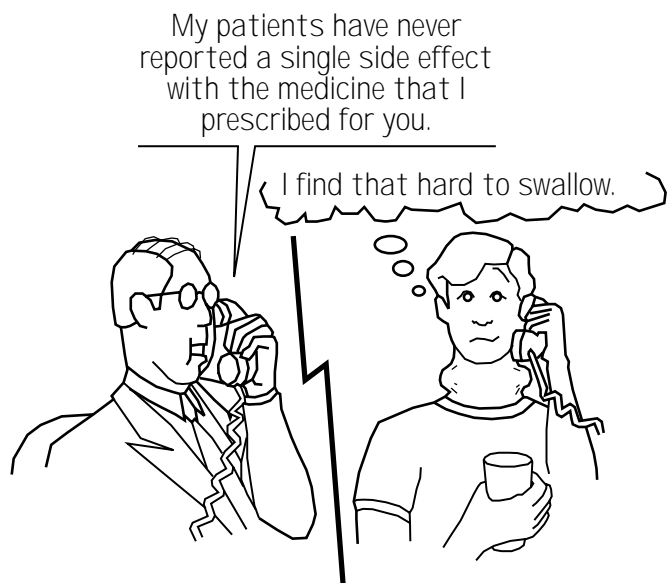


PHARMACOLOGY



The old conventional corner drugstore pharmacy is disappearing. These pharmacies are not only being replaced by large chain drug stores (who contract with large provider networks), but other changes are also being made. Pharmacy Benefit Management (PBM), an organization with new ideas for improvement, are making these changes possible. These changes require the patient to understand the choices they are given, including the out-of-pocket costs for drugs not covered in the network. Chronic diseases (eg, diabetes, arthritis) that require continual prescriptions (insulin or anti-inflammatory medication) will be obtained by mail order and include a three month (90 to 100 days) supply.

Pharmacy costs have been extremely expensive for the patient and the payers of their health plans. Some identified problems are: inappropriate prescribing of drugs, inaccurate pharmacy formulation, drug-seeking behavior, and inappropriate monitoring. Millions of dollars are lost annually in the U.S. for improper drug use. As a result, payers of health care are demanding more communication between the physician, the pharmacy, and the patients to avoid the risk of giving the “wrong medication.” To prevent and/or resolve these problems, pharmacists are being trained and educated in the practice of “pharmaceutical care.” Pharmacists are expected to provide a higher level of information to the patient beyond simply filling a prescription, and should offer education to the patient regarding their drug therapy.





PHARMACOLOGY UNDERGOING CHANGE

Pharmacists attend college for a minimum of five years for a bachelor of science in pharmacy. A new program is now offered for earning a Doctor of Pharmacy degree. This is optional and requires a minimum of six years of schooling. Over the past few years, many of the tasks that were performed by pharmacists are now being done by pharmacy technicians. Various state laws dictate what the pharmacy technician is allowed to do. Generally, a technician gathers information from the patient, enters prescriptions into the computer, pulls the stock bottle medication off of the shelf, and goes through the process of filling the prescription. The pharmacist, however, must check the prescription, counsel patients on how to take the medication, and take new prescriptions over the phone.

PRESCRIPTION DRUGS

A prescription is written by a physician and directed to a pharmacist to prepare, compound, or dispense the drug. The prescribed drug requires approval by the Federal Drug Administration that determines if the drug is safe to be used for a particular medical condition, is effective in the treatment of a condition, and if the labeling is clear and discloses sufficient information for informed choice. Prescription drugs are also called scheduled drugs when the drug is regulated for addiction and habitation (eg, opiates used for pain). The regulation of these drugs is shared with the Drug Enforcement Administration of the Department of Justice.

Typically, a physician will conduct an evaluation of a patient by history and physical examination and then if the diagnosed condition can be managed by pharmaceuticals or drugs, a prescription is written. A copy for a hospital record or outpatient files may be retained. The original prescription is given to the patient for obtaining the drug from a pharmacist. Prescriptions may also be phoned to a nurse or pharmacist, with the exception of Schedule I and II controlled substances (narcotics), which require a written prescription. Telephoning is usually limited to refilling established drugs (eg, for chronic conditions), or in an emergency (eg, an acute allergy to a bee sting). Prescription drugs may be abused, used improperly, and occasionally are not compatible with other medications. The label should be read carefully. Information from the pharmacist about the compatibility of the drug with other medications that are used is helpful.

UNDERSTAND YOUR PRESCRIBED MEDICINE

An estimated 2.4 billion prescriptions were dispensed in 1996. With this many prescriptions, there is definitely an overwhelming chance for confusion, preventable drug interactions, taking medication improperly, and for side effects that are not understood by the patient. Due to advanced technology, drugs are more effective, more expensive, and more specific to one particular illness. It is critical for the patient to understand what they are taking, how they are supposed to take the medication, and how to get the greatest benefit out of the medication. Some confusing issues regarding prescriptions and their use are:



Side Effects A side effect is the nontherapeutic and physiological result from taking a drug, such as drowsiness, dizziness, headaches, or digestive system problems (nausea, vomiting, diarrhea). The commonly prescribed drugs that are known to cause side effects are blood pressure medications (often causing dizziness), cholesterol-lowering agents (linked to liver disease requiring ongoing monitoring), and antidepressants (lowering sexual interest, delayed orgasm, and impotence).

Compliance It has been reported that one-half of patients fail to take their medications as directed. Approximately 10 percent of patients never have their prescription filled and up to 30 percent don't have their prescriptions refilled, for various reasons. Studies also show that by the time the patient leaves the doctor and goes to the pharmacy, they have forgotten half of the physician's instructions about the medication. A large number of patients do not complete a course of antibiotics, and stop taking them as soon as they feel better.

Overmedication This is a type of noncompliance and is another issue. Some patients feel if one pill works, two will be better. Depending on the medication, this can be extremely harmful. If the medication is an addictive drug (tranquilizer, opiate, or sleeping pill), dependence and addiction can creep up on you rather quickly.

Generic vs. Brand-name Drugs Most pharmacists believe that generic drugs are not only less expensive, but are also as safe and effective as brand-name drugs. This is based on the same thorough testing of the generic drug as the brand-named drug. Selection of the appropriate generic to substitute for the brand-name is important and should be discussed with both the physician and the pharmacist. Many insurance plans and health maintenance organizations pay only for generic drugs, if they are available.

Dietary Supplements Rather than seeking medical advice, many consumers are now asking for advice from pharmacists, catalogs, or multi-level marketing salesmen about selecting a dietary supplement, such as vitamins, minerals, and herbs. Vitamin E, for instance, has undergone research that suggests it may protect against heart disease, slow the aging process, reduce the risk of cataracts and some type of cancers, as well as other positive effects.

Sometimes, people feeling "run down" will respond to impressive, but unproven claims for energy from high-potency B-complex vitamins or the herb, ginseng. Other claims being made are echinacea (coneflower) to treat colds and flu and St. John's wort (*Hypericum*, a herb) to treat mild to moderate depression. It is important that patients talk to their physicians and their pharmacists about the use of over the counter supplements, drugs, and any interaction that may occur with prescribed drugs.



OVER THE COUNTER DRUGS

Pharmaceutical drugs or products, which may be sold without a prescription from a physician, are called over the counter (OTC) drugs. The Food and Drug Administration of the United States Government determines if a prescription is needed to obtain a drug, or if the drug can be purchased without a prescription. OTC drugs are generally safe, if the patient follows the directions on the label for use. Some OTC drugs are not regulated, however, and make no “claim” for being effective and are not specifically labeled with possible side effects.

Some examples of drugs that are now offered as OTC drugs are:

For heartburn	Pepsid AC, Tagamet HB, Zantac 75, Axid AR
For analgesic and antipyretic effects	Ibuprofen, Children’s Motrin Suspension, Children’s Advil, Orudis KT, Actron
For vaginal yeast infections	Femstat 3, Monistat 3, Vagistat-1
For smoking cessation	Nicotine gum (Nicorette), nicotine patch (Nicoderm)
For allergy relief	A nasal spray (Nasalcrom)
For itchy eyes from allergies	Pheniramine, Ocuhist (used as a decongestant)

For those who select OTC drugs, it is important to read the label carefully for correct dosing and safety. Also compare the costs of the various products offered for the same treatment. When more than one product is released for the same symptoms, the expected effect is the same for all of the drugs. Choices, therefore, will mostly be made according to the cost, marketing, and the advice of a pharmacist. In the future, sufferers of a chronic illness who understand their needs and the medications that are the most effective, may be prone to use over the counter products, if they are available.

GIVING CONSIDERATION FOR SELF-CARE AND NONPRESCRIPTION DRUGS

- ◆ Is the condition self-diagnosable or recognizable without a physician’s diagnosis?
- ◆ Is the condition self treatable?
- ◆ What is the product and is its toxicity clearly labeled?
- ◆ Does the product have misuse or potential abuse?
- ◆ Is the product habit forming?
- ◆ Do the benefits outweigh the risks?
- ◆ Can directions for use be clearly understood?
- ◆ Can warnings against inappropriate or unsafe use be clearly understood?



ADVERSE DRUG REACTION (ADR)

An adverse drug reaction occurs when a pharmaceutical (drug) is prescribed or administered for one problem and inadvertently causes another, which may be more serious and life-threatening than the disease under treatment. The examples of types of ADRs are allergic reactions, cardiac arrhythmia, diarrhea, fever, nausea and vomiting, kidney failure, confusion, rash, itching, hypotension (shock), and bleeding disorders. It has been estimated that an adverse drug reaction causes a costly increase in medical care both in dollar amounts and in morbidity (an illness or unusual condition) of the patient. Since more and more treatment is done out of the hospital, a patient under treatment should carefully read the labeling on each prescription — not only for the correct dose to be taken, but for any associated side effects.

PHARMACISTS' TERMINOLOGY

Prescription Drug A drug that can only be obtained with a physician's prescription.

Over the Counter Drug A drug that can be obtained in a store without a prescription.

Controlled Drug A drug that is controlled by the Drug Enforcement Administration (DEA) regulations due to potential abuse, such as heroin, morphine, demerol, and codeine.

Scheduled Drug This is the same as a “controlled” drug.

Drug Warning and Labeling This is a detailed description of the drug that is required to be inserted in new prescriptions. Additionally, some pharmacists enclose summary educational information.

Pharmacist A health specialist licensed to compound and dispense prescribed drugs.

Generic Drug A drug sold under its generic (licensed) name and is identical in chemical composition to a drug sold under a manufacturer's trademark name.

Brand Drug A patented drug with a manufacturer's trademark name instead of its licensed generic name.

Pharmacy Benefit Management A managed care term for integration, pricing, and dispensing of drugs for quality and control of the cost. This may include mail order prescription filling for drugs, used continuously to manage a disease (such as high blood pressure medication or estrogen).

Prescription Card An identification card received through a health benefit plan that is used by a patient to obtain prescription drugs.



PRESCRIPTION TERMS (HOW TO READ YOUR PRESCRIPTION)

The drug may be in legend or generic form:

#	The number of tablets, capsules, or amount of liquid per prescription
Sig	How often to take the drug
Refill	NR (not refillable); or # (No.) of refills available, usually no more than one year's supply
Signature	A licensed physician or dentist
DEA #	A unique identification number assigned to a physician for use when prescribing narcotic and controlled drugs.

Class or Category of Drug General term which defines therapeutic (antibiotic) or schedule (narcotic) of drug or physiological effect.

Examples of Drug Categories:

AIDS chemotherapeutic agents	Suppresses AIDS symptoms
Analgesics	Pain management
Anesthetics	Prevents pain during surgery
Antibiotics	Fights bacterial infections
Cardiovascular agents	Treats cardiovascular conditions
Cold and cough preparations	Minimizes cold symptoms
Contraceptives	Prevents pregnancy
Dermatological	Treats skin diseases
Diabetes agents	Controls diabetes
Hormone replacements	Mimics natural hormones (as estrogen)
Narcotics	Prevents pain, causes heightened sense of well-being, mood changes, mental confusion, and deep sleep.
Vitamins	Nutritional suppliments

Product Categories:

Antihistamines	Treats allergic reactions
Acne preparations	Treats acne
Antacids	Reduces acids in stomach (heartburn)
Cholesterol lowering	Lowers cholesterol levels
Chemotherapy agents	Treats malignancies (cancers)
Antidepressant drugs	Treats depression