

Medication Histories and Reconciliation

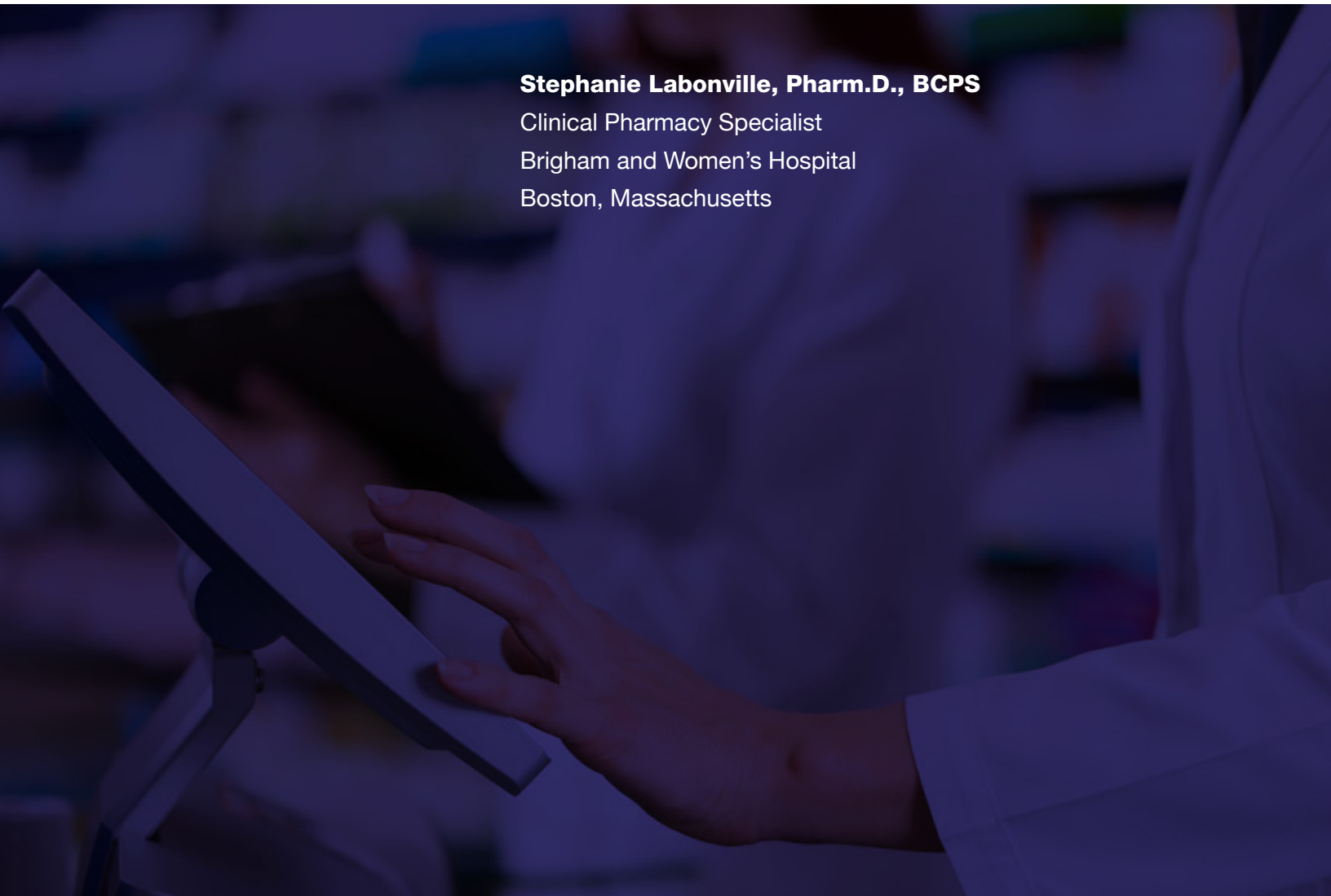


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Target Audience

This continuing pharmacy education series was planned to meet the needs of pharmacy technicians in a variety of settings, and it would be particularly beneficial for pharmacy technicians, supervisors, and educators who are interested in learning more about medication histories and reconciliation.

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Executive Summary

Medication reconciliation is the process of comparing a patient's medication history with current or newly ordered medications to resolve discrepancies or potential problems. The goal is to avoid medication errors and prevent patient harm. Pharmacy technicians have been successful in obtaining medication histories and assisting with medication reconciliation, as state pharmacy practice laws permit. This activity will provide tools that pharmacy technicians can use when obtaining medication histories in the community or hospital setting.

Learning Objectives

After studying this knowledge-based activity, participants should be able to

- Describe effective procedures for obtaining medication histories from patients and caregivers.
- Describe the key aspects of a medication history and how to best obtain these pieces of information.
- List signs of non-compliance while taking a medication history and strategies for addressing non-compliance with the patient and provider.

Background

Incomplete or inaccurate medication histories increase the risk of medication-related errors and complications.¹ Medical errors and adverse drug events (ADEs) are serious and costly health care problems in the United States. Up to 98,000 Americans die annually as a result of medical errors, with about 7,000 of these deaths directly attributable to medications.² In 1999, the Institute of Medicine report "To Err Is Human: Building a Safer Health System" identified medication errors as the most common type of patient safety error.³ Adverse drug events are associated with increased morbidity and mortality, prolonged hospitalizations, and higher cost of care.⁴ An adverse drug event in a hospitalized patient costs between \$2595 and \$4685 per event. Drug-related morbidity and mortality were estimated to cost over \$177 billion in 2000 alone.⁵ More than 40 percent of medication errors are believed to result from inadequate reconciliation in handoffs during admission, transfer, and discharge of patients.⁶ Of these errors, about 20 percent are believed to result in harm.⁷ Many of these errors could be prevented or avoided by effective medication reconciliation.

Pharmacy technician involvement in medication reconciliation has produced positive results.

Mueller et.al conducted a systematic review of 26 controlled studies and found that medication reconciliation consistently reduced discrepancies and decreased actual and potential adverse drug events.⁸ The most effective interventions included intensive pharmacy staff involvement and targeted high-risk patients.

Michels and Meisel studied the effectiveness of utilizing well-trained pharmacy technicians to obtain medication histories before scheduled surgical admissions.² Technicians telephoned scheduled surgical patients 1 to 2 days before admission to obtain a baseline medication history including nonprescription medications, herbals, and vitamins. The patient's allergy history and contact information for their primary care physician and community pharmacy were also collected and entered into the pharmacy computer system. Within 3 months after implementation of the new process, potential adverse drug events were reduced by more than 80%

relative to the 6 weeks prior to technician involvement.

Van den Bemt et.al. compared the number of medication discrepancies before and after pharmacy technicians began medication reconciliations in a pre-operative clinic in the Netherlands. The number of patients with medication discrepancies decreased significantly (by 13.2%) following assignment of technicians to the task.⁹

Although these studies were conducted in surgical settings, medication reconciliation has an impact on medication safety in all care settings.¹⁰

The medication use process has the potential to improve safety at the point of care. With regulators, payers and the public increasingly demanding action to reduce medication errors, health care personnel must work together to achieve accurate medication reconciliation to reduce errors.

Definitions:

The Joint Commission defines medication as any prescription medications, sample medications, herbal remedies, vitamins, nutraceuticals, vaccines, or over-the-counter drugs; diagnostic and contrast agents used on or administered to persons to diagnose, treat, or prevent disease or other abnormal conditions; radioactive medications, respiratory therapy treatments, parenteral nutrition, blood derivatives, and intravenous solutions (plain, with electrolytes and/or drugs); and any product designated by the Food and Drug Administration (FDA) as a drug.¹¹

For the purposes of medication reconciliation, the term “medication” includes substances that may have an impact on the patient’s care and treatments. It also includes substances that may interact with other therapies potentially used during the medical care episode.⁹ The definition should encompass prescription and over-the-counter medications as well as herbal and dietary supplements.

Prescription medications require a clinician (PA, NP, MD) to write a prescription in order for the patient to obtain them from a pharmacy. Over the counter (OTC) medications do not require a prescription, although a clinician may write a prescription for an OTC medication.

“Medication Reconciliation” is defined as the process of comparing the medications a patient is taking (and should be taking) with newly ordered medications in order to resolve discrepancies or potential problems.¹² The first step in the process is obtaining an accurate list of current medications. Once the medication history is verified, it can be compared with newly ordered medication to look for discrepancies or potential problems.

Medication reconciliation was developed to ensure that clinicians do not inadvertently add, change, or leave out medications, write duplications, or cause unwanted interactions, and to communicate accurate information to all relevant caregivers.⁹

The Joint Commission addresses medication reconciliation in their national patient goals.¹⁰ National Patient Safety Goal (NPSG) NPSG.03.06.01 is to maintain and communicate accurate patient medication information. This goal applies to ambulatory, behavioral health care, critical access hospital, home care, hospital, long term care, and office-based surgery settings. The original goal was very detailed and hard to implement. It has been updated to allow flexibility in the medication reconciliation process while addressing specific performance elements for every transaction the patient makes during his or her care.

The elements of performance for NPSG.03.06.01 include the following recommendations:¹⁰

Obtain and/or update information on the medications the patient is currently taking. This information is documented in a list or other format that is useful to those who manage medications,

Compare the medication information the patient brought to the organization/is currently taking with the medications ordered for the patient by the organization in order to identify and resolve discrepancies,

Provide the patient (or family as needed) with written information on the medications the patient should be taking when he or she leaves the organization’s care, and

Explain the importance of managing medication information to the patient (individual).

Technician Role

Technicians may be involved in part of the medication reconciliation process, if state regulations permit. The responsibility for the collection and review of the medication history may differ within each institution based on the resources, expertise, and availability at each patient transition point. The technician's role, no matter how involved in the medication reconciliation process, must adhere to state regulations. Although clinical medication reconciliation responsibilities will be performed and signed off by pharmacists or clinical providers, in most states pharmacy technicians can research and document patient medication histories, support physicians, nurses, and pharmacists in program facilitation, assist with the logistics of patient medication transfer, and provide translation assistance services for patients who are not fluent in English.¹³ Although no single process design will meet the needs of all sites, the essential steps of medication reconciliation for most sites are as follows:¹⁴

1. Develop a list of current medications
2. Develop a list of medications to be prescribed
3. Compare the medications on the two lists
4. Make clinical decisions based on the comparison
5. Communicate the new list to appropriate caregivers and to the patient

Medication History

The basic steps in taking a medication history include the following:

- Introductions
- Determine what medications the patient is taking and why
- Determine how the patient is taking the medications
- Determine if the patient is having any problems with the medications
- Determine what pharmacy(ies) the patient uses
- Determine if the patient has any allergies (and reactions)
- Pass information along to provider/pharmacist
- Educate patients to keep their own medication history

Before taking the medication history, the technician should familiarize him- or herself with any relevant and accessible information regarding the patient's history. If possible, ask the patient to bring in all medications, including: creams, lotions, solutions, syrups, sprays, inhalers, eye drops, insulin vials, injections, nasal sprays, nebulizers, over the counter medications, "as needed" medications, herbal products, and food supplements. Natural Products (like herbal products) can interact with medications and result in adverse effects.

Medication Histories: Step 1

The technician should begin the interview by introducing him- or herself to the patient and/or caregiver. Confirm patient identification by asking for the patient's name and date of birth. Determine if the patient has any medication, food, and/or environmental allergies/intolerances. Be sure to find out what the reaction was (i.e. hives, stomach upset, etc.). Determine the pharmacy(ies) and the providers that the patient uses. Ask the patient the name of his or her usual pharmacy and any other pharmacies he or she uses, including mail-order. Briefly explain what you are doing and why.

Medication Histories: Step 2

Determine what medications the patient is taking. Review and individually verify each medication with the patient or caregiver. It is best to start with an open-ended question such as "what medications do you take at home?" The technician must obtain the following information for every drug the patient takes:

- a. Name (including all abbreviations & formulations)
- b. Dose/Strength
- c. Frequency
- d. Duration
- e. Route of administration
- f. Reason for taking the medication

The patient may know the brand or generic name of the medication. The brand name is the name given to a drug by its manufacturer, while the generic name is the chemical name and does not change (no

matter who manufactures a drug). Examples include Lipitor (atorvastatin), Zestril (lisinopril), and Plavix (clopidogrel).

Determine the formulations (i.e. dosage forms—drugs can have multiple formulations. Examples include extended release (ER, XL, CR), liquid, syrup, suspension, capsule, caplet, tablet, and suppository.

Determine the dose and strength, which indicate the amount of active ingredient the patient is taking. Examples include mg, mcg, units, milliliters, teaspoon (tsp) = 5 mL, and tablespoon (tbsp) = 15 mL.

Determine the schedule or frequency (directions for use) i.e., how often the medication is to be taken. Examples include: daily or every day, twice a day (BID), three times a day (TID), every 4 hours (Q4H), every 8 hours as needed (Q8H PRN), once a week, every other day, before every meal (QAC).

Determine the duration, or how long the medication will be taken. Examples: for 7 days or for 3 months.

Determine the route of administration. Examples include by mouth, inhaled by mouth, applied, instilled, subcutaneous injection, or sublingually (under the tongue).

Determine what condition the medication is treating. Examples include back pain, heart rate, blood pressure, and migraines.

The following are examples of medication information:¹⁵

- Gabapentin 300mg 1 capsule by mouth every evening for neuropathic pain
- Fentanyl 75mcg patch applied every 72 hours (next patch due 3/27) for pain
- Metoprolol Succinate XL 50mg take 1 tablet by mouth every morning for heart

Ask the patient about any herbal medications he or she takes. Herbal medications are used frequently and may interact with other medications. For example, St. John's wort may diminish the effects of several drugs by induction of cytochrome P450 enzymes (a way the body has of breaking down medications)¹⁶

Medication Histories: Step 3

Clarify how the patient is actually taking the medication. The pharmacy technician should never assume a patient's medication list is correct. Instead, ask open-ended questions (can't be answered with yes or no) about how the patient is actually taking the medications. For example:

- "In the last week, how many doses of your medications did you miss?"
- "When was the last time you took your blood pressure medicine?"

Medication Histories: Step 4

Determine if the patient is having any problems with his or her medications. If a patient is not taking medications as prescribed, ask questions such as "What do you not like about your medications? Cost? Side effects?"

Medication History Taking: Tips to Success

Always ask open-ended questions. Prompt the patient or caregiver to think beyond typical medications. Ask questions such as "Which medications do you only take sometimes?" "What do you take for pain?" "What do you take that you buy off the shelf?" "What do you take if you have allergies." Ask about other providers. For example "Does your heart doctor prescribe any medications for you?"

Look for potential errors on the medication history, such as:

- Medication not listed
- Medication listed, but the patient is no longer taking
- Missing information such as dose, route, frequency
- Look-alike-sound-alike medications
- Errors in data entry—human factors

Obtain as much information as possible. Find out why the list is not complete and work to address any gaps. List the source of your information e.g., caregiver, family member, to provide documentation for the clinician who writes medication orders.

Ask for help at any time. Call on a caregiver, family member, provider, or pharmacy staff member.

Document in a clear and concise manner to facilitate communication with the provider. Develop a standard interview sheet (paper or electronic) to improve the information collected. Keep in mind that one process may not work for all patients, so flexibility is required.

Medication Reconciliation Process

After the medication history has been taken, the next steps of medication reconciliation include the following:¹⁷

- Compare the medications on the medication history to the medications to be prescribed. Be sure to note omissions, duplications, contraindications, or unclear information. Pass the results along to the pharmacist or provider
- The provider will make clinical decisions based on the comparison
- Communicate the new list to appropriate caregivers and to the patient

The technician should educate the patient and/or caregiver about the importance of carrying accurate and up to date medication information with them.^{8,18} Many providers are not aware of medications prescribed by other clinicians and medication the patient is taking over the counter. Remind the patient that an accurate list could decrease the chance of a medication error. Recommend updating the list after every visit to the provider and after being discharged from the hospital. This list is important in any pharmacy setting (retail, hospital, long-term care, etc.). The patient's medication list should be shown at every office visit, trip to the pharmacy, or admission to a care facility to prevent errors.



Reflective Question 1

Which of the following is an example of open-ended question?

- A. Is this medication list you have correct?
- B. What do you take when you have pain?
- C. You take all your medications every day, right?
- D. Your other providers' information is all in our computer, correct?

Keys to Success

Identify your and other's roles for medication reconciliation in your patient care area. Personnel should understand who is responsible for each step and how the information will be documented and communicated.

Becoming comfortable with medication reconciliation takes patience and practice. A technician who is new to the process might start by shadowing a previously trained technician. Ask a mentor technician to conduct mock patient interviews. Before conducting an interview, review organization-specific patient interview etiquette, confidentiality requirements, and pharmacy law specific to technician duties. Your organization may require competency assessments and other training be completed before you are allowed to participate in obtaining medication histories.

It can be difficult to obtain a complete medication list from every patient. Accuracy depends on the patient's willingness and ability to provide the correct information. The patient may not know the names of his medications. Conflicting information may come from multiple sources (e.g., the patient may provide different information than his family or caregiver).

Patients may come from diverse cultural and ethnic backgrounds, which may influence how they provide information. In families with English language barriers, children or other family members may answer questions for the patient. This may be helpful, but be aware that others could present a well-meaning but distorted view of how the patient takes medication. In an emergency situation, it will not be possible to obtain a full medication history. The technician should ask family members or caregivers for the information and document that it is limited. Always document any changes made to the medication list.

Non-compliance

Patients may not take their medications as instructed. Parkin et.al. determined that among patients discharged from the hospital, the most common reasons for discrepancies within 2 weeks of discharge were patients' lack of understanding of instructions and intentional non-compliance with the medication plan.¹⁹

Patients may be confused for a number of reasons. They may not understand the need to fill their prescriptions, the directions for use, or the unintended and intended side effects. They may not understand the healthcare terms used to describe how to take the medicine. They may not have the money or time to get the prescription filled. Patients may decide not to adhere to a medication regimen because they disagree with their provider's assessment of acceptable risk or tolerable side effects.

Low health literacy may cause non-compliance. Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.²⁰ Low health literacy is an independent risk factor for worse outcomes including increased mortality, lower satisfaction with care, lower quality of care, worse patient safety, and higher health care costs.²¹ Patients with low literacy may have trouble understanding instructions and interpreting drug warning labels.

Most patients with low literacy try to hide their problem from family members and caregivers. A number of 'red flags' may help identify patients who may



Reflective Question 2

Low health literacy is associated with which of the following?

- A. knowledge of their disease
- B. understanding of medication use
- C. increased difficulty in comprehending health care information

have limited literacy skills. Personnel might suspect low literacy in patients who: do not know names of medications or why they are being prescribed, are more passive and rarely ask questions, have difficulty completing forms, and exhibit problems in navigating and completing diagnostic tests, procedures, medication refills, and/or consultation processes.²⁰

Since low literacy cannot always be verified, personnel should use universal precautions. Try to be as clear and simple as possible with everyone and avoid using jargon. Patients rarely disclose that they do not understand directions.

The first step in addressing non-compliance is identifying noncompliant patients. Pharmacy personnel must identify the compliance barrier and determine how to overcome it. All patient interactions should be clearly communicated to the next provider.

Patient Case

Mr. Patient is a 70-year-old male patient who comes in to the pharmacy to refill several of his prescriptions.¹⁷ He called earlier to ask for lisinopril and atorvastatin. He was discharged from the hospital a couple of days ago, where he had been admitted for a fast heart rate. He had a new prescription filled at the hospital for metoprolol tartrate. His profile shows that he had a prescription for metoprolol succinate XL filled 3 weeks ago. The pharmacist calls the patient's provider to report this duplication of therapy. The clinician decides that Mr. Patient should stop taking his metoprolol succinate XL until he follows up with his heart doctor in a week. Mr. Patient is surprised to find out that he was taking two similar medications. He agrees to make and maintain an accurate medication list.

Summary

Every patient needs an accurate medication history to decrease the chance of an adverse event. The history can be challenging and time-consuming to complete. Even if the patient brings in a medication list, every drug on the list must be reviewed and verified. Open-ended questions and prompts may help elicit a complete history.

The medication history is the first step in medication reconciliation. Comparing the medications the patient

has been taking at home with what is being prescribed will help avoid errors of omission, duplication, drug interactions, and other discrepancies. As health care evolves, the effectiveness of the process will improve.

More information about medication reconciliation is available at www.ashp.org. Type medication reconciliation into the search bar.

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Answers to Reflective Questions—1: B, 2: C