Why is it important for me to take my medications as prescribed?

One of the purposes of a medication’s lengthy development phase is to determine its optimal dose. This dose or dose range offers the most favorable benefit-harm balance (Chapter 46), meaning the best benefits without offsetting harm. The FDA-approved dose ought to be the recommended dose, which is typically the dose physicians prescribe. It should be recognized that subsequent dose adjustments may be necessary, primarily to deal with adverse reactions. The full adult dose is typically too high for children (see Chapter 53 - What are the requirements for medications in children?), for the elderly (see Chapter 12 - Why are the elderly often overdosed?) and for patients with serious diseases (see Chapter 13 - Why are dose adjustments important in patients with liver or kidney disease?).

**Why are prescriptions not followed?**

The importance of taking the medication as prescribed may not be clear to all patients. Some patients reduce the dose on days when they feel fine, or they may double it on bad days. This approach may be justified when you are taking medications for symptomatic relief, such as pain, but medications for treatment or prevention of a condition should never be adjusted based on how you feel. A serious consequence could be a smaller benefit, or none at all, when the dose is lower than prescribed, and more adverse or potentially serious effects when the dose is higher than prescribed. You should only adjust your dose when your physician tells you it is acceptable. When patients skip doses to make their medication supply last longer (to save money), the sad consequence is likely to be a smaller-than-hoped-for benefit.

Another reason for not following a prescription is fear of adverse medication effects. Reading the professional product labeling (package insert) with the long list of potential adverse reactions and events can be discouraging to some patients. Another contributor may be the confusion created when patients are switched to a generic medication with a different name and look than a brand-name product.

**What are the consequences of taking higher-than-prescribed doses?**

All approved medications have unfavorable effects (Chapter 48). Taking doses
Chapter 41 - Why is it important for me to take my medications as prescribed?
higher than those prescribed increases the risk of serious adverse effects.

It is estimated that up to 98,000 patients die each year as a result of medical errors. The total national cost of the injuries may be as high as $29 billion. Between 3 percent and 11 percent of hospital admissions are attributed to adverse medication effects, and failure to adhere to the prescription is one of many factors behind these alarming numbers.

The mortality rates from unintentional or accidental prescription drug overdoses have risen steadily since the early 1970s. Those medications most often implicated include narcotic painkillers (OxyContin and Vicodin, for example) and methadone, now widely used as a painkiller in addition to its use as an addiction treatment. The number of deaths in the narcotics family that involved prescription painkillers increased from 2,900 in 1999 to at least 7,500 in 2004.

The FDA issued a Public Health Advisory in late 2006 concerning reports of death and life-threatening adverse effects in patients taking methadone. Methadone can cause slow or shallow breathing and dangerous changes in heart rhythm that may not be felt by the patient. Pain relief from a dose of methadone lasts about 4 to 8 hours, though methadone stays in the body much longer, from 8 to 59 hours after a dose. As a result, patients may feel the need for more pain relief before the original dose of methadone is gone from the body. Methadone may then build up to a toxic level if it is taken too often, if the amount taken is too high, or if it is taken with certain other medicines or dietary supplements.

What are the consequences of taking lower-than-prescribed doses?
The main consequence of taking lower-than-prescribed doses is a lack of benefit. There are a number of illustrations of this problem. Patients with epilepsy are treated to prevent seizures, and prevention of such episodes is a critical goal of treatment to permit epileptic patients to drive, for example. A major reason why some patients continue to have seizures is their failure to take medications as prescribed.

After organ transplantation, there is a risk that the body may reject the transplanted organ. Fortunately, there are medications available that can prevent such rejections. The most common reason for organ rejection is the patient’s failure to take their medications as prescribed.

Inhaled steroids as maintenance therapy of patients with asthma have revolutionized care in the past few decades. Fear of adverse effects is a likely reason why some patients don’t take their steroids as prescribed. Consequences of poor adherence include more asthmatic attacks, physician visits, and acute hospital admissions.

Cholesterol-lowering medications (statins) have been shown to reduce the risk of recurrent heart attacks. A study from Scotland showed that heart
attack survivors who took their statins as prescribed had a markedly lower risk of recurrent heart attacks compared to those who did not take their statins regularly, or only did it occasionally.

**How well are prescriptions followed?**
The examples above illustrate the importance of taking medications as prescribed. It is troubling that several surveys report low adherence to many long-term treatments, and it varies between 25 percent and 50 percent depending on the patient’s underlying condition. Patients who have a serious medical condition are better at following through on a prescription compared to those who take a medication in order to prevent a serious medical challenge. Adherence to preventive measures is difficult.

**Key messages**

- Medications should be taken as prescribed.
- Use of higher-than-prescribed doses increases the risk of adverse effects.
- Use of lower doses can lead to a lack of benefit.
- Dose adjustment should be discussed with your physician.