

Too Many Pills?

A Guide to Understanding Polypharmacy

Lesson Summary

Meet Frieda

Frieda has been managing her health carefully for years. She takes medications for her blood pressure, cholesterol, joint pain, and a few other chronic conditions. Like many older adults, the list has grown over time.

She's noticed what might be new side effects, including dizziness and feeling sometimes confused, and keeping track of everything can be a challenge. Each medication plays a role, but Frieda sometimes wonders if she still needs all of them.

Introduction

Hello, I'm Dr. Anthony Levinson from McMaster University. Taking several medications, what health care providers call polypharmacy, is common, and often necessary. But as we age, our bodies change, and so can the way medications affect us.

The good news? You don't need to navigate this alone. There are steps you can take to understand your medications better, ask the right questions, and feel more confident in your care. Let's take a closer look at what polypharmacy means and why it matters.

What is polypharmacy?

Being on several medications, or "polypharmacy", is defined as the use of five or more drugs.

Polypharmacy is very common. Three out of five, or 60%, of Canadians over the age of 65 take at least five different prescription medications; 25% take ten or more.

Why is this so common? Many older adults:

- Live with multiple health conditions, such as diabetes, hypertension and arthritis, each requiring different treatments

- Have drug coverage through public or private insurance, making medications more accessible
- See several healthcare providers, which can lead to overlapping or duplicate prescriptions
- Are aware of evolving medical guidelines and research, which often recommend medications as first-line treatments, and
- Take medications to manage side effects caused by other medications, a cycle that can lead to even more prescriptions.

People may also take over-the-counter medications, vitamins, natural health products, and other supplements.

So, polypharmacy is common—and often necessary. But how can we tell when it starts to become a problem? Let's explore when the risks of taking multiple medications might outweigh the benefits.

When is it a problem?

Taking multiple medications is not necessarily a bad thing. It's appropriate to take several medications if each meets a specific health need, such as arthritis or blood pressure problems. In such cases, the benefits can outweigh the harms of taking several medications. However, the benefits or harms from a medication may change over time.

So, how do we know when polypharmacy doesn't help? Taking multiple medications can be a problem when:

- A medication doesn't provide a substantial benefit according to your personal goals and needs
- The risk of a medication outweighs the benefits
- The medications increase the risk of bothersome or serious side effects

Let's explore what those side effects might be.

The risk of side effects

The risk for potential problems increases with a greater number of medications, as well as with increasing age. About 1 in 10 hospital admissions in older adults are related to adverse effects of a drug.

Taking multiple medications can cause problems such as:

- Confusion and falls
- Adverse drug reactions
- Drug interactions
- Hospitalizations
- Decreased quality of life
- Financial burden

Understanding the risks of taking multiple medications is important, but to understand why these risks exist, it helps to know how medicines work in the body. Let's take a closer look at what happens after you take a medication, and how your body processes and responds to it.

How medicines work

There are two important things we need to understand about our bodies when we're taking any type of medication. The first thing is how our bodies affect the medications. This is called **pharmacokinetics**—a fancy word for how the medicine moves through your body. The second is how medications affect our bodies—especially how they help treat conditions like high blood pressure or diabetes. This is called **pharmacodynamics**.

Both of these processes are key to understanding the benefits and harms of polypharmacy.

Pharmacodynamics

As we age, our bodies' response to medications can change, making them more potent or less effective. As our cells and organs change, some drugs can feel stronger or more sedating, even at the same dose you've taken for years. Older adults are often more sensitive to medications that affect the brain, heart, and blood pressure, which can increase the chance of dizziness, low blood pressure, or confusion. Because these pharmacodynamic effects are highly variable, they require close monitoring and regular review to ensure treatments remain safe and effective.

Let's take a closer look at how our bodies process medications.

Pharmacokinetics

Every time we take a medication, our bodies go through a series of four steps to process it.

- **Absorption:** Medications enter your body in different ways—pills and liquids through your stomach, creams through your skin, puffers through your lungs, and some injections through your muscles.
- **Distribution:** Once inside, medications travel to different parts of the body, depending on where they are needed.
- **Metabolism:** Your body changes the medicine so it can be effective or be safely removed. This usually happens in the liver.
- **Elimination:** After the medicine has done its job, your body gets rid of it, usually through urine or stool.

These steps (how your body absorbs, moves, breaks down, and gets rid of medications) can affect how much of the medicine is actually working in your body.

Aging and pharmacokinetics

As we age, changes that normally occur in these pharmacokinetic processes may affect the risk/benefit profile of medications. This causes older adults to be more vulnerable to medication-related problems.

For example,

- Decreased gastric function and blood flow can affect absorption, as our stomachs may absorb medicine differently.
- Changes in body composition (such as more body fat, less water) can affect the distribution of how the medicine spreads through the body.
- Reduced liver size and blood flow can impair metabolism, so that the liver may not break down medicine as efficiently.
- Declining kidney function reduces medication elimination, as the kidneys may not clear medicine out as quickly.

As such, medication prescribed when a person is younger may have a different effect as the person ages. That's why it's important to review your medications as you get older.

Sometimes, medications can affect each other—or be affected by food or supplements. These interactions can make a medication stronger, weaker, or cause unwanted side effects. This is called a **drug interaction**. Let's look at a few common types.

Drug Interactions

Drug-drug interactions

Some medications can change how others work in your body, either by **increasing** or **decreasing** the overall effect.

For example, aspirin and warfarin (a blood thinner) both affect clotting. When taken together, they can increase the risk of bleeding.

Taking an antacid at the same time as an antibiotic can reduce how well your body absorbs the antibiotic, making it less effective.

Drug-food interactions

Certain foods can change how your body processes medications. Grapefruit juice can slow down how your body breaks down cholesterol-lowering drugs like atorvastatin. This can make the drug stronger, like taking a higher dose.

Drug-supplement interactions

Natural health products and vitamins can also affect medications. For example, St. John's Wort, sometimes used for mild depression, can speed up how your body breaks down other medications, like warfarin. This can make the warfarin less effective.

Condition-specific risks

Some medications can make existing health conditions worse. For example, decongestants, often used to treat cold and flu symptoms, can raise blood pressure. If you already have high blood pressure, these may not be safe.

As you've seen, medications can interact with each other, with food and supplements, and even with your health conditions. Always talk to your doctor, pharmacist, or nurse practitioner before starting a new medication, supplement, or even over-the-counter product. They can help you avoid interactions and stay safe.

Having a medication review

Having a medication review with a doctor, nurse practitioner, or pharmacist is the best way for you to know what is working well and what might need attention.

Bring an updated list of all your medications, including non-prescription medicines, vitamins, and herbal supplements. Write down the reasons why you take each of your medications.

Consider bringing a family member or a friend to listen and take notes.

To help guide your conversation, **Canada's Drug Agency** worked with patients, caregivers, and health care experts to create these **five key questions to ask**:

1. What is the purpose of each of my medications?
2. Could I be experiencing any side effects or drug interactions?
3. Could lifestyle changes also improve my well-being?
4. Are all my medications needed?
5. What other information should I know about my medications?

Sometimes, a medication review reveals that certain drugs may no longer be needed, or could even be causing more harm than good. In these cases, your health care provider might suggest a process called **deprescribing**. Let's explore what that means and how it can help reduce medication burden while keeping your health goals front and center.

Deprescribing

Deprescribing is a safe and supervised way for health care providers to reduce or stop medications that may no longer be helpful, or could be causing harm. It's a gradual process, designed to avoid withdrawal symptoms or flare-ups. Your health goals and personal preferences should always be part of the decision. Remember, *'Deprescribing is part of good prescribing.'*

Let's check back in with Frieda and see what she did next.

Back to Frieda

A few weeks later, Frieda felt ready to take the next step. She brought her questions to her pharmacist and booked an appointment with her family doctor. Together, they reviewed her medications—what each one was for, whether they were still needed, and if any could be adjusted.

Frieda left feeling more confident and in control. She knew she wasn't alone—and that asking questions was not only okay, it was the smart thing to do.

If you, or someone you care for, take multiple medications, you can start the conversation today. Asking questions is a key part of good care. Understanding your medications can help you stay healthy, independent, and informed.

Summary

You've learned a lot in this lesson. Let's recap.

Medications can be beneficial, but they can also be harmful. They may interact with one another and cause increased or decreased effects. As people age, changes occur in how their bodies process medications, and a medication's risk-benefit profile may change.

If you're on multiple medications, be sure to have a periodic medication review with your primary care provider or pharmacist. Always check with your doctor, nurse practitioner, or pharmacist before starting, changing, or stopping any of your medications.

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