹⁹
- A pharmacist-managed spirometry clinic resulted in pulmonary drug regimen changes in 80% of patients, with referral to physicians or further diagnostic testing in 27.4% of patients.¹⁸
- A study on pharmacist-managed hypertension clinics resulted in 81% of patients reaching their blood pressure goals versus only 12% of patients who did not meet with a pharmacist.²¹

Pharmacy services in ambulatory clinics may focus on a single disease state, such as diabetes, or may be focused around multiple conditions related to a high risk medication, such as warfarin.⁷ Medication management services can be expanded further when pharmacists work in collaboration with other healthcare professionals.

Collaborative Drug Therapy Management

Collaborative drug therapy management (CDTM) has been defined as a formal partnership between a pharmacist and physician or group of pharmacists and physicians to allow pharmacists to manage a patient's drug therapy.⁸ CDTM agreements allow pharmacists to expand their scope of practice by allowing them to perform services they would not be allowed

to perform without a CDTM agreement. CDTM can help improve patient outcomes, increase patient satisfaction, and lower costs.

Potential Problem	Pharmacist Intervention
Medication adverse events	Pharmacists may identify drug interactions, resolve side effects, identify inappropriate medications or doses
Limited patient access to healthcare practitioners	Pharmacists may help provide care to patients, lessening patient load for physicians
High healthcare costs	Pharmacists can reduce costs by optimizing medication use <ul style="list-style-type: none"> ● Can identify unnecessary or inappropriate medications ● Ensuring patient adherence to medications can help prevent hospital admissions

Table 3-3. CDTM Benefits⁹

Ambulatory care pharmacists utilize CDTM agreements to work collaboratively with physicians to enhance patient care. Based on the pharmacist’s scope of practice in their state, responsibilities of a pharmacist under CDTM agreements may include implementing or modifying drug therapy, ordering and evaluating drug-therapy related laboratory tests, and administering medications such as immunizations. However, these responsibilities may vary depending on the legal agreement and scope of practice.^{8,9}

ADMINISTRATION

In some clinics, particularly those providing services to underserved populations, ambulatory care pharmacists may be asked to assist with developing drug formularies and monitoring prescribing habits. A formulary is a list of medications and related drug information that is continually updated and reviewed by physicians, pharmacists, and other healthcare professionals.^{10,11} For health plans, a formulary includes all the prescription medications covered by the plan. Hospitals also have drug formularies, which include drugs that the

hospital carries. Formularies are developed by identifying the most medically appropriate and cost-effective drug therapy options. Pharmacists play a key role in this process by continually reviewing primary literature and guidelines on medications to determine the most appropriate drug therapies to include in formularies and relaying findings to physicians and other healthcare professionals.^{10,11}

PREVENTATIVE CARE / WELLNESS SCREENINGS

In addition to helping patients manage existing chronic disease, pharmacists may also help to prevent disease. For example, an annual wellness visit (AWV) may serve as an annual health screening for patients. Medicare Part B covers the patient's cost and provides reimbursement for the practitioner providing this service. AWV occur in a physician office and during these visits, patients are assessed to determine if they have risk factors for certain disease states and may be referred to health education or other preventive services.^{12, 13}



Figure 3-3. Elements of an AWV¹²

DIRECT PATIENT CARE

Direct patient care is one of the primary services performed by ambulatory care pharmacists.

CDTM agreements facilitate pharmacist-independent and team-based patient care services.¹⁴ **Table 3-4** outlines the pharmacist’s role in various clinic types, which can be provided by pharmacist-independent or team-based care.

Pharmacist-Independent Care

Ambulatory care pharmacists may be independently responsible for providing patient care, generally when working collaboratively under a physician.¹⁴ This is most commonly seen in disease state management with CDTM in place. When a pharmacist is working independently to care for a patient, responsibilities may include completing medication histories, physically assessing the patient, ordering lab tests, adjusting medications, and following up with the patient.¹⁵ Additionally, based on the collaborative agreement in place, pharmacists may also authorize refills of certain medications and provide immunizations.¹⁵

Team-Based Care

Ambulatory pharmacists may also work as a member of a team with other healthcare professionals to provide care for a patient.¹⁴ In this setting, pharmacists may meet with the patient at the same time as other healthcare providers. During shared appointments, pharmacists are able to address medication questions and concerns brought up by the patient or the other healthcare providers.¹⁵ Pharmacists may still have independent responsibilities in this setting, such as obtaining medication histories and performing medication reviews.¹⁴

Clinic Type	Pharmacist Role
Diabetes ^{9,16}	<ul style="list-style-type: none"> • Help patients set self-management goals <ul style="list-style-type: none"> ◦ Blood pressure and A1C targets ◦ Investigate barriers to achieving these goals • Adjust medications to help achieve these goals • Provide diet and exercise education
Anticoagulation ¹⁷ (primarily warfarin)	<ul style="list-style-type: none"> • Adjust warfarin doses • Assess for drug interactions or diet changes that may affect warfarin therapy • Interpret INR results to see if dose adjustments need to be made to keep patients in therapeutic range

Clinic Type	Pharmacist Role
Pulmonary ¹⁸	<ul style="list-style-type: none"> • Provide spirometry tests to evaluate patient pulmonary functions • Identify respiratory problems related to inadequate medication therapy • Counsel on proper inhaler and nebulizer use
Smoking Cessation ¹⁹	<ul style="list-style-type: none"> • Instruct on both prescription and over-the-counter medications to help quit smoking • Provide strategies and tips in quitting • Follow up with patient to ensure no relapse
Heart Failure ²⁰	<ul style="list-style-type: none"> • Ensure patient is not taking medications that may worsen heart failure • Inform patient's primary care provider of any inappropriately prescribed drugs
Hypertension ²¹	<ul style="list-style-type: none"> • Take patient's blood pressure • Suggest adjustments to patient's medications based on blood pressure results • Diet and lifestyle counseling
Behavioral Health ⁹	<ul style="list-style-type: none"> • Help to adjust or initiate psychiatric medications <ul style="list-style-type: none"> ◦ Disease states include depression, schizophrenia, and bipolar disorder ◦ Consider special populations such as geriatrics and pediatrics
HIV ²²	<ul style="list-style-type: none"> • Help to optimize treatment regimens <ul style="list-style-type: none"> ◦ Analyze patterns of resistance to the HIV virus • Ensure patients have access to medications
Hepatitis C ²³	<ul style="list-style-type: none"> • Manage drug interactions • Assess appropriateness of treatment regimens based on patient genotypes

Table 3-4. Pharmacist's role based on clinic type

CARE COORDINATION

Transitions of Care

Transitions of care refers to the movement of a patient from one setting of care (hospital, ambulatory care practice, long-term care, home health, rehabilitation facility) to another.²⁴ Transitions of care may also apply to patients who are leaving a healthcare setting to go home. When patients leave one healthcare setting and move to another, it is important that they are receiving continuous care. Care should be coordinated between all healthcare professionals providing care to the patient. When patients are transferred from one setting to another, adverse events may occur, often caused by medication errors. Recent studies have shown that 54% of patients experienced medication errors upon hospital admission; a significant percentage of these errors (39%-45%) were found to be potentially harmful to the patient.²⁵ Patients who are admitted to a care facility, such as a hospital, may leave with a different prescribed medication regimen than what they had previously. If these changes are not adequately communicated between healthcare providers, the patient may end up receiving inappropriate and/or duplicate drug therapy. This is why it is important for healthcare providers to effectively communicate any changes in drug therapy.^{24,25}

Pharmacists may play a significant role in facilitating a patient's transition of care in collaboration with other health care providers such as, physicians, nurse practitioners, clinical nurse specialists, or physician assistants.^{24,26} Obtaining a patient's complete medication history in order to accurately perform medication reconciliation is important in reducing medication errors.²⁷ The patient's medication list should be reconciled again upon discharge to another healthcare facility and should be available for the next healthcare providers taking care of the patient. Patient adherence to new drug regimens is also important and can be improved through disease state education and medication education. Educating the patient about their condition, medication, how to take the medication, and potential side effects can improve medication adherence rates. Disease state education can help a patient understand their new diagnosis and the risks involved can help motivate patients towards better adherence. Immediate patient follow-up is another task in which pharmacists can help.²⁶ Care transition pharmacists make contact with the patient within a few days of discharge from the inpatient setting. This quick initial contact can help answer questions the patient may have and help them to better manage their new diagnosis effectively. In addition to these services, pharmacists can also integrate MTM services and medication counseling services. In some practices, pharmacists are able to continue following the patient if the patient's chronic conditions match those in which the pharmacist manages at the clinic. Pharmacists provide a unique, medication-specific approach to transitions of care, which has

been shown to decrease hospital admissions, readmissions, and ED visits.^{24,27}

CASE 3-1

Dr. Jones is a local physician whose patient population consists largely of diabetic and atrial fibrillation patients. Many of his patients appear not to be adequately managed in their disease states. Additionally, Dr. Jones has a high patient load which prevents him from seeing his patients as often as he should, resulting in poor outcomes, trouble managing appointments, and difficulty bringing in new patients. Due to poor performance scores, Dr. Jones is at risk for facing penalties and/or not receiving full reimbursement amounts with his payers.

What are opportunities for ambulatory care pharmacists in this scenario? What services could be provided?

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