

# Medication Order Entry and Fill Process

## Chapter Objectives

*Upon completion of Chapter 6, the pharmacy technician student will be able to*

1. Recall the tasks a pharmacy technician may perform during the prescription filling process.
2. Explain the purpose and importance of a pharmacy policies and procedures manual.
3. Do the following regarding pharmacy language:
  - Recall the meaning of the various medical and pharmacy abbreviations that may appear on a patient's prescription, medication order, or patient profile.
  - Discriminate between the various root words, prefixes, and suffixes that are used to create the medical terminology that pharmacy technicians may be exposed to in their practice of pharmacy.
  - Explain the meaning of the various root words, prefixes, and suffixes used in medicine.
4. Discuss the prescription filling process, including:
  - Name the methods by which a prescription may be presented in a pharmacy.
  - Identify the different types of prescription or medication orders.
  - Describe each step in the prescription filling process.
  - List the required information on a prescription and medication order.
5. Name and explain the meaning of the various dispense as written (DAW) codes that are used in data entry.
6. Discuss the labeling process, including:
  - Differentiate between the information required on the various types of labels.
  - List the information that is required to be included on a repackaging log.
7. Explain unit-dose packaging procedures, including:
  - Differentiate between expiration date and beyond-use dating.
  - Identify the information required to complete a unit-dose log.
8. Discuss packaging requirements, including:
  - Identify the various types containers used in filling prescription.
  - Interpret the terminology associated with the various storage temperatures.
9. List the information contained in a patient product insert and the types of medication that require a patient product insert be provided to a patient.
10. Identify drug distribution systems and provide examples of automated dispensing systems.

### PTCB Knowledge Domains

- 6.2 Intake, interpretation, and data entry
- 6.4 Fill process (e.g., select appropriate product, apply special handling requirements, measure, and prepare product for final check)
- 6.5 Labeling requirements (e.g., auxiliary and warning labels, expiration date, patient-specific information)
- 6.6 Packaging requirements (e.g., type of bags, syringes, and glass, PVC, child resistant, light resistant)
- 6.7 Dispensing process (e.g., validation, documentation and distribution)

## PHARMACY TECHNICIAN TASKS

Pharmacy technicians are permitted to perform a wide range of tasks during the order entry and prescription filling process. Some of these tasks include:

- Accepting new prescriptions from the patient
- Receiving prescription refills from the patient
- Requesting refill authorization from the patient's prescriber
- Collecting patient information
- Maintaining patient profiles
- Entering patient, prescriber, and medication information into the pharmacy's information system
- Interpreting the prescription's signa
- Billing prescription to third-party prescription providers
- Counting and pouring the correct medication
- Labeling prescription bottles
- Returning medication bottles to the pharmacy shelves
- Repackaging medication
- Preparing unit-dose medications

## PRACTICE SITE POLICIES AND PROCEDURES

Each pharmacy will have a policies and procedures manual.

- **Mission statement:** States the purpose and goals of an organization
- **Policy:** A definite course or method of action; a plan establishing goals and objectives
- **Procedure:** Process of accomplishing a task to ensure efficiency and consistency; a step-by-step method to accomplish a policy

Policies and procedures are found in all types of pharmacy practice. They are required by professional and regulatory agencies, such as the American Society of Health-System Pharmacists (ASHP), the American Pharmacists Association (APhA), and The Joint Commission (TJC). Policies and procedures provide standards for the operation of a pharmacy. The policy and procedure manual can be used as a reference book and can promote safety in the workplace.

### ExCPT Knowledge Domains

- 1.1 Overview of technician duties and general information
  - 1.1.2 Functions that a technician may and may not perform
  - 1.1.3 Prescription department layout and workflow
- 3.1 Prescription information
  - 3.1.1 Information required on a valid prescription form
  - 3.1.2 Telephoned and faxed prescriptions
  - 3.1.3 Refill requirements
  - 3.1.4 Patient information (age, gender, etc.)
  - 3.1.5 Interpreting prescribers' directions for prescription labels
  - 3.1.6 Recognizing and using common prescription abbreviations
- 3.2 Preparing and dispensing prescriptions
  - 3.2.3 Automated dispensing systems
  - 3.2.4 Procedures for preparing prescriptions and data entry
  - 3.2.5 Labeling prescriptions properly
  - 3.2.6 The purpose and use of patient records
  - 3.2.7 Proper packaging and storage
- 3.4 Sterile products, unit doses, and repackaging
  - 3.4.1 Drug distribution systems used in hospitals
  - 3.4.2 Procedures for repackaging medications

## PHARMACY LANGUAGE

Pharmacy technicians must be aware of common medical and pharmacy abbreviations, as well as general medical terminology.

### MEDICAL ABBREVIATIONS

Pharmacy technicians may encounter medical abbreviations on patients' prescriptions, in patients' medical charts, and in various types of drug literature they may encounter. Therefore pharmacy technicians must have the knowledge to interpret these abbreviations correctly so that errors do not occur. When in doubt about an abbreviation, pharmacy technicians should never guess but rather ask a pharmacist about it. [Table 6-1](#) provides a small list of medical abbreviations.

### PHARMACY ABBREVIATIONS

Pharmacy abbreviations are found in prescriptions, medication orders, and patient charts. Many of the abbreviations are derived from Latin and are used to identify weights, volumes, dosage forms, routes of administration, frequency of taking the medication, directions in compounding, and names of medications. These abbreviations may be either capitalized or in lower case letters. Many of the abbreviations used have been found to cause errors; therefore the Institute of Safe Medication Practices (ISMP) and the TJC have issued a list designating those abbreviations

TABLE 6-1 Medical Abbreviations

BODY CONDITION	MEANING
AIDS	acquired immunodeficiency syndrome
BM	bowel movement
BP	blood pressure
BPH	benign prostatic hypertrophy
BS	blood sugar
CA	cancer
CAD	coronary artery disease
CHF	congestive heart failure
COPD	chronic obstructive pulmonary disease
CP	chest pain
CVA	cerebrovascular accident
DJD	degenerative joint disease
DM	diabetes mellitus
DT	delirium tremens
GERD	gastroesophageal reflux disease
GI	gastrointestinal
GT	gastrostomy tube
GU	genitourinary
HA	headache
HBP	high blood pressure
HIV	human immunodeficiency virus
HR	heart rate
HT, HTN	hypertension
JRA	juvenile rheumatoid arthritis
NKA	no known allergies
NKDA	no known drug allergies
N&V, N/V	nausea and vomiting
OA	osteoarthritis
OCD	obsessive-compulsive disorder
P	pulse
PTT	prothrombin time
PVC	premature ventricular contraction
RA	rheumatoid arthritis
RBC	red blood cell
SCT	sickle-cell trait
SOB	shortness of breath
Sx	symptom
TED	thromboembolic disease
Tx	treatment
UA	uric acid, urinalysis
URI	upper respiratory infection
UTI	urinary tract infection
VS	vital sign
WBC	white blood cell

and symbols. In hospital practice, the Pharmacy and Therapeutics Committee may identify a list of approved abbreviations for the institution. In community practice, there is no such list. Pharmacy abbreviations may be found in the superscription, inscription, subscription, or the sig (signa) of the prescription. The superscription is the Rx symbol, inscription contains the name of the medication and its quantity, the subscription informs the pharmacist how to compound the prescription, and the sig are the directions for taking the medication. Table 6-2 presents examples of common

TABLE 6-2 Examples of Pharmacy Abbreviations

ABBREVIATION	MEANING
ac	before meals
am	before noon or morning
bid	twice a day
cap	capsule
dtd	give of such doses
fl oz	fluid ounce
g	gram
hs	bedtime or hour of sleep
IM	intramuscular
IV	intravenous
mg	milligram
mL	milliliter
NS	normal saline
oint	ointment
pc	after meals
pm	after noon
po	by mouth
qid	four times a day
tab	tablet
tid	three times a day

pharmacy abbreviations. A more complete list of pharmacy abbreviations is located in Appendix G.

## MEDICAL TERMINOLOGY

Medical terminology consists of root words, prefixes, and suffixes. By combining the various root words, prefixes, and suffixes, medical words are formed. Table 6-3

TABLE 6-3 Medical Terminology: Root Words, Prefixes, and Suffixes

ROOT WORD	MEANING
card	heart
derm	skin
gastro	stomach
lipo	fat
pulmo	lung
pyr/o	fever
ren/o	kidney
PREFIX	MEANING
brady-	slow
hyper-	above
hypo-	below
intra-	across
peri-	around
tachy-	fast
tri-	three
SUFFIX	MEANING
-algia	pain
-emia	blood
-itis	inflammation
-ology	study of
-pathy	disease
-phagia	eat
-uria	urine

contains some of many of the root words, prefixes and suffixes that you will encounter in your practice as a pharmacy technician. It presents examples of common medical root words, prefixes, and suffixes. A more complete list is found in Appendix B of this text.

## **PRESCRIPTION FILLING PROCESS (OVERVIEW)**

### **THE MEDICATION ORDER**

1. Receiving the prescription
  - a. Method of receipt
    - (1) Walk in
    - (2) Call in (original prescription of nonscheduled II controlled substances may be telephoned in by the prescriber or his or her representative. A patient may call in a refill on his or her prescription.)
    - (3) E-prescribing
    - (4) Fax
  - b. Patient profile: The patient profile provides the patient's health history. It is to be completed the first time a prescription is filled in a pharmacy and updated with subsequent new prescriptions and refills. Information contained in a patient profile may include:
    - (1) Name, age, sex, race, occupation, address, weight
    - (2) Medical history to include surgeries
    - (3) Medication history to include current prescription medications, over-the-counter (OTC) medications, vitamins, and herbal supplements
    - (4) Drug and food allergies
    - (5) Adverse drug effects
  - c. Prescription information
    - (1) Patient information: Includes the patient's name, home address (street number, street, city, state, zip code), telephone number, and birth date
    - (2) Prescriber information: Includes the prescriber's name, office address (street number, street, city, state, zip code), office telephone number (including area code), National Provider Identifier (NPI) number, and Drug Enforcement Administration (DEA) number (only for controlled substances)
    - (3) Prescription information
2. Interpreting the prescription
  - a. Identify the name, strength, dosage form, and quantity of medication to be dispensed.
  - b. Identify the route of administration.
  - c. Identify the frequency of administration.
  - d. Determine if a generic drug may be dispensed.
  - e. Identify the number of refills permitted by the prescriber. (If no refills are indicated by the prescriber, then 0 refills will be permitted.)
  - f. When in doubt about interpreting the prescription, ask the pharmacist for clarification. If the pharmacist has questions regarding a prescription, the physician will be contacted.
3. Entering information into computer system
  - a. Information required is prompted.
  - b. Quantities are expressed in metric units.
  - c. Input the correct dispense as written (DAW) code (e.g., DAW 1 would indicate the prescriber wants the brand name drug dispensed).
  - d. Calculate a day's supply of medication.
  - e. Third-party adjudication: Submitting prescription for payment by third-party drug insurance provider. If the prescription drug insurance company denies payment, the patient is responsible for full payment of the prescription unless the rejected claim is corrected and resubmitted to the third-party prescription drug provider.
  - f. Drug utilization evaluation (review): Process of verifying that the prescription being processed does not interact adversely with the other medications on a patient's profile. If a warning is observed, the pharmacist is to be notified immediately to determine the proper course of action in filling the prescription, such as contacting the physician or to continue filling the prescription. The pharmacist makes a decision based on the information on hand.
4. Filling the prescription
  - a. Verify all prescription information has been entered properly.
  - b. Pull medication from the shelf and check prescription label against the NDC number found on bulk container; scan the UPC code on the bottle to ensure the correct medication was selected.
  - c. Measure or count the medication; if counted manually, count in multiples of five. Whether counting manually or using automatic counting equipment, recount the quantity for accuracy. If any penicillin or a sulfa drug is dispensed, the pill counting tray should be wiped down using isopropyl alcohol. When dispensing oral chemotherapeutic or hazardous agents, the pharmacy technician should wear gloves to prevent the skin from coming in contact with the medication and the counting tray wiped down using isopropyl alcohol.
  - d. Select an appropriately sized container and pour the medication into the container.
  - e. Place an appropriately sized child-resistant top on the container. If a patient requests an EZ-open top, have the patient sign the back of the original prescription indicating the request.

- f. Place the labels on the container and the upper backhand corner of the original prescription.
  - g. Add printed auxiliary labels to the prescription container.
  - h. Place the completed prescription container on top of the original prescription with the bulk container that has been pulled from the shelf.
  - i. The pharmacist checks the completed prescription and bags the prescription.
  - j. The completed prescription is placed in the appropriate bin.
  - k. The bulk medication bottle is returned to shelf.
5. Patient consultation
- a. Ask the patient or person picking up the prescription if he or she has any questions for the pharmacist. If yes, inform the pharmacist, who will counsel the patient. In some situations, the pharmacist may wish to speak with a patient to make sure he or she understands how to take a medication.
  - b. Pharmacy technicians are not permitted to counsel patients.

### TYPES OF PRESCRIPTION (MEDICATION) ORDERS

- **STAT:** A medication order that should be filled within 15 minutes of receiving it in a hospital
- **ASAP (as soon as possible):** A medication order that does not have the priority of a STAT order but needs to be processed as soon as possible
- **PRN (as needed):** An order that may be filled or administered when a patient requests it, but there may be limitations associated with it

### REQUIRED PATIENT INFORMATION

Information collected from either the patient or his or her representative by the pharmacy technician is maintained in a patient profile. Every patient has a profile. This information is necessary for the pharmacist to ensure that patients receive the proper medications and to reduce potential adverse effects. This information includes the following:

- **Patient information:** Name, sex, address, and age of patient; obtaining the telephone (home, mobile, and work) numbers of the patient is highly recommended
- **Billing information:** Who is responsible for payment of prescription, whether it is the patient or a third-party provider. The third-party provider information includes a group number and subscriber identifier (may be either a numeric or alphanumeric) and the individual's relationship to the cardholder (cardholder, spouse, or dependent).
- **Disease states or health conditions:** Specific medications can have an adverse effect on a disease state or condition; drug–disease interactions
- **Medications patient is taking:** Prescription, OTC, or complementary and alternative medications;

this information is used to prevent drug–drug interactions

- **Drug allergies:** Any medication allergies the patient is known to possess. This information is necessary to ensure that the patient does not receive a medication that can have an adverse effect on the patient.

### REQUIRED PRESCRIBER INFORMATION

Prescriber information includes:

- Name of physician or prescriber
- Office address of physician (prescriber), including the street number, street name (office or suite number if applicable), city, state, and zip code
- DEA number for controlled substances
- NPI number
- State license (depending on state regulations)

### REQUIRED PRESCRIPTION INFORMATION

- Date the prescription was written
- Patient information:
  - Patient's name
  - Patient's home address, including the number, street, city, state, and zip code
- Inscription
  - Name of medication (may be either brand or generic)
  - Strength of medication (if applicable)
  - Dosage form
  - Quantity of medication to be dispensed
- Subscription: Instructions to the pharmacist
- Physician's signature: Must be in ink (handwritten prescriptions); stamped signatures are illegal

### REQUIRED MEDICATION ORDER INFORMATION

- Prescriber's information, including the physician's name, DEA number (controlled substances only), and hospital-assigned ID
- Date of order
- Patient information, including the room number, bed number, and ID number assigned to the patient
- Name, strength, and dosage form of medication
- When to be administered (frequency); in some hospitals, the frequency is assigned a specific time
- Duration of therapy
- Prescriber's signature

### PRESCRIPTION REFILL INFORMATION

The following information should be obtained from a patient when they call in a prescription refill:

- Patient's name
- Patient contact information
- Patient's date of birth



- Patient's home telephone number
- Prescription number
- Name of the medication, strength, dosage form, and quantity

If the patient does not have all of this information, the patient's profile can be accessed by the computer by the patient providing his or her name and date of birth.

If the prescription does not have any refills remaining, the pharmacy technician may contact the prescriber by telephone or fax or electronically.

## DATA ENTRY IN PRESCRIPTION PROCESSING

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- The pharmacy technician is prompted by computer as to order of the information to be entered.
- The patient's name is searched by entering the last name followed by the first name. The patient's birth date is used to distinguish between individuals with the same name.
- The patient's third-party prescription insurance card will contain a Bank Identification Number (BIN) number, plan group number, and patient's ID number.
- The patient's relationship to the cardholder will need to be entered; many plans use the following relationship holder codes:
  - 01: Cardholder
  - 02: Spouse
  - 03: Dependent
- The physician's name is searched by last name followed by first name. Using a physician's DEA or NPI number can identify a doctor from other doctors with the same name. A physician may have multiple office locations.
- Drug name must be entered, and the NDC number of the medication selected must be the same as the medicine being dispensed.
- The quantity of medication dispensed must be entered as a metric quantity.
- The DAW code is entered based on how the prescription is written.
- A pharmacy's computer system may have sig codes or shortcuts when entering the prescription's signa. Each computer system has sig codes that are appropriate for that system (different systems may have different sig codes). A sig code is not always the same as pharmacy abbreviation. The sig code will be interpreted by the computer and will translate into the appropriate directions for the patient.

## DISPENSE AS WRITTEN CODES

Dispense as written codes are used to ensure the pharmacy is properly reimbursed by a third party

provider for a prescription being dispensed. These codes are as follows:

- 0 = No product selection indicated
- 1 = Substitution not allowed by provider
- 2 = Substitution allowed; patient requested product dispensed
- 3 = Substitution allowed; pharmacist-selected product dispensed
- 4 = Substitution allowed; generic drug not in stock
- 5 = Substitution allowed; brand drug dispensed as generic
- 6 = Override
- 7 = Substitution not allowed; brand drug mandated by law
- 8 = Substitution allowed; generic drug not available in marketplace
- 9 = Other

## LABELING PROCESS

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### REQUIRED PRESCRIPTION LABEL INFORMATION

- Date when the prescription was filled
- Serial (prescription) number of the prescription
- Name and address of the pharmacy
- Name of the patient
- Name of the prescribing physician
- All directions for use of the prescription
- Generic or brand name of the prescription
- Strength of the medication
- Name of the drug manufacturer
- Quantity of the drug
- Expiration date of the prescription
- Initials of the licensed pharmacist
- Number of refills allowed

### REQUIRED MEDICATION ORDER LABEL INFORMATION

- Name and location of the patient
- Trade or generic name of drug
- Strength of drug
- Quantity of drug for the outpatient prescription labels
- Expiration date of medication
- Lot number of medication

### STERILE PRODUCT PRESCRIPTION LABELING

- Pharmacy name
- Patient name
- Date of filling
- Ingredients (strength and quantity of each)
- Total volume
- Directions for use

- Infusion rate
- Beyond-use date

## REPACKAGED MEDICATIONS

Only enough medication as needed for a limited time period should be repackaged, and the following information is required on the package:

- Name of medication
- Drug manufacturer's name
- Dosage form
- Strength of drug
- Beyond-use date (BUD)
- Lot number (batch number) of medication

## REPACKAGING LOG

The repackaging log contains documentation required for repackaging medication and must be signed by the pharmacist.

- Date of repackaging
- Name of drug
- Drug strength
- Dosage form
- Drug manufacturer
- Lot (batch) number
- Drug manufacturer's expiration date
- Beyond-use date (BUD) assigned by the pharmacy
- Quantity repackaged
- Pharmacy technician's initials (if repackaged by a pharmacy technician)
- Pharmacist's initials
- Repackaging log must be maintained

## UNIT-DOSE LABELING

- Trade or generic name of drug
- Drug manufacturer
- Strength of drug
- Beyond-use date (BUD)
- Lot number of medication
- A unit-dose log must be maintained.

## AUXILIARY (ANCILLARY) LABELS

Auxiliary labels provide additional information, such as special instructions, warnings, or storage conditions, to the patient. Auxiliary labels are printed with the prescription label and should be affixed to the container such that they do not cover any words on the prescription label. They may provide information on the administration of the drug. Examples of auxiliary labels include:

- Do Not Drink Alcohol
- May Cause Drowsiness
- Take with Food or Milk
- Avoid Sunshine
- Take on an Empty Stomach
- Shake Well
- Refrigerate

## COMMON AUXILIARY LABELS FOR DOSAGE FORMS

DOSAGE FORM	TYPE OF AUXILIARY LABEL
Suspension	SHAKE WELL
Ophthalmic preparations	FOR THE EYE
Otic preparations	FOR THE EAR
Ointments, creams, and lotions	FOR EXTERNAL USE ONLY
	FOR TOPICAL USE
Suppositories	FOR RECTAL USE
	FOR VAGINAL USE
Patches	APPLY TO SKIN

## UNIT-DOSE PACKAGING PROCEDURES

### PERSONNEL

- Possess the education and training to perform the necessary functions

### FACILITY

- Low relative humidity and controlled room temperature

### EQUIPMENT

- Appropriate design should allow cleaning to prevent cross-contamination.
- Equipment and utensils should be cleaned, maintained, and sanitized at appropriate times.

### MATERIALS USED

- Should not be reactive, additive, or absorptive

### BLISTER PACK COMPONENTS

- Blister: Holds the medication
- Lidding stock: Material (e.g., aluminum) that seals the blister

### PACKAGING

- Manually
- Automatic

## UNIT-DOSE CONTAINERS

CONTAINER	DOSAGE FORM
Amber blister packs	Tablets and capsules
Amber glass	Liquids
Applicators	Suppositories, creams, and ointments
Foil cups	Liquids and suspensions
Heat-sealed strip packs	Tablets, capsules, and troches
Oral syringes	Liquids
Plastic cups	Liquids and suspensions
Plastic suppository shells	Suppositories
Syringes	Parenterals, oral liquids, and transdermal gels

## TYPES OF UNIT-DOSE PACKAGES

- **Unit-dose system:** A system that provides a medication in its final "unit of use." Unit-dose packaging machines may be manual, semiautomatic, or automatic. It may be a single-drop (60 packages/min) or double-drop (120 packages/min) system.
- **Modified unit-dose system:** A drug distribution system that combines unit-dose medications, which are blister packaged onto a multiple-dose card instead of being placed in a box. Synonymous with *punch cards*, *bingo cards*, and *blister cards*.
- **Blended unit-dose system:** Combines a unit-dose system with a non-unit-dose system. May be a multiple-medication package or a modular cassette. A multiple-medication package has all the medication, which is administered at the same time. A modular cassette is a combination cassette or drawer exchange system.

## STORAGE OF UNIT-DOSE MEDICATIONS

- Products should be rotated to ensure first-in, first-out processes.
- Temperature should not exceed 25° C.
- The final product should be examined for instability caused by changes in color or odor.

## COMPLAINTS

- A process is in place to handle all oral and written complaints.

## RETURNED GOODS

- A process is in place to handle all returned medications. Returned unit dose medications should be credited to the patient's account. The returned unit dose medications may be redispensed because they are in unit-dose packages.

## REPROCESSING

- Transferring medication from one unit-dose container to another unit-dose container is not permitted.
- Removing the blister card from the cardboard carrier and placing it in another cardboard carrier is permitted.

## UNIT-DOSE LOG RECORD

The following information is required to be filled out on a unit-dose log record:

- Date unit dose was prepared
- Drug (generic name)
- Medication strength
- Dosage form
- Quantity prepared
- Drug manufacturer
- Drug manufacturer lot number
- Manufacturer's expiration date

- Pharmacy-assigned beyond-use date (BUD)
- Pharmacy lot number
- Pharmacy technician's initials
- Pharmacist's initials

## BEYOND-USE DATE

The expiration date of a medication is determined by the drug manufacturer. Beyond-use dating is used when medications are repacked from a bulk container into a unit-dose form. There are two methods of determining the beyond-use date:

- 6 months or  $\frac{1}{4}$  of the manufacturer's expiration date, whichever is less
- Maximum of 1 year as long as drug does not exceed the safety margin of the drug manufacturer

## PACKAGING REQUIREMENTS

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### CONTAINER USES

- **Round vials:** Used for solid dosage forms such as tablets or capsules
- **Prescription bottles:** Used for liquids of low viscosity
- **Wide-mouth bottles:** Used for bulk powders or large quantities of tablets, capsules, and viscous liquids that cannot be poured readily from narrow-necked containers
- **Dropper bottles:** Used for ophthalmic, nasal, otic, or oral liquids to be administered by drop
- **Applicator bottles:** Used for applying liquid medications to a wound or skin surface
- **Ointment jars and collapsible tubes:** Used to dispense semisolid dosage forms
- **Hinged-lid or slide boxes:** Used for dispensing suppositories and powders

### CLASSIFICATION OF CONTAINERS

- **Tamper-evident packaging:** A container or individual carton of a sterile article intended for ophthalmic or otic use must be so sealed that the contents cannot be used without obvious destruction of the seal.
- **Light-resistant container:** Protects the contents from the effects of light caused by the contents of the container
- **Well-closed container:** Protects the contents from other solids and from loss of the article under normal conditions
- **Tight container:** Protects the contents from contamination by liquids, solids, or vapors
- **Hermetic container:** Impervious to air or gas
- **Single-unit container:** Designed to hold a quantity of drug product intended for administration as a single dose
- **Single-dose container:** A single-unit container for parenteral administration



- **Unit-dose container:** Unit-dose container is a single-unit container intended for administration other than parenteral
- **Unit-of-use container:** One that contains a specific quantity of a drug product that is intended to be dispensed as such without further modification except for appropriate labeling
- **Multiple-unit container:** Permits withdrawal of successive portions of the contents without changing the strength, quality, or purity of the remaining portion
- **Multiple-dose container:** Multiple unit container for parenteral administration

### STORAGE CONDITIONS (UNITED STATES PHARMACOPEIA)

- **Freezer:** A place where the temperature is maintained thermostatically between  $-25^{\circ}$  and  $-10^{\circ}$  C ( $13^{\circ}$  and  $14^{\circ}$  F)
- **Cold:** Any temperature not exceeding  $8^{\circ}$  C ( $46^{\circ}$  F)
- **Cool:** Any temperature between  $8^{\circ}$  and  $15^{\circ}$  C ( $46^{\circ}$  and  $59^{\circ}$  F)
- **Room temperature:** The temperature prevailing in a working environment
- **Controlled room temperature:** A temperature maintained thermostatically that encompasses the usual and customary working environment of  $20^{\circ}$  to  $25^{\circ}$  C ( $68^{\circ}$  to  $77^{\circ}$  F)
- **Warm:** Any temperature between  $30^{\circ}$  and  $40^{\circ}$  C ( $86^{\circ}$  and  $104^{\circ}$  F)
- **Excessive heat:** Any temperature above  $40^{\circ}$  C ( $104^{\circ}$  F)
- **Protect from freezing:** In the addition to the risk of breaking the container, freezing subjects the item to a loss of strength or potency.
- **Dry place:** Denotes a place that does not exceed 40% relative humidity

### CHILD-RESISTANT CONTAINERS

- The Consumer Product Safety Commission requires drug manufacturers to place prescription drugs in child-resistant containers if the original package is intended to go directly from the pharmacist to the patient.
- All legend drugs intended for oral use must be dispensed by the pharmacist to the patient having safety closures unless the prescribing physician or patient requests otherwise. If a patient requests a non-child-resistant container, the prescription may be dispensed in a non-child-resistant container, but the patient must sign the back of the prescription indicating he or she has requested a non-child-resistant container.
- Select medications, such as oral contraceptives and select cardiovascular medications such as nitroglycerin, are exempted from child-resistant packaging.

- Drugs that are used or dispensed in inpatient institutions, such as hospitals, nursing homes, and extended stay facilities, are not required to be in child-resistant containers.

### PATIENT PACKAGE INSERT REQUIREMENTS

A patient package insert is an informational leaflet written for the lay public describing the benefits and risks of medications. Information found on a package insert includes the following:

- Description
- Clinical pharmacology
- Indications and usage
- Contraindications
- Warnings
- Precautions
- Adverse reactions
- Drug abuse and dependence
- Overdosage
- Dosage and administration
- How supplied
- Date of the most recent revision of the labeling

A pharmacy is required to provide patient package inserts to all patients receiving metered-dose inhalers, oral contraceptives, estrogen, progesterone, and isotretinoin.

### DRUG DISTRIBUTION SYSTEMS

#### AUTOMATED DISPENSING SYSTEMS

A storage, dispensing, and charging system that is used to save time, improve inventory control tracking, and reduce medication errors. These systems are most commonly found in hospitals and may be centralized or decentralized.

- **Centralized pharmacy:** Found in the central pharmacy that is used to improve manual unit-dose cart fill process. A disadvantage of the centralized system is its inability to handle all dosage forms.
- **Decentralized pharmacy:** Found in the patient care areas of a hospital to eliminate or reduce management issues that include narcotic diversion and poor record keeping. Advantages of this system include the ability to dispense and return medications, document medication waste, and produce reports.

#### EXAMPLES OF AUTOMATED DISPENSING SYSTEMS (DECENTRALIZED)

- **Pyxis MedStation system:** Automated dispensing system supporting decentralized medication

management. Bar code scanning ensures accurate medication dispensing, features to prevent loading of the wrong medication, and active alerts to provide an added safety precaution for high-risk medications.

- **Cubie system:** Restricts access to only one medication at a time during the removal process. The system helps reduce the risk of nurses selecting a medication from the wrong pocket.
- **Pyxis CII Safe:** Tracks and monitors the replenishment of controlled substance inventory within a hospital
- **Pyxis anesthesia system:** Provides visibility to medication inventory and utilization to help pharmacy ensure anesthesia providers can access the needed medication for patients. The system has a biometric access system and a variety of drawer types, including a new controlled access drawer for larger high-risk medications.

## CHAPTER 6 REVIEW QUESTIONS

1. What is the subscription on a prescription?
  - a. Any special instructions or directions to the pharmacist
  - b. Directions to be typed on the prescription label
  - c. Name, strength, and quantity of medication
  - d. The Rx symbol
2. Which of the following must be done if a patient requests an easy-open container?
  - a. Verify with the physician that the dispensing of a medication in an easy-open container is permitted.
  - b. Verify that there are no children younger than 12 years living with the patient.
  - c. Verify that the patient has activated charcoal at home in case of a potential overdose.
  - d. Have the patient sign the back of the prescription indicating that he or she has requested an easy-open container.
3. Which of the following pieces of information is not needed on a patient's prescription?
  - a. Patient's name
  - b. Patient's ID number
  - c. Name of the medication
  - d. Directions for use
4. Which of the following is not required on a medication order label?
  - a. Expiration date of medication
  - b. Lot number of medication
  - c. Medication number
  - d. Name and location of patient
5. Which of the following is not found on a patient package insert?
  - a. Description of medication
  - b. Expiration date and lot number of medication
  - c. Indications for medication
  - d. Date of drug approval
6. Which piece of information is not required on a medication order label?
  - a. Expiration date of medication
  - b. Pharmacist or technician who processed the order
  - c. Lot number of medication
  - d. Trade or generic name of medication
7. Which of the following medications does not require that a patient package insert be given to the patient?
  - a. Isotretinoin
  - b. ACE inhibitors
  - c. Estrogens
  - d. Oral contraceptives
8. In multiples of what number should medication be counted?
  - a. Two
  - b. Three
  - c. Five
  - d. Ten
9. A physician prescribes a prescription for a non-controlled schedule prescription with "prn" refills. For what period of time is the prescription valid?
  - a. 1 year from the date the prescription was written
  - b. 1 year from the date the prescription was filled
  - c. 1 year from the date the prescription was picked up by the patient
  - d. 6 months from the date the prescription was written
10. A prescription is written for one pint of a prescription drug. What volume must be entered in the computer system?
  - a. One pint
  - b. Two cups
  - c. 240 mL
  - d. 480 mL
11. Which of the following is not required on a prescription?
  - a. Name of the medication
  - b. Patient's birthday
  - c. Patient's social security number
  - d. Prescriber's information

12. What is the maximum number of refills permitted on a schedule IV prescription?
- 0
  - 1
  - 5
  - 6
13. What is the purpose of an auxiliary label?
- Identifies medications that require a patient product insert be provided to the patient
  - Identifies the expiration date of the medication
  - Identifies the lot or batch number of the medication
  - Provides additional information about the medication that may include when to take the medication, storage, and possible adverse effects
14. Which of the following is true regarding EZ-open prescription bottle lids?
- All prescriptions require that one is placed on it; however, a patient may request that it not be used.
  - A prescriber or a patient may request that one is placed on the container.
  - They must be provided to any individual who does not have children living in his or her home.
  - They must be provided to all senior citizens.
15. A noncontrolled prescription is written with three refills and filled today at the pharmacy. Two weeks later, the patient requests that it be transferred to another pharmacy. How many times may it be transferred?
- Zero times
  - One time
  - Two times
  - Three times
16. Which of the following pieces of information does not need to appear on a prescription label for a controlled substance?
- Directions for use
  - Name of medication
  - Patient's name
  - Prescriber's DEA number
17. What DAW code is assigned if no product is selected?
- DAW 0
  - DAW 1
  - DAW 2
  - DAW 3
18. What does the suffix *-ology* mean?
- Disease
  - Heart
  - Inflammation
  - Study of
19. What is the meaning of the pharmacy abbreviation "bid"?
- Four times a day
  - Every other day
  - Three times a day
  - Twice a day
20. The pharmacy receives a prescription for Synthroid 0.1 mg. What term refers to the name and strength of the medication?
- Inscription
  - Prescription
  - Signa
  - Subscription
21. The pharmacy receives a prescription for the following:  
Amoxicillin 500 mg #30  
1 cap po tid  
How many days will this prescription last?
- 6 days
  - 10 days
  - 15 days
  - 30 days
22. What does "prn" refills mean?
- The patient may refill the prescription at any time.
  - The patient may refill the prescription for 1 year from the date the prescription was filled.
  - The patient may refill the prescription for 1 year from the date the prescription was written.
  - The prescriber must be notified before the prescription is refilled.
23. A pharmacy technician may not:
- Collect patient information.
  - Counsel patients.
  - Enter data into the pharmacy's information system.
  - Update patient profiles.
24. What is the meaning of the following sig: "2 tab po qid ac and hs"?
- Place two tablets under the tongue four times a day.
  - Take two tablets by mouth four times a day.
  - Take two tablets by mouth four times a day after meals and at bedtime.
  - Take two tablets by mouth four times a day before meals and at bedtime.

25. Which of the following auxiliary labels would be appropriate for a suspension?
- For Ears Only
  - For External Use Only
  - For Eyes Only
  - Shake Well
26. What is the meaning of the prefix *hyper-*?
- Above
  - Across
  - Below
  - Fast
27. A pharmacy technician is preparing unit doses of a medication. What form must be completed?
- DEA Form 224
  - Mixing record
  - SDS
  - Unit-dose log
28. What term refers to a temperature of 10° C?
- Cold
  - Cool
  - Freezer
  - Room temperature
29. What term is used to describe the date assigned to a unit-dose package?
- Beyond-use date
  - Expiration date
  - Packaged date
  - Unit date
30. An individual's patient profile indicates he has CHF. What does this mean?
- Cardiac heart failure
  - Congestive heart failure
  - Cardiac heart fibrillation
  - Cardiac heart flutter
31. A prescriber writes in her own handwriting: "Brand Name Medically Necessary." What DAW number should be assigned to the prescription?
- DAW 0
  - DAW 1
  - DAW 2
  - DAW 3
32. What type of container prevents air from reaching the medication?
- Hermetic
  - Multidose
  - Single dose
  - Unit dose
33. Which of the following pieces of information does not need to appear on a prescription for fluoxetine?
- Medication strength
  - Prescriber's DEA Number
  - Prescriber's office telephone number
  - Quantity of medication
34. Which of the following drug classifications does not need to be dispensed in a child-resistant container?
- Antibiotics
  - Antiviral medications
  - Oral contraceptives
  - Oral hypoglycemic agents
35. Of the following tasks, which may a pharmacy technician not perform?
- Accepting a prescription from a patient
  - Entering a prescription into the computer
  - Handing a patient's prescription medication to him or her
  - Patient counseling
36. Which of the following does not need to appear on a unit-dose log?
- Color of medication
  - Medication lot number
  - Medication NDC number
  - Pharmacy technician's initials
37. What dosage form would be placed in an amber blister pack?
- Capsule
  - Ointment
  - Suspension
  - Syrup
38. What relationship code would be used to identify the cardholder of a prescription drug card?
- 01
  - 02
  - 03
  - 04
39. Which part of a prescription indicates the directions to the patient?
- Inscription
  - Signa
  - Subscription
  - Superscription
40. What does "dtd" mean on a prescription?
- Give of such doses
  - Of each
  - Weight
  - Write on label