

## What is polypharmacy?

Polypharmacy refers to the use of a large number of medications, commonly considered to be the use of five or more. Since polypharmacy is a consequence of having several underlying medical conditions, it is much more common in elderly patients. An estimated 30 percent to 40 percent of elderly patients take five or more medications. An analysis of elderly beneficiaries of a large governmental health plan documented the use of multiple medications. Among users of the pharmacy benefit, the average number of medications was six per user. Forty-seven percent used five or more medications, 13 percent used 10 or more, and 3 percent used 15 or more. The term implies an assumption that using one or more of these medications may be questioned or unnecessary. Thus, polypharmacy also can be defined as the use of more medications than are clinically indicated.

### *What are the reasons for polypharmacy?*

As stated above, a major reason for polypharmacy is that a patient has many co-existing medical conditions receiving treatment. In addition, in the case of diseases such as heart failure and high blood pressure, combinations of two to three different medications are common and recommended. If medications for symptomatic relief are added, it is easy to see why patients end up with a large number of medications. Sometimes a new medication is prescribed to treat the adverse effects of another drug, often when stopping or changing the dose of the offending drug would solve the problem.

A contributing factor is that patients see different physicians for their medical problems, and being under the care of several specialists is a major reason for polypharmacy. This can be true because specialists often focus on their area of expertise rather than on the patient as a whole. There is often a need for a primary care physician -- a general internist, a family practitioner or a pediatrician -- to coordinate the use of multiple medications.

Another reason for polypharmacy is that the documentation of why a medication was prescribed initially is often missing in the medical record, making decisions to consider termination of a treatment difficult to make later. As a result, there is a tendency for doctors to let patients continue the medications they are taking, especially if the indications are unclear or unknown. In addition to medications lacking an indication, other medications may be of limited value or are therapeutic duplications.



***What are the consequences?***

The major consequence of polypharmacy to a patient is a much higher risk of adverse drug effects. This risk increases based on the number of medications prescribed and taken. These adverse drug effects often require physician contacts and, in some cases, emergency room visits or hospitalizations.

Moreover, if an adverse effect emerges, it can be very difficult to figure out which of the many drugs is the cause. Another possible problem is what is referred to as medication or drug interactions, meaning that the effects of one medication, favorable or unfavorable, may change if given together with another medication. Thus, taking five or more medications leaves many opportunities for such interactions. The knowledge of medication interactions gained during the drug development phase is often limited due to incomplete testing.

Polypharmacy also places a burden on patients to remember when and how to take all prescribed medications. Multiple medications increase the risks of inappropriate medication use, non-adherence, adverse effects and medical cost. Another unwanted effect could be that physicians may hesitate to prescribe a new essential medication to a patient already on five or more medications. Thus, paradoxically, polypharmacy can lead to undertreatment.

Another consequence of overutilization is the soaring cost of health care in the U.S. Pharmaceutical spending per capita in the U.S. in 2005 was twice that of other developed countries. Higher expenditures can be justified if the health outcomes for U.S. patients measured as life expectancy, disease-specific mortality and other measures were more favorable -- but they are not.

### ***What can be done about it?***

We strongly recommend a medication review for patients prescribed a large number of medications. In Chapter 38, we discuss the benefits of such reviews. Often, the use of inappropriate medications is changed, patients feel better, and overall cost of the medications is markedly reduced.



## Key messages

- ✓ Polypharmacy means the use of a large number of medications.
- ✓ The use of all of them may not be in the patient's best interest.
- ✓ A common consequence is increasing adverse drug effects, some of which are due to drug interactions.
- ✓ Regular reviews are recommended to determine the appropriateness of use of all medications.