CHAPTER 3

Understanding Drugs and Drug Orders

LEARNING OUTCOMES

- **3-1** Identify medication strengths and doses.
- **3-2** Describe the different dosage forms and their physical appearance.
- **3-3** Describe the routes of medication administration.
- **3-4** Identify information on drug labels and package inserts.
- **3-5** Interpret prescriptions, medication orders, common abbreviations, and error-prone abbreviations.

Case Study

You are the pharmacy technician working in a retail pharmacy. You receive a prescription drug order for amoxicillin 250 mg tablets I PO q6h for 10 days. The patient states that he has a severe sore throat and asks if it is possible to have the medication dispensed in liquid form because tablets may be difficult to swallow. The prescription drug ordered is also available in liquid form.

After you have completed Chapter 3, you will be able to identify different drug strengths, doses, drug forms, and routes of administration. You will also learn how to interpret and identify information on drug labels, package inserts, prescriptions, and medication orders.

INTRODUCTION

An important skill of a pharmacy technician is to accurately interpret information from multiple sources and identify potential errors. It is also important to be 100% confident with drug strengths, doses, drug forms, and routes of administration.

3-1 STRENGTHS AND DOSES

BACK TO BASICS

In order to master the skill of interpreting drug labels, package inserts, prescriptions, and medication orders, you will need to be proficient working with the different systems of measurements, equivalent measures, and unit abbreviations presented in Chapter 2. Review any areas you may need to brush up on in Chapter 2.

Drug strengths are listed on drug labels by the manufacturer. The units used differ among drug forms. Drugs manufactured in solid or semisolid forms, such as tablets,

PTCB KNOWLEDGE STATEMENTS

- **4.6** Common safety strategies (e.g., tall man lettering, separating inventory, leading and trailing zeros, limit use of error-prone abbreviations)
- **5.3** Risk management guidelines and regulations (e.g., error prevention strategies)

ASHP Competencies

- **3.6.b(7)** Apply critical thinking skills, creativity, and innovation to solve problems.
- **3.6.b(12)** Perform mathematical calculations essential to the duties of pharmacy technicians in a variety of contemporary settings.
- **3.6.b(35)** Apply patient and medication safety practices in all aspects of the pharmacy technician's roles.
- **3.6.b(44)** Apply quality assurance practices to pharmaceuticals, durable and nondurable medical equipment, devices, and supplies.

ExCPT Specifications

- **1.C.9.** Use information found on medication stock bottles, such as drug name and strength, expiration date, and lot number.
- **3.B.7.** Follow proper procedures to avoid medication errors.

capsules, or ointments, are commonly listed in micrograms, milligrams, grams, or grains, as shown in Figure 3-1.

FIGURE 3-1 Pfizer 0.4 mg.

Note that Nitrostat® has a strength listed in both milligrams and grains and a dosage unit of 1 tablet. Drugs manufactured in liquid forms, such as injectables, suspensions, solutions, and syrups, are commonly listed in milligrams, micrograms, or units per milliliter, as shown in Figure 3-2. Note that prednisolone sodium phosphate oral solution has a drug strength of 15 milligrams and a dosage unit of 5 mL (15 mg per 5 mL).

FIGURE 3-2 MGP generic 15 mg/5 mL solution.

ERROR PREVENTION

Identifying drug strength and dose information *incorrectly* can result in a life-threatening medication error. For example, a dose of 25 milligrams (mg) of a medication is one thousand times stronger than a dose of 25 micrograms (mcg) of the same medication. Always double-check the strength and dosage unit when performing dosage calculations.

Practice Exercise 3-1

Using the label shown, identify the drug strength and dosage unit.

Label A.

1. Drug strength _____
2. Dosage unit _____

Pfizer 40 mg pictured

Label B.

3. Drug strength _____
4. Dosage unit _____

MGP generic pictured

Label C.

5. Drug strength _____
6. Dosage unit _____

Sanofi-Aventis pictured

Label D.

7. Drug strength _____
8. Dosage unit _____

Dr. Reddy's generic 100 mg pictured

Label E.

9. Drug strength _____
10. Dosage unit _____

American Regent 1000 mcg/mL generic pictured

3-2 DRUG FORMS

Drug manufacturers offer many drugs in multiple forms. For example, antibiotics are available in tablets or capsules, oral solutions or suspensions, and injection and intravenous drug forms. Other drug forms include caplets, gel caps, lozenges, troches, suppositories, patches, creams, lotions, shampoos, inhalants, mists, sprays, and drops. Recall that each drug's form is listed on the drug label.

Physical Appearance

The appearance of each drug is uniquely identifiable based on the manufacturer's label and the size, shape, markings, colors, and odors of the drug. For example, a cough syrup may be identified by the color and odor of the syrup. Tablets and capsules can be identified by their size, shape, color, and markings. For example, Verapamil is manufactured by multiple pharmaceutical companies, which offer the drug in different forms and strengths (Figure 3-3).

FIGURE 3-3 A. Mylan generic (120 and 180 mg). **B.** Mylan generic 120 mg. **C.** Teva generic 240 mg.

Practice Exercise 3-2

List the manufacturers, drug forms, dosage strengths, color, and markings of the drug shown in each image.

Image A.

Teva 5 mg pictured | Teva 10 mg pictured | Core pharma 20 mg pictured | Sandoz generic 30 mg pictured

List each drug form, color, and markings for each strength.

Northstar Rx

1. Drug form: _____
2. Color: _____
3. Markings: 5 mg _____
   10 mg _____

Actavis

4. Drug form: _____
5. Color: _____
6. Markings: 20 mg _____

Sandoz

7. Drug form: _____
8. Color: _____
9. Markings: 30 mg _____

TABLE 3-1 Routes of Administration

Route of Administration	Delivery Method
Oral	Swallowed
Sublingual	Placed under the tongue
Buccal	Placed between the cheek and gum
Intradermal	Injected between the layers of the skin (dermis)
Subcutaneous	Injected into the subcutaneous (fatty) tissue
Intramuscular	Injected deep within a muscle
Intravenous	Through a vein
Topical	Applied to the skin
Inhalation	Inhaled/breathed in
Drops	Instilled: oral, optic, otic
Suppository	Inserted vaginally or rectally

3-3 ROUTES OF ADMINISTRATION

Drugs are administered to patients using the specific routes indicated on the drug label (Figure 3-4). Drugs that are available in different forms can be beneficial when patient needs differ. For example, an antibiotic may be administered to a young adult patient in the form of oral tablets, or to a small child in the form of an oral suspension, or to an older adult by injection. The different routes of administration are summarized in Table 3-1.

Drugs administered orally are available in the forms of tablets, caplets, gel caps, lozenges, troches, and liquids. Not all solid medications are to be swallowed whole. Some tablets may be administered using the sublingual route (placing the tablet under the tongue) or by the buccal route (placing the drug between the cheek and gum). Other oral tablets are chewable and must be chewed before swallowing. Oral medications will be discussed in more detail in Chapter 5.

FIGURE 3-4 Lilly NPH 100 units/mL.

Liquid medications are administered by injection using one of these three common injection methods:

- Intradermal (ID): between the layers of the skin (dermis)
- Subcutaneous (Sub-Q): in the subcutaneous (fatty) tissue
- Intramuscular (IM): deep within a muscle

Drugs administered intravenously are delivered through a vein. Medications other than intravenous medications administered by injection are discussed in Chapter 6. Intravenous medications are discussed in Chapter 7.

Other routes of administration include topical application (applied to the skin), inhalation, and instillation. Topical drugs are available as ointments, lotions, creams, and patches. Drugs for inhalation (oral or nasal) are available in the forms of aerosols and mists. Drugs for instillation into the eye (optic), ear (otic), or mouth (oral) are usually supplied as drops. Additional routes include suppositories for insertion into the vagina or rectum (Table 3-1).

ERROR PREVENTION

Read medication labels carefully to ensure that the drug is delivered using the proper route of administration! For example, not all tablets are intended to be swallowed whole. Otic and optic drops are easily mistaken for each other.

Practice Exercise 3-3 Match the route of administration with the delivery method.

1.	Drops _____	A.	Swallowed
2.	Intravenous _____	B.	Injected into the fatty tissue beneath the skin
3.	Buccal _____	C.	Inserted vaginally or rectally
4.	Intradermal _____	D.	Injected deep within a muscle
5.	Suppository _____	E.	Through a vein
6.	Topical _____	F.	Applied to the skin
7.	Intramuscular _____	G.	Breathed in through the nose or mouth
8.	Oral _____	H.	Placed between the cheek and gum
9.	Inhalation _____	I.	Instilled: oral, optic, otic
10.	Subcutaneous _____	J.	Injected between the layers of the skin

3-4 DRUG LABELS AND PACKAGE INSERTS

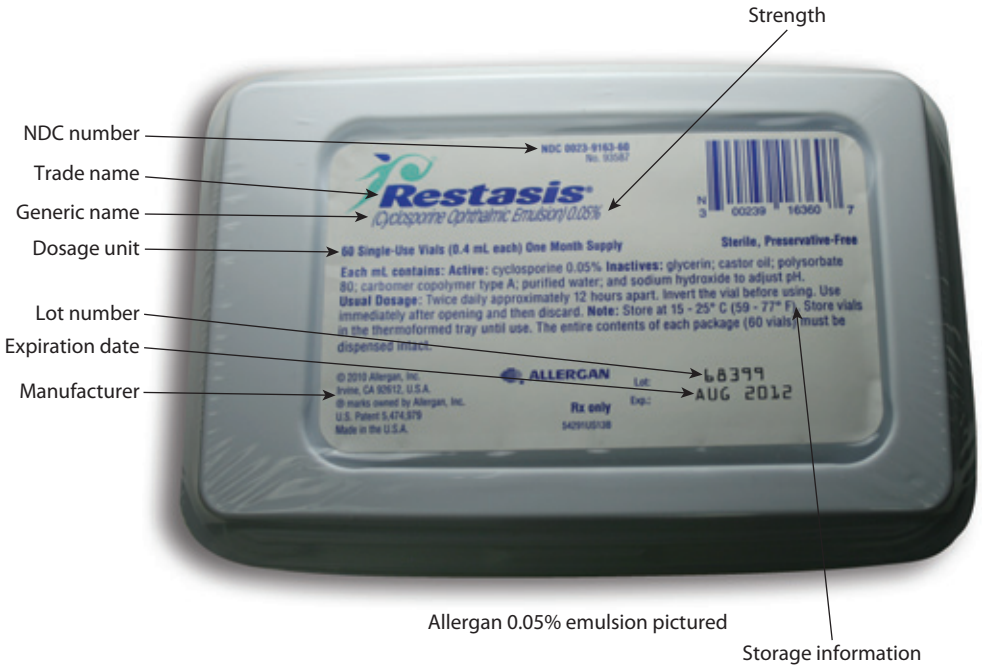
Drug labels and package inserts contain important information used to perform dosage calculations. They also contain information that can be used by prescribers to determine if a drug is appropriate to treat patient-specific needs. As a pharmacy technician, it is important that you know where to locate information needed to perform dosage calculations accurately.

Information Available on the Drug Labels

The information available on the drug label includes the name of the manufacturer, the drug's name, and the strength, form, and route of administration. The drug label also specifies the lot number of the medication, the expiration date, any warnings about the medication, storage information, and the NDC (National Drug Code) number. In some cases, the drug label may also include mixing instructions.

The drug name is the official name registered with the *United States Pharmacopeia* (UPS) and the *National Formulary* (NF) and is commonly known as the *generic* name of the drug. Some drugs may also have a trade name. If the trade name is followed by a ® symbol, this indicates that the trade name is registered with the United States patent office. The trade name is also commonly referred to as the *brand name* or *proprietary name*.

The NDC number consists of 10 digits and is assigned to each drug by the manufacturer. Each NDC number is divided into three sets of digits separated by hyphens. The number is used to identify the manufacturer, the drug, strength and dosage form, and packaging size. For example, the NDC number 1234-1234-12 consists of 10 digits separated by hyphens. The first set of digits identifies the drug manufacturer; the second set of digits identifies the drug, strength, and dosage form; and the third set of digits identifies the package size. Figure 3-4 shows the information commonly available on drug labels.



Information Available on the Package Insert

The information on the package insert includes the chemical components of the drug, drug actions, drug indications and contraindications, warnings and precautions, adverse reactions, dosage strengths and forms, route of administration, preparation instructions, and instructions for what to do in the event of an overdose. All of the information on the package insert is also available in drug reference sources such as the *Physicians' Desk Reference*®, which is available online at www.pdr.net/browse-by-drug-name. Each year a Top 200 drug list is published based on the total number of prescriptions dispensed for the previous calendar year. As a pharmacy technician, you will be required to be familiar with the top 200 drugs. RxList, The Internet Drug Index, lists current top 200 drugs at www.rxlist.com.

Practice Exercise 3-4 Using the drug labels provided, identify requested information available on drug labels.

Label F.

1. Trade name: _____
2. Generic name: _____
3. Dosage strength: _____
4. Dosage form: _____
5. NDC number: _____

Pfizer pictured

Label G.

Roche pictured

6. Trade name: _____
7. Generic name: _____
8. Dosage strength: _____
9. Dosage form: _____
10. NDC number: _____
11. List 5 things found on a package insert. _____
12. What is the web address for viewing package insert information listed in the *Physicians' Desk Reference*®? _____

3-5 PRESCRIPTIONS AND MEDICATION ORDERS

Medical providers write drug orders as prescriptions and medication orders. Prescriptions are drug orders written and processed in an outpatient setting. Prescriptions can be written or printed in paper form or sent to an outpatient/retail pharmacy via fax, electronic file, or telephone. Medication orders are written in inpatient settings and can be recorded on paper forms or entered into a patient's electronic medical record.

Interpreting the Prescription or Medication Order

Prescriptions and medication orders provide specific information used to properly fill, dispense, and administer drugs safely to patients. Both contain information about the drug, strength, dose, form, route, and frequency of administration. Prescriptions also include instructions to the patient, which are to be printed on the label. Each prescription must contain the following information (Figure 3-5):

- Medical prescriber's name, address, and telephone number; also the prescriber's DEA number if prescribing controlled substances (DEA numbers are discussed in detail in Chapter 9)

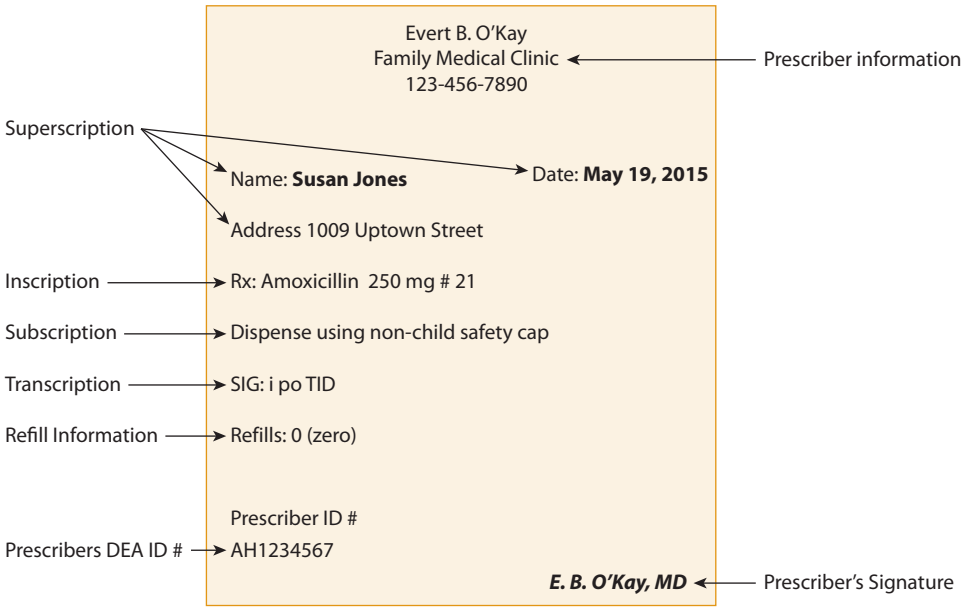


FIGURE 3-5 Sample Prescription.

- Superscription: Patient's name and address and date the prescription was written
- Inscription: Medication, strength, and amount
- Subscription: Directions to pharmacist for dispensing
- Transcription (signa): Directions to the patient
- Refill information
- Prescriber's signature

A medication order is used to prescribe drugs for patients in inpatient settings. Medication orders are written by a medical provider and listed on a medication order form, or in the patient's electronic medical record. Medication orders must contain the following information (Figure 3-6):

- Patient's name
- Patient's date of birth
- Date and time the order was written
- Drug's name
- Drug's dose
- Route of administration
- Time and/or frequency of administration
- Prescriber's signature

Medication Order						
Date: October 12, 2015						
Medication Order		Given by:		Other Orders		
1	Amoxicillin 500 mg po TID	AAS 0800 10/12/15				
2	Acetaminophen 500 mg PO if temperature is over 100.2 degrees					
3						
4						
	Allergies NKDA	Prescriber's Signature: ***E. B. O'Kay, MD***		Date: 10/12/15	Time: 0645	
		Reviewed by: ***Allison A. Song,*** RN-BSN		Date: 10/12/15	Time: 0720	
		Noted by: ***Allison A. Song,*** RN-BSN		Date: 10/12/15	Time: 0730	
	Prescriber: Evert B. O'Kay, MD					
	Patient name: Mary T. Weather	Room Number	Admit #	Sex F	Date 10/12/15	Page # 1
	Patient Date of Birth: 04/12/1991	102 B	012345			

FIGURE 3-6 Sample Medication Order.

Commonly Used Abbreviations

Prescribers use abbreviations when writing prescriptions and medication orders. In the profession of pharmacy, abbreviations used in drug orders are referred to as *sig codes*. As a pharmacy

technician, you must memorize the commonly used abbreviations in order to interpret the orders correctly. Each prescriber may use slightly different variations of abbreviations. You should know the common abbreviations used by the facility where you are employed. Table 3-2 lists commonly used abbreviations (sig codes).

TABLE 3-2 Common Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning	Abbreviation	Meaning
a	before	IM	intramuscular	L	liter
aa	of each	inj	injection, inject	q	every
ac	before meal	**IU**	**international unit**	qam	every morning
ad	**right ear**	IV	intravenous	**qd**	**every day**
AM	morning	kg	kilogram	**qhs**	**every night at bedtime**
amp	ampule	L	liter	qh, q2h, q3h, q4h, q6h	every hour, every 2, 3, 4, 6 hours, etc.
apl	applicator	liq	liquid	qid	four times a day
aq	water	lot	lotion	**qn**	every night
as	**left ear**	max	maximum	**qod**	**every other day**
au	**both ears**	MDI	metered dose inhaler	qs, QSAD	sufficient quantity, quantity sufficient as directed
bid	twice a day	meq, mEq	milliequivalent	r, rec	rectally
c	with	mcg	microgram	rept	repeat
C	100	mg	milligram	rf	refill
cap	capsule	min	minute	s	without
cmpd	compound	min	minimum	subcut	subcutaneous
cr	cream	mL	milliliter	Sig	directions
d	day or daily	mo	month	sl	under tongue (sublingual)
DAW	dispense as written	NKDA	no known drug allergies	sol	solution
DC, d/c	discontinue, discharge	noct	night	SR	slow release
dil	dilute	NPO, npo	nothing by mouth	ss	sliding scale or ½
disp	dispense	nr	no refills	stat	immediately
DS	double strength	**od**	**right eye**	sup	suppository
EC	enteric coated	**os**	**left eye**	susp	suspension
elix	elixir	**ou**	**both eyes**	syr	syrup
ext	extract	oz	ounce	tab	tablet
gm	gram	p	after	tbsp	tablespoon
gen	generic	pc	after meals	tinct, tinc	tincture
gr	grain	per	per day, week (time period)	tid	three times a day
gtt	drop	PM	night	tsp	teaspoon
h, hr	hour	po	by mouth	**U, u**	**unit**
HD	high dose	PR, pr	rectally	ung	ointment
hs	**at bedtime**	prn	as needed	ud, udt	as directed
H2O	water	PV, pv	vaginally	wc	with meal

Note: Abbreviations in bold type and underlined are listed on the Do Not Use List.

Error-Prone Abbreviations

Many medication errors have occurred as a result of misinterpretation of abbreviations and symbols. As a result, the Joint Commission (TJC) and the Institute for Safe Medical Practice (ISMP) have created lists of abbreviations that should not be used. Although many of the commonly used abbreviations are listed, some prescribers still use them, so you need to know what they mean. In your own work, however, use only the accepted and standard abbreviations to help reduce the chance of misinterpretation and errors. Table 3-3 lists common error-prone abbreviations that should not be used. The official ISMP error-prone list can be viewed at www.ismp.org/Tools/errorproneabbreviations.pdf.

TABLE 3-3 Common Error-Prone Abbreviations

Abbreviations	Meaning	Common Error	Recommended Correction
ad	right ear	Interpreted as right eye	Write out *right ear*
as	left ear	Interpreted as left eye	Write out *left ear*
au	both ears	Interpreted as both eyes	Write out *both ears*
DC, d/c	discontinue, discharge	Interpreted as discontinue medication when intended as discharge medication order	Write out *discontinue* or *discharge*
hs	at bedtime	Interpreted as half strength	Write out *bedtime* or *half strength*
od	right eye	Interpreted as right ear	Write out *right eye*
os	left eye	Interpreted as left ear	Write out *left eye*
ou	both eyes	Interpreted as both ears	Write out *both eyes*
qd	every day	Interpreted as qid (four times a day)	Write out *every day*
qhs	every night at bedtime	Interpreted as qid (four times a day)	Write out *nightly*
qn	every night	Interpreted as every hour	Write out *bedtime* or *nightly*
sc, sq, sub-q	subcutaneous	Interpreted as sublingual and every	Write out *subcutaneous* or *subcut*
ss	sliding scale or ½	Interpreted as 55	Write out *sliding scale* or ½ or *one-half*
U, u	unit	Interpreted as 0 or 4	Write out *unit*
ud, udt	as directed	Interpreted as unit dose	Write out *as directed*
Doses and Additional Information			
Trailing zeros (2.0 mg)	2 mg	Interpreted as 20 mg	Eliminate the use of trailing zeros when expressing whole numbers for doses
Missing zero before decimal point (.4 mg)	0.4 mg	Interpreted as 4 mg	Express doses less than a whole number with a zero before the decimal point
Period after abbreviations (mg.)	mg	The period may be interpreted as the number 1	Do not use a period after abbreviations
No space between dose and abbreviations (500 mg)	500 mg	Interpreted as 50,000	Use a space between dose and abbreviations
Missing commas in large doses (10,000 units)	10,000 units	Interpreted as 1,000 or 100,000	Use commas or write out the words (10,000 units or ten thousand units)
Symbols			
ʒ	dram	Interpreted as the number 3	Use the metric system of measurement
m	minim	Interpreted as mL	Use the metric system of measurement
> and <	greater than and less than	Interpreted as the opposite	Write out *greater than* or *less than*
/	slash mark	Interpreted as the number 1	Write *per* instead of slash mark
@	"at" symbol	Interpreted as the number 2	Write out *at*
&	"and" symbol	Interpreted as the number 2	Write out *and*
+ or and (⊣)	"plus" sign or handwritten "and" sign	Interpreted as the number 4	Write out *and*

ERROR PREVENTION

Read all abbreviations carefully. If you are uncertain of the meaning of an abbreviation, ask the pharmacist to clarify. If there is any uncertainty regarding what the intent of the abbreviation is, the pharmacist may need to contact the prescriber. Err on the side of caution; it is better to be 100% certain than to guess. Guessing may result in a medication error.

Detecting Errors

One of the most common causes of medical errors involves medication orders and prescriptions. When a medication order or prescription is received in the pharmacy, it should be screened for potential errors. For example, if a strength is prescribed that is not available, the prescriber must be contacted to ensure that the proper drug, in the correct strength, is dispensed to the patient. Common errors found on prescriptions and medication orders include incorrect dose, incorrect medication, and incompatibility with other medications prescribed to the patient.

Errors are also common during the dispensing process. These errors include dispensing an incorrect drug (sound-alike/look-alike drugs), dispensing an incorrect amount of medication, and incorrect packaging.

ERROR PREVENTION

Review all information provided on all prescriptions and medication orders. If there you are uncertain about the meaning of any item, alert the pharmacist, who in turn should contact the prescriber for clarification of the intended drug order.

Practice Exercise 3-5 Provide the correct answer for the following questions.

1. List the information included in the superscription on a prescription.
2. List the information included in the inscription of a prescription.
3. What is the medical abbreviation for "no known drug allergies"?
4. What is the medical abbreviation for "elixir"?
5. What is the medical abbreviation for "compound"?
6. What is the medical abbreviation for "twice a day"?
7. What does q4h mean?
8. What is the recommended correction for the error-prone abbreviation "au"?
9. What is the recommended correction for the error-prone symbol m?
10. What should you do if you discover an error on a prescription?

REVIEW OF LEARNING OUTCOMES

Learning Outcome	Summary
3-1 Identify medication strengths and doses.	The manufacturer lists drug strengths and the dosage unit on drug labels; the dosage unit varies for different drug forms. Drugs manufactured in solid or semisolid forms, such as tablets, capsules, or ointments, are commonly listed in micrograms, milligrams, grams, or grains. Drugs manufactured in liquid form, such as injectables, suspensions, solutions, and syrups, are commonly listed in milligrams, micrograms, or units per milliliter.
3-2 Describe the different dosage forms and their physical appearance.	Drug forms include tablets, caplets, gel caps, lozenges, troches, solutions, suspensions, injections, intravenous solutions, suppositories, patches, creams, lotions, shampoos, inhalants, mists, sprays, and drops. The appearance of each drug is uniquely identifiable based on the manufacturer's label and the size, shape, markings, colors, and odors of the individual drugs.
3-3 Describe the routes of medication administration.	The routes of administration include oral, sublingual, buccal, intradermal, subcutaneous, intramuscular, intravenous, topical, instillation, inhalation, vaginal, and rectal.
3-4 Identify information on drug labels and package inserts.	The information available on the drug label includes the manufacturer, the drug's name, strength, form, route of administration, lot number, expiration date, warnings, storage information, and NDC (National Drug Code) number. The drug label may also include mixing instructions. The information on the package insert includes the chemical components of the drug, drug actions, drug indications and contraindications, warnings and precaution, adverse reactions, dosage strengths and forms, route of administration, dosage strengths and forms, preparation instructions, and instructions in the event of an overdose.
3-5 Interpret prescriptions, medication orders, common abbreviations, and error-prone abbreviations.	Superscription: Patient's name and address and the date the prescription was written. Inscription: Medication, strength, and amount. Subscription: Directions to the pharmacist for dispensing. Transcription (signa): Directions to the patient. Prescribers use abbreviations when writing medication orders and prescriptions. In the profession of pharmacy, abbreviations used in drug orders are referred to as *sig codes*. Medication errors have occurred as a result of misinterpretation of abbreviations and symbols. Avoid using abbreviations and symbols on the ISMP's Do Not Use list.

Case Study REVIEW

You are the pharmacy technician working in a retail pharmacy. You receive a prescription drug order for amoxicillin 250 mg tablets I PO q6h for 10 days. The patient states that he has a severe sore throat and asks if it is possible to have the medication dispensed in liquid form because tablets may be difficult to swallow. The prescription drug ordered is also available in liquid form.

1. Since the medication is available in liquid form, what should you do?
2. What is the prescribed strength of the medication?
3. How often should the patient be instructed to take the medication each day?

Final Destination: Certification!

An important role of all pharmacy technicians is to correctly interpret drug labels, package inserts, and prescriptions and medication orders. Memorizing commonly used abbreviations and avoiding the use of error-prone abbreviations can help you process error-free drug orders.

Practice Test

Select the correct answer. If you are not successful in selecting the correct answer, use a pencil and check the box to the left of the question to help you know what items you need to continue to review. Once you master the topic, erase the check mark.

☐ **1.** The patient is ordered to take Lunesta 2 mg po every hs. At what time should the patient take the medication?

A. 9:00 AM
B. 12:00 noon
C. 4:00 PM
D. 10:00 PM

***Answer*:** D. 10:00 PM
Feedback: 10:00 PM is a common hour of sleep or bedtime. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **2.** The medication order specifies 0.1% hydrocortisone cream, applied topically 2 times daily to the affected area. Where should the medication be placed?

A. On the skin
B. Vaginally
C. Rectally
D. Under the tongue

***Answer*:** A. On the skin
Feedback: Topical medication is placed on the skin. (LO 3-3)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **3.** The physician ordered Bactrim DS 1 tablet po bid. How often should the patient take the Bactrim?

A. Three times a day
B. Once daily
C. Twice a day
D. Four times a day

***Answer*:** C. Twice a day
Feedback: The abbreviation bid means twice a day. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **4.** The authorized prescriber ordered Compazine 25 mg supp pr q6h prn nausea. If the patient received the last dose at 6:00 AM, when can she receive the next dose?

A. 9:00 AM
B. 12:00 noon
C. 3:00 PM
D. 6:00 PM

***Answer*:** B. 12:00 noon
Feedback: Q6h means every 6 hours; 12:00 noon is 6 hours after 6:00 AM (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **5.** The physician ordered Compazine 25 mg supp pr q6h prn nausea. By what route should this drug be administered?

A. Orally
B. Topically
C. Rectally
D. Vaginally

***Answer*:** C. Rectally
Feedback: The abbreviation pr means per rectum or rectally. (LO 3-3)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **6.** Medications ordered ac are to be given:

A. After meals
B. Before meals
C. With meals
D. Without food

***Answer*:** B. Before meals
Feedback: The abbreviation ac means before meals. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **7.** The physician ordered digoxin 0.125 mg po tid × 3 days. How often should the patient take the medication?

A. Three times a day
B. Once daily
C. Twice a day
D. Four times a day

***Answer*:** A. Three times a day
Feedback: The abbreviation tid means three times a day. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **8.** The physician ordered Cycloserine 250 mg po q12h for 10 days. How often should the patient take the medication?

A. Three times a day
B. Once daily
C. Four times a day
D. Twice a day

***Answer*:** D. Twice a day
Feedback: The abbreviation q12h means every 12 hours, which equals twice a day. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

For questions 9 through 12, use the prescription shown in Figure 3-7.

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Family Medical Clinic
123-456-7890

Name: **Susan Jones** Date: **May 19, 2015**

Address 1009 Uptown Street

Rx: Amoxicillin 250 mg # 21

SIG: i tab TID

Refills: 0 (zero)

Prescriber ID #
AH1234567

E. B. O'Kay, MD

FIGURE 3-7 Prescription.

☐ **9.** In this prescription, what components, if any, are missing?

A. The directions to the pharmacist
B. The route
C. Prescriber number
D. The prescription is complete

***Answer*:** B. The route
Feedback: The route is missing; the signa/transcription should read: i tab po tid. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **10.** For this prescription, how many amoxicillin tablets should be dispensed to the patient?

A. 3 tablets
B. 10 tablets
C. 14 tablets
D. 21 tablets

***Answer*:** D. 21 tablets
Feedback: The inscription indicates 21 tablets (#21). (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **11.** For this prescription, what strength tablets should be dispensed?

A. 25 mg
B. 250 mg
C. 50 mg
D. 500 mg

Answer: B. 250 mg
Feedback: The prescription is written for amoxicillin 250 mg. (LO 3-1)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **12.** How many times can this prescription be refilled?

A. Zero
B. Three
C. Five
D. Two

Answer: A. Zero
Feedback: The prescriber has not authorized any refills for this prescription. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **13.** On a prescription, the patient's name, home address, and the date the prescription was written are the:

A. Transcription
B. Subscription
C. Superscription
D. Inscription

Answer: C. Superscription
Feedback: The superscription includes the name and home address of the patient, and the date the prescription was written. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **14.** On a prescription, the dispensing directions to the pharmacist are the:

A. Transcription
B. Subscription
C. Superscription
D. Inscription

Answer: B. Subscription
Feedback: The subscription consists of the dispensing directions to the pharmacist. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **15.** On a prescription, the medication prescribed, the strength of the medication, and the quantity to dispense are the:

A. Transcription
B. Inscription
C. Superscription
D. Subscription

Answer: B. Inscription
Feedback: The inscription includes the medication prescribed, the strength of the medication, and the quantity to dispense. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **16.** On a prescription, directions for the patient are the:

A. Inscription
B. Subscription
C. Superscription
D. Transcription

Answer: D. Transcription
Feedback: The signa or transcription specifies directions for the patient. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

For questions 17 through 19, refer to the drug label shown here.

30 mg

Roche pictured

☐ **17.** Which set of digits in the NDC indicates the manufacturer?

A. 85
B. 0004
C. 0802
D. 30

Answer: B. 0004
Feedback: The first set of digits in the NDC indicates the manufacturer. (LO 3-4)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 1.C.9.

☐ **18.** What is the drug strength?

A. 75 mg
B. 85 mg
C. 10 mg
D. 30 mg

Answer: D. 30 mg
Feedback: The drug strength is 30 mg. (LO 3-4)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 1.C.9.

☐ **19.** What is the generic name of the drug?

A. Tamiflu
B. Roche
C. Oseltamivir phosphate
D. Oseltamivir sulfide

Answer: C.
Feedback: The generic name of the drug is oseltamivir phosphate. (LO 3-4)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 1.C.9.

☐ **20.** Which of the following is not listed on a package insert?

A. Warnings
B. Indications
C. Lot number
D. Route of administration

Answer: C. Lot number
Feedback: The lot number is listed in the drug label. Information on the package insert includes the chemical components of the drug, drug actions, drug indications and contraindications, warnings and precautions, adverse reactions, dosage strengths and forms, route of administration, dosage strengths and forms, preparation instructions, and instructions for what to do in the event of an overdose. (LO 3-4)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **21.** A medication order is received in the pharmacy that reads: Monistat® 1 apl pv qd. What is the intended route of administration?

A. Oral
B. Rectal
C. Topical
D. Vaginal

Answer: D. Vaginal
Feedback: The abbreviation pv means per vagina, or vaginally. (LO 3-3)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **22.** A prescription is received in the outpatient pharmacy that reads: Pen-VK 5 mL po every 8 hours until gone disp 240 mL. What information is missing from this order?

A. Route of administration
B. Instruction to the patient
C. Drug strength
D. Quantity

Answer: C. Drug strength
Feedback: The drug strength is not included on the prescription. (LO 3-5)

PTCB: 5.3
ASHP: 3.6.b(7)
ExCPT: 3.B.7.

☐ **23.** The recommended correction for the error-prone medical symbol ʒ is:

A. Dram
B. 5 mL
C. Ounce
D. Minim

Answer: B. 5 mL
Feedback: Use the metric system of measurement; 1 dram = 5 mL. (LO 3-5)

PTCB: 4.6
ASHP: 3.6.b(35)
ExCPT: 3.B.7.

☐ **24.** The recommended correction for the error-prone medical abbreviation sq is:

A. sc
B. sub-q
C. subcut
D. scq

Answer: C. subcut
Feedback: Write out *subcutaneous* or *subcut*. (LO 3-5)

PTCB: 4.6
ASHP: 3.6.b(35)
ExCPT: 3.B.7.

☐ **25.** The recommended correction for the error-prone dose 4.0 mg is:

A. 04.0 mg
B. 4 mg
C. Four milligrams
D. 4 mg

Answer: B. 4 mg
Feedback: Eliminate trailing zeros when expressing whole numbers for doses.

PTCB: 4.6
ASHP: 3.6.b(35)
ExCPT: 3.B.7.
