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# Optimizing Medication Adherence

by Rosemarie Patodia, BScPhm, CGP

## Learning Objectives:

After completing this lesson, readers will be able to:

1. Review the most common reasons for medication nonadherence
2. Outline how the community pharmacy team can help to identify nonadherence
3. Discuss potential interventions to assist patients to optimize medication adherence
4. Describe the role of the pharmacy technician in improving medication adherence

## Introduction

Medication nonadherence is a common phenomenon in those who take prescription medications. In fact, up to 50% of people do not take their medications appropriately.<sup>(1)</sup> There are significant implications of nonadherence, including suboptimal management of a medical condition (e.g. diabetes) and onset of disease or illness in individuals not taking preventative medications regularly (e.g. stroke in a patient who does not take their blood pressure medications). A Canadian review indicated that about three per cent of hospital admissions were related to nonadherence.<sup>(2)</sup> A study done in British Columbia indicated that of emergency room visits due to medication-related incidents, 27% were due to nonadherence.<sup>(3)</sup> Patients often do not get their prescriptions filled. In various Canadian publications, it has been estimated that 20–25% of Canadian patients do not fill their prescriptions at all.<sup>(4,5)</sup> For patients who do fill their prescriptions, interactions with the pharmacy team can help optimize their medication-taking behaviours.

## Causes of nonadherence

According to the World Health Organization (WHO), adherence is “the extent to which a person’s behaviour [in] taking medications corresponds with agreed recommendations from a healthcare provider.”<sup>(6)</sup> Non-adherence could include taking too little or too much,

taking the medication less often or more frequently than prescribed, failing to fill or refill a prescription ([www.adultmedication.com](http://www.adultmedication.com)), missing doses or stopping the medication against medical recommendations. Fleming et al reported the incidence of some common types of nonadherence:<sup>(7)</sup>

- Taking the medication less often than prescribed, 30%
- Delaying prescription filling, 26%
- Stopping medication sooner than prescribed, 21%
- Failing to fill a prescription, 18%
- Taking smaller doses of medication than prescribed, 14%

Several factors contribute to nonadherence, and published literature on adherence often segments them into the following categories: patient-related factors, medication-related factors, illness-related factors, and physician- or other healthcare provider-related factors.<sup>(8)</sup>

## Patient-related factors:

- *Lack of understanding of the role of their medication.* This is more likely to be a factor when the condition that is being treated does not have any overt symptoms (e.g. hypertension), or when medications are being used for prevention rather than treatment of disease or illness (e.g. warfarin to prevent blood clots). Patients who do not fully understand why their medication is important, or

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the implications of not taking their medication, may deny the need for the medication and subsequently miss doses or stop taking the medication entirely.

- **Functional limitations.** Where functional impairment exists, patients may have difficulty maintaining adherence to medications. For example, hearing impairment could lead to lack of understanding of the medication and instructions for administration. Other functional factors include visual impairment, manual dexterity challenges, cognitive impairment and mobility issues.
- **Cost of the medication.** Patients who pay for their prescriptions directly may be challenged to continue taking expensive medications regularly. Inability to pay for medications may force some patients to choose amongst multiple medications.
- **Challenges with language and literacy.** Individuals who do not speak English or French may have difficulty with prescription labels, information sheets and communication with the pharmacy team. This may result in lack of understanding of medication instructions. The same issues apply for individuals with limited literacy.
- **Forgetfulness.** Delays in ordering prescription refills or picking up prescriptions also contribute to nonadherence issues.
- **Personal beliefs.** Many people have strong beliefs about avoiding the ingestion of “unnatural” substances, including medications. These views will affect the degree of emphasis that they put on taking prescribed medications, particularly if they feel that other “natural” solutions are available. Other personal beliefs can also affect medication-taking, such as concerns about dependence or addiction.

#### Medication-related factors:

- **Unpleasant adverse effects.** Patients may begin to skip doses, change the dosing frequency, or stop taking their medications if they experience adverse effects that are bothersome.
- **Complex medication regimens.** People who require multiple medications for several indications may be at risk of nonadherence as a result of confusion about when and how to take their medications. They may forget instructions or have difficulty keeping track of which medications were taken and when.
- **Delayed therapeutic effects.** In cases where a new medication takes longer than a few days to have a noticeable benefit to the

**TABLE 1 – Examples of medications often associated with nonadherence**

Medication type	Reasons for nonadherence
Cholesterol medications (e.g. atorvastatin)	Often stopped within a year because hypercholesterolemia usually has no symptoms.
High blood pressure medications (e.g. candesartan)	Often stopped within a year because hypertension often has no symptoms.
Antidepressants (e.g. citalopram)	The beneficial effects are not immediate, so people may think the drug is not working. Also, for many people, the adverse effects are challenging to control or resolve.
Asthma medications (e.g. fluticasone inhaler)	Particularly with “preventer” or “controller” medications that help to control symptoms, patients may not feel immediate benefits and may believe that the medication is not really helping. Patients may not use inhalers properly to get the optimal benefit from them and may not take them if they feel well.
Seizure medications (e.g. valproic acid)	Patients may not take them regularly because of adverse effects and if they have not had seizures recently (nonadherence was 29% in one survey). <sup>(10)</sup>

patient (e.g. antidepressants), he or she may be more likely to stop taking the medication, particularly if they are experiencing any adverse effects.

- **Difficulty taking a particular dosage form.** For example, a patient may have difficulty swallowing large tablets or may not tolerate the bad taste of certain liquids.
- **Dosage schedules are not optimized to suit the patient’s lifestyle.** A patient may not remember to take a particular medication at bedtime, since all of his or her other medications are taken once daily in the morning.

#### Illness-related factors:

- **Lack of symptoms.** If a medical condition does not have overt symptoms (e.g. dyslipidemia, hypertension), patients may be more likely to stop taking their medications if they do not fully understand the implications of stopping.
- **Denial of the condition.** Patients who are not prepared to accept the fact that they have a medical condition that requires medication treatment (or preventive therapy) are at risk of stopping their medications prematurely or not starting them at all.

#### Physician or other healthcare provider-related factors:

- **Lack of trusting relationship.** When a patient does not fully trust their physician or other healthcare provider, there is a greater risk that they may not be committed to taking prescribed medications.

- **Limited follow-up with the patient.** If a patient is seen sporadically by his or her healthcare provider, there is less ongoing support, encouragement and feedback. Follow-up actions help to promote adherence.
- **Poor communication.** Patients who are not encouraged to dialogue with their healthcare providers may leave their appointments and encounters with a lack of understanding of their condition and medications.

Certain medications may have a stronger association with nonadherence for a variety of reasons. Table 1 reviews some of these medications.<sup>(9,10)</sup>

#### Identifying nonadherence or risk of nonadherence

Patients generally do not seek assistance in optimizing adherence. Therefore, it is important for pharmacy teams to be aware of signs that may indicate patients are not taking their medications consistently as directed. Nonverbal or indirect manifestations of the more common causes of nonadherence should be noted and acted upon by the pharmacy team where appropriate.

- **Prescription refills that are late.** It is easy to identify when refills are late in the community pharmacy. Late refills could indicate that it took longer for the patient to finish the last prescription, thus he or she may have missed doses. Alternatively, the patient may have simply forgotten to refill the prescription.

**TABLE 2 – Medication Knowledge Assessment<sup>(9)</sup>**

- Name of the medication
- Why are you taking the medication?
- How much (how many pills) are you taking?
- When do you take the medication (i.e. time of day, meals)?
- Do you know what effects to look for (positive or negative)?
- Where do you keep the medication?
- When is the next refill due (and how will you refill it)?

Adapted from [www.adultmeducation.com](http://www.adultmeducation.com)

- *Prescriptions that are filled but not picked up from the pharmacy.* The patient may have forgotten to pick up his or her medication or may have decided that they do not wish to take (or pay for) the medication.
- *Patients who complain about adverse effects.* This may be a warning sign that the side effects could become a factor in patients' decisions to miss doses of their medication or stop it completely. They may not ask the pharmacist directly about their adverse effects, but may comment on them as part of a dialogue with the pharmacy technician.
- *Patients with functional limitations who live alone.* People who have hearing or visual impairment, memory loss, mobility or manual dexterity issues may have difficulty with various aspects of medication-taking. This is complicated further when they have no support person in their home.
- *Patients taking multiple medications who have a limited income.* This may become evident if the individual frequently refers to the cost of medications or is looking for ways to reduce the costs of his or her medications.
- *Patients who do not speak English (or French) and do not have a support person who can translate instructions.* There is a significant risk of missing medications or not taking them properly when directions and labels are not understood by the patient.

### Interventions to improve medication adherence

Several strategies can be initiated by the pharmacy team to address some of the causes of nonadherence.

#### Patient education

Pharmacists must engage in a dialogue with their patients to ensure that patients have a good understanding of their medications. Table 2 outlines questions from the Medication Knowledge Assessment (found at [www.adultmeducation.com](http://www.adultmeducation.com)) that can help to assess a patient's knowledge of his or her medications.

Pharmacists should address gaps in knowledge with their patients through ongoing dialogue, written information and instructions, and follow-up. Patients should be asked to repeat instructions

back to the pharmacist and to demonstrate their ability to use medication-related devices (e.g. inhalers).

#### Medication review

Pharmacy teams should invite patients taking complex chronic medications to have an annual medication review with the pharmacist, when feasible. This review should address medication knowledge, as above, and provide an opportunity to dialogue about adherence challenges.

#### Overcome language barriers

For patients who do not speak English (or French), medication information should be provided by a family member or other person who can translate to the patient's language. Alternatively, use other methods of communication, including videos, diagrams and other visual materials.

#### Managing adverse effects

When starting a new medication, patients should be informed of the types of side effects to expect, and how to alleviate or minimize them. Reassurance can be helpful when adverse effects are transient in nature; patients can benefit from encouragement and learning that the effects will subside. When adverse effects are more troublesome to the patient, the pharmacist should initiate a dialogue with the physician to discuss alternatives.

#### Convenience

Interventions that simplify the patient's medication-taking experience can help improve adherence. Compliance packaging (or blister packaging) can enhance convenience for patients who take several medications at different times of the day. To ensure that the compliance packaging is most effective, the pharmacist and patient should determine the most appropriate medication schedule for that individual based on his or her lifestyle.

People are more likely to adhere to therapy when there are fewer doses of

medication per day, compared to multiple daily dosing regimens.<sup>(10,11)</sup> Pharmacists can recommend once or twice daily dosing for medications, as well as fixed-dose combination therapies, when appropriate and suitable for the patient.

Patients with conditions that may affect their ability to self-administer medications should be offered alternatives to help them take their medications, if available. For example, those with arthritis or Parkinson's disease who may have difficulty opening traditional vials should be given the option of receiving easy-open vials. For patients with swallowing difficulties (e.g. due to a stroke) pharmacists should investigate alternative dosage forms (e.g. liquids instead of capsules/tablets) or the suitability of tablet crushing or opening of capsules.

#### Monitoring and follow-up

It is important to encourage patients to become involved in their own care as this can provide greater motivation to be adherent with medications. For conditions such as hypertension and diabetes, patients should be taught how to self-monitor their progress (e.g. by monitoring blood pressure, blood glucose). Patients should be made aware of what to expect in terms of outcomes with their medications and how to measure whether or not they have met their target.

Pharmacists should follow-up with patients on a regular basis, and target nonadherent patients for more frequent follow-up by telephone or in person when they pick up their prescriptions. Patients should be asked about outcomes related to the medications, where appropriate, as well as adverse effects.

#### Role of the Pharmacy Technician

The pharmacy technician plays an important role in helping patients to improve medication adherence. In this role, which is supportive to both the patient and the pharmacist, a number of significant interventions can be made.

Pharmacy technicians should be aware of the "red flags" that may indicate an adherence problem and take the necessary action. For example, if it is noted that patients refer to skipping or missing doses of their medication upon pick up of their refill, it may be prudent to arrange for the pharmacist to speak with them and probe further.

Providing emotional support to patients at the pharmacy can be an important role of the pharmacy technician. Since pharmacy

technicians tend to develop strong relationships with regular patients and have frequent dialogue, they are well-positioned to offer empathy and to listen to patient concerns. Patients who feel supported by their pharmacy team may be more likely to continue with their therapies.

Technicians can ask patients about any potential challenges with medication-taking upon greeting those with a new prescription or refill request. If any limitations, such as swallowing difficulties or mobility issues, are identified the technician can collaborate with the pharmacist to offer potential solutions for that patient. For example, this could entail cutting tablets in half, or offering prescription delivery services to ensure that patients are able to obtain and take their medications as prescribed.

For pharmacies that offer various alternatives for refilling prescriptions, pharmacy technicians should inform patients about these methods and provide appropriate instructions. Examples of these refill methods include online or automated telephone refills. By encouraging time-saving ways to refill prescriptions, pharmacy technicians can help patients overcome at least one adherence barrier. Also, technicians can follow-up with patients by telephone to remind them of refills that are due.

In some cases, patients do not pick up prescriptions that have been filled. Pharmacy technicians can follow-up with these patients to remind them that their medications are available and offer a dialogue with the pharmacist for those who have concerns about taking the medication.

Pharmacy technicians can actively promote compliance packaging (in pharmacies where it is available) to patients that meet pre-determined criteria. These criteria could include patients on a certain number of medications, those who are elderly with functional impairment and live alone, or those on certain medications that pose a high risk of nonadherence (e.g. cardiovascular medications).

### Summary

A number of issues can impact medication adherence, including patient, healthcare provider, medication and illness-related factors. Pharmacy technicians can help to identify patients with adherence issues (or those at risk) and, together with the pharmacist, work with patients to introduce solutions to address these issues and ultimately encourage appropriate medication use.

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## QUESTIONS

Please select the best answer for each question or answer online at [www.canadianhealthcarenetwork.ca](http://www.canadianhealthcarenetwork.ca) for instant results.

1. Which of the following medications is most likely to be associated with nonadherence because the patient is not experiencing symptoms of the underlying medical condition?
  - a) Pain medications
  - b) Hypertension medications
  - c) Parkinson's disease medications
  - d) Arthritis medications
2. Which of the following are potential implications of nonadherence to medications?
  - a) Experiencing a stroke in someone who does not take blood pressure medications regularly
  - b) Shortness of breath and hospitalization in someone who is nonadherent to asthma medications
  - c) Loss of seizure control in someone who skips their antiseizure medications
  - d) All of the above
3. Several factors are associated with medication nonadherence. Which of the factors below is a patient-related factor?
  - a) Trust in their physician
  - b) Denial of their illness
  - c) Forgetfulness
  - d) Medication adverse effects
4. Many patients, particularly those who are older, have functional limitations that lead to nonadherence. Which of the following is an example of a functional impairment that contributes to this problem?
  - a) Poor manual dexterity
  - b) Inability to pay for medications
  - c) Poor communication with the physician
  - d) None of the above
5. Why is lack of follow-up with a patient by a healthcare provider a factor that can contribute to nonadherence?
  - a) Patients may not understand how well their medications are working for them without follow-up (e.g. having cholesterol levels checked)
  - b) Patients may lose trust in their healthcare provider
  - c) Many patients need regular reinforcement and encouragement to continue with their therapies
  - d) All of the above
6. Which of the following is true regarding multiple medication therapy regimens?
  - a) Patients are more likely to be adherent to their medications when there are multiple daily doses.
  - b) The daily medication schedule should be customized to fit the patient's lifestyle.
  - c) Compliance packaging can make the

## QUESTIONS (Continued)

medication regimen more complex.  
d) All of the above

7. What can be done to help enhance adherence for patients who have difficulty taking their medications because they have arthritis?

- a) Crushing tablets
- b) Mixing the contents of capsules with water
- c) Switching to easy-open vials
- d) Taking medications with food

8. According to research, approximately what percentage of hospital admissions is thought to be due to nonadherence issues?

- a) 50% b) 28% c) 11% d) 3%

9. How can a medication review be helpful in improving adherence?

- a) It can help to get a patient more involved in their own care.
- b) The pharmacist can help to motivate the patient.
- c) The dialogue can uncover previously unknown adherence barriers.
- d) All of the above.

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10. Why are antidepressants often associated with nonadherence?

- a) Adverse effects may be difficult for patients.
- b) Patients do not trust psychiatrists.
- c) They are usually taken multiple times per day.
- d) All of the above.

11. Which of the following patients may be at highest risk of nonadherence?

- a) 77-year-old male living with his wife, on one medication for glaucoma
- b) 40-year-old female, married and taking a number of medications for pain control
- c) 62-year-old immigrant female taking multiple medications after recently having a heart attack
- d) 4-year-old boy being treated for an ear infection with an antibiotic

12. What can pharmacy technicians do to help identify patients at risk of nonadherence?

- a) Ask about swallowing problems or other functional issues
- b) Look for refills that are late

- c) Notify pharmacists about patient concerns with adverse effects
- d) All of the above

13. Which intervention can a pharmacy technician make to assist patients who forget to refill their medications?

- a) Set up a medication review with the pharmacist
- b) Offer automated refill solutions where available
- c) Provide easy-open vials
- d) Cut tablets in half

14. Roughly what % of patients do not fill their prescriptions?

- a) 11% b) 5% c) 25% d) 35%

15. How can pharmacy technicians help patients with chronic conditions such as diabetes or hypertension get more involved in monitoring their health?

- a) Provide compliance packaging
- b) Demonstrate how to use an in-store blood pressure machine
- c) Provide solutions for managing adverse effects
- d) All of the above

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