6

Dosage Calculation

Key Terms

Amount to dispense
Desired dose
Dosage ordered
Dosage strength
Dosage unit
Dose on hand
Estimated Days Supply

Learning Outcomes

When you have successfully completed Chapter 6, you will have mastered skills to be able to:

- Identify the information on a medication order and drug label needed to calculate the *desired dose*.
- Convert the *dosage order* to the *desired dose*.
- Calculate the *amount to dispense* of a drug.
- Recognize common errors that occur during dose calculation.
- Calculate estimated days supply.

Introduction

Performing dosage calculations is a large part of the pharmacy technician's daily responsibilities. Now that you have learned basic math skills, how to interpret information from the physician's order and drug labels, and methods of converting quantities from one unit of measurement to another, it is time to put all of those skills together to learn how to calculate the amount of medication to be administered to a patient.

Do not hesitate to refer to previous chapters to help you solve the problems presented here. It is important to always use any resources available to you when performing dosage calculations.

Critical Thinking in the Pharmacy

What Is the Dosage Ordered?

You are the pharmacy technician working in a retail pharmacy when the following prescription comes in: "Valium 7.5 mg PO tid for 7 days." The drug is available in 2-mg scored tablets, 5-mg scored tablets, and 10-mg scored tablets, and you have all three strengths on hand for filling this prescription. What is the desired dose and amount to dispense?

When you have completed Chapter 6 you will be able determine if a drug order is correct and complete in order to be able to calculate the desired dose and amount to be administered to the patient.

PTCB Correlations

When you have completed this chapter you will have the mathematical building block of knowledge needed to assist you in performing dosage calculations.

- **Knowledge of pharmacy calculations (Statement I-50).**
- **Knowledge of dosage forms (Statement II-4).**

Doses and Dosages

Desired dose: The amount of the drug that the patient is to take a single time.

Dosage ordered: The amount of drug the physician has ordered and the frequency that it should be taken or given.

Dosage strength: The amount of drug per dosage unit.

Dose on hand: Amount of drug contained in each dosage unit.

Dose unit: The unit by which the drug will be measured when taken by or given to the patient.

Before you can calculate how much medication to dispense to a patient, you must first find the **desired dose**—the amount of the drug that the patient is to take at a single time. To determine the desired dose, you need to know the following information: the *dosage ordered* and the *dose on hand*.

The **dosage ordered** is the amount of drug the physician has ordered and the frequency that it should be taken or given. This information is found on the physician's medication order or prescription, and in inpatient settings, on the medication administration record (MAR).

The **dosage strength** measures the amount of drug per dosage unit. Many medications are available in different dosage strengths. For example, a medication may be produced in two different strengths, 75 mg per tablet and 100 mg per tablet.

Once you have determined the dosage strength, you need to know two other key terms—the *dose on hand* and the *dosage unit*. The **dose on hand** is the amount of drug contained in a dosage unit. In this example, the dose on hand for the first tablet is 75 mg. The dose on hand for the second tablet is 100 mg. For both strengths, the **dosage unit** is the unit by which the drug will be measured when taken by or given to the patient, for example, a single tablet or a teaspoonful. With all medication you have available, you can read the drug label to determine the dose on hand and the dosage unit. To summarize, the dosage strength is the dose on hand per dosage unit.

Conversion Factors

Conversion factors are expressions that allow you to switch from one unit of measurement to another. With some medications the *dosage ordered* and the *dose on hand* have the same unit of measurement. In these cases, since the desired dose is already in the same unit of measurement as the dosage ordered, no conversion is necessary. Frequently, however, the dosage ordered and the dose on hand are expressed in different units of measurement. In these cases, you have to convert the dosage ordered so that it has the same unit of measurement as the dose on hand. As a pharmacy technician you need to be able to convert between units in the same system of measurement; such as using conversion factors of milligrams and micrograms. You will also need to convert between different systems of measurement using conversion factors such as the household measurement of teaspoons and the metric measurement of milliliters. An example would be if the medication order were for 5 mL qid. We know that 1 teaspoon is equal to 5 mL, so the patient is to take 1 teaspoonful, 4 times a day. This conversion leads you to the *desired dose*.

See Table 6-1 for a summary of the language of dosage calculations. Refer to Figure 6-1 for an illustration of the Examples column of Table 6-1.

Table 6-1 The Language of Dosage Calculations

Term	Abbreviation	Definition	Examples: Refer to Figure 6-1
Dosage ordered	*O*	The amount of drug to be given to the patient and how often it is to be given. *This value will be found on the drug order or prescription.*	40 mg daily
Desired dose	*D*	The amount of drug to be given at a single time. *The unit of measurement must be the same as the dose on hand. The drug order and the drug label must be consulted.*	This amount must be calculated when the dosage ordered is a different unit of measurement from the dose on hand. In this example a calculation will not be necessary.
Dosage unit	*Q*	The units by which the drug will be measured when it is administered. *This value will be found on the drug label.*	In Figure 6-1 this is in capsules. Other examples include: tablets 1 mL, 5 mL, drops, or units.
Dose on hand	*H*	The amount of a drug contained in each dosage unit. *This value is found on the drug label.*	In Figure 6-1 this is 20 mg.
Amount to dispense	*A*	The volume of a liquid or the number of solid dosage units that contain the desired dose. *This value is found with a calculation.*	If the desired dose is 40 mg and the dosage strength is 20 mg per capsule, the amount to dispense is 2 capsules.
Dosage strength	$\frac{H}{Q}$	Dose on hand per dosage unit. *This value can be determined from the drug label.*	In Figure 6-1 this is 20 mg per capsule.

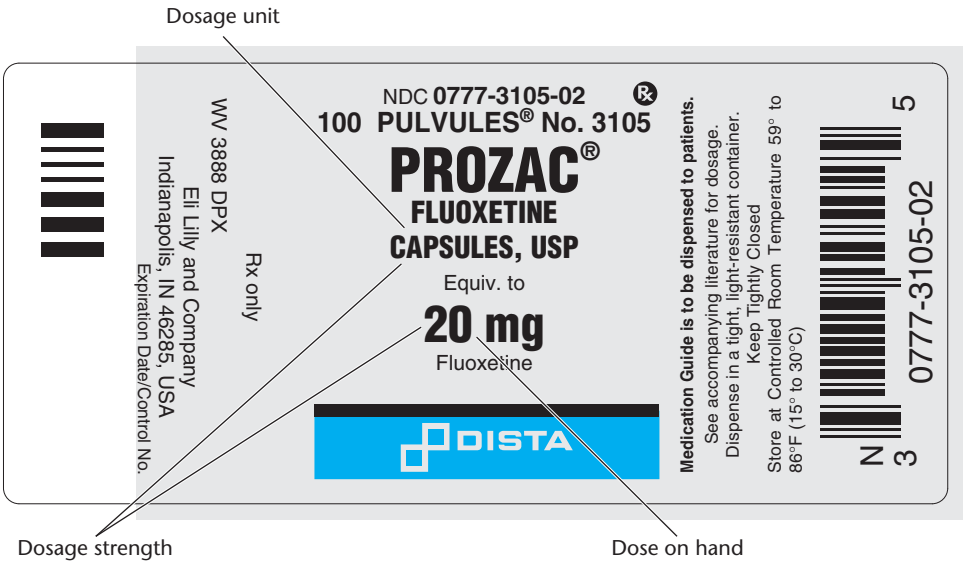


Figure 6-1 Prozac® 20 mg

Calculating the Desired Dose

Before you calculate the *amount to dispense,* it is first necessary to determine the desired dose. As stated in Table 6-1, the desired dose *D* (the amount of drug given at one time) must have the same unit of measurement as the dose on hand *H* (found on the drug label). Unfortunately, the dosage ordered *O* will not always be written in the same units as are found on the drug label. For example, an order may be written in grams while the drug is labeled in milligrams. When this occurs, it is necessary to convert the dosage ordered to a desired dose having the same units as the dose on hand.

In this section you will work with three different methods that can be used to calculate the desired dose. You may choose to use the fraction proportion method or the ratio proportion method; we will also introduce the dimensional analysis method. Each method will give you the same result, and the method you use is a matter of personal preference. Once you identify the method you prefer, follow the color coding of that method. Regardless of the method that you choose, you will want to become familiar with the terms contained in Table 6-1 before you proceed.

The first step in calculating the desired dose *D* is making sure that the unit of measurement for the desired dose *D* is the same as the unit of measurement of the dose on hand *H*. This must be done before the amount to dispense can be calculated. This is calculated by converting the dosage ordered *O* into the same unit of measurement as the dose on hand *H*; once converted, it becomes the desired dose *D*.

EXAMPLE ▸ The physician has ordered the patient to receive 0.1 mg of medication. This is the dosage ordered *O*. On the label of the bottle of medication (see Figure 6-2), the dosage strength is 50 mcg/1 tablet, making the unit of measure of the dose on hand (*H*) micrograms (mcg). *Recall the dosage strength is the dose on hand per dosage unit*.

Since the medication comes in micrograms and the order is for milligrams, you must convert the dosage ordered (*O*) (0.5mg) to the same unit of measurement as the dose on hand (*H*) (micrograms) to obtain the desired dose. You will see this calculated by three different methods in the following examples.

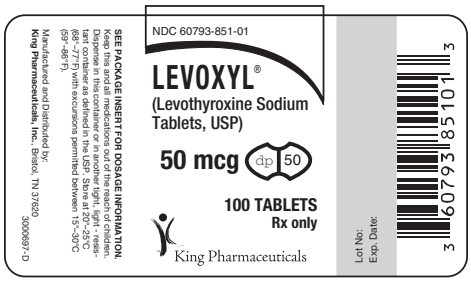
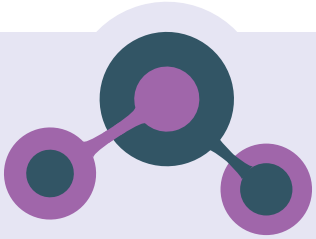


Figure 6-2 Levoxyl® 50 mcg

Using Conversion Factors



Fraction Proportion Method

You can use fraction proportions to convert from one unit of measure to another. Use the following procedure check list to work your conversion.

Procedure Checklist 6-1

Converting by the Fraction Proportion Method

1. Write a conversion factor with the units that you are converting to in the numerator and the units you are converting from in the denominator.
2. Write a fraction with the unknown as the numerator and the number that you need to convert as the denominator. (*The unknown is the desired dose D. The number you need to convert is the dosage ordered O.*)
3. Set up the two fractions as a proportion.
4. Cancel units.
5. Cross-multiply and then solve for the unknown value.

EXAMPLE 1 ▸ The dosage ordered is 0.1 mg once a day.

The dosage strength is 50 mcg per tablet.

Find the desired dose.

In this case, the drug is measured in milligrams on the drug order and micrograms on the drug label. The units for the desired dose must match those found on the drug label, which means that we must convert 0.1 mg to micrograms.

Follow the steps of Procedure Checklist 6-1.

1. Since we are converting to micrograms, micrograms must appear in the numerator of our conversion factor. Our conversion factor is $\frac{1000 \text{ mcg}}{1 \text{ mg}}$.
2. The other fraction for our proportion has the unknown D for a numerator. The value that is being converted, 0.1 mg, or the dosage ordered, must appear as the denominator. Our conversion factor is $\frac{D}{0.1 \text{ mg}}$.
3. Setting the two fractions into a proportion gives us the following equation:

$$\frac{D}{0.1 \text{ mg}} = \frac{1000 \text{ mcg}}{1 \text{ mg}}$$

4. Cancel units.

$$\frac{D}{0.1 \cancel{\text{mg}}} = \frac{1000 \text{ mcg}}{1 \cancel{\text{mg}}}$$

5. Cross-multiply and then solve for the unknown.

$$1 \times D = 1000 \text{ mg} \times 0.1$$
$$D = 100 \text{ mcg} = \text{desired dose}$$

EXAMPLE 2 ▸ The order reads "aspirin gr v PO daily."

The drug label indicates 325-mg tablets.
Find the desired dose.
Again, the drug order and the drug label use different units. In this case, we must convert the dosage ordered (O) (5 grains) to milligrams to find the desired dose (D).

Follow the steps of Procedure Checklist 6-1.

1. Since we are converting to milligrams, our conversion factor is

$$\frac{65 \text{ mg}}{1 \text{ gr}}$$

Note: For this medication, 65 mg per 1 gr is used; note that 60 mg per 1 grain can also be used.
2. The other fraction for our proportion is $\frac{D}{5 \text{ gr}}$.
3. Setting the two fractions into a proportion gives the following equation:

$$\frac{D}{5 \text{ gr}} = \frac{65 \text{ mg}}{1 \text{ gr}}$$

4. Cancel units.

$$\frac{D}{5 \cancel{\text{gr}}} = \frac{65 \text{ mg}}{1 \cancel{\text{gr}}}$$

5. Cross-multiply and then solve for the unknown.

$$1 \times D = 65 \text{ mg} \times 5$$
$$D = 325 \text{ mg} = \text{desired dose}$$

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Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-1. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

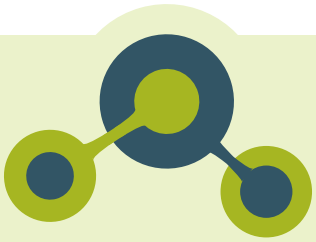
Caution!

In a fraction proportion, units from the two fractions can be canceled *only* when they are in the same portion of the fraction. Units in the denominator of one fraction cannot be canceled with units found in the numerator of the other.

If you set up a proportion with mismatched units, you will calculate the desired dose incorrectly. In an earlier example, the dosage ordered was in grains, and the dosage strength was measured in milligrams. Suppose that you had used the conversion factor $\frac{1 \text{ gr}}{65 \text{ mg}}$ instead of $\frac{65 \text{ mg}}{1 \text{ gr}}$. Your incorrect proportion would then have been $\frac{D}{5 \text{ gr}} = \frac{1 \text{ gr}}{65 \text{ mg}}$.

Here, the units are mismatched and cannot be canceled. You should immediately realize that the conversion factor is incorrect because the units in the denominators of the proportion do not match. If you had not included the units when setting up the proportion, the error may have gone unnoticed. *Always include the units when you perform calculations*.

Using Conversion Factors



Ratio Proportion Method

Procedure Checklist 6-2

Converting by the Ratio Proportion Method

When setting up a ratio proportion, write it in the following format, A:B::C:D. For these equations, you will set your proportions up using the appropriate abbreviations, units of measurement, and numbers.

1. Write the conversion factor as a ratio using the appropriate values for *O*:*H* so that *O* has the units of the value that you are converting (the dosage ordered) and *H* has the unit of value of the dose on hand.
2. Write a second ratio using the appropriate values for *D*:*O* so that *D* is the missing value (desired dose) and *O* is the number that is being converted (the dosage ordered).
3. Write the proportion in the form *O*:*H*::*D*:*O*. *Note: When you are using the ratio proportion method to calculate the desired dose, D indicates the unknown value (desired dose)*.
4. Cancel units.
5. Solve the proportion by multiplying the means and extremes.

EXAMPLE 1 ◗ The dosage ordered is 0.1 mg once a day.

The dosage strength is 50 mcg per tablet.

Find the desired dose.

The drug is measured in milligrams on the drug order and micrograms on the drug label. The units for the desired dose must match those found on the drug label, which means that we must determine how many micrograms are equivalent to 0.1 mg.

Follow the steps of Procedure Checklist 6-2.

1. Since we are converting to micrograms (dose on hand *H*), micrograms must appear at the beginning of our conversion ratio. We are converting from milligrams (dosage ordered *O*), which must appear at the end of our conversion ratio. Our conversion ratio is

   1000 mcg:1 mg

2. The second ratio in our proportion will be *D*:0.1 mg, with *D* being the unknown value or desired dose and 0.1 mg being the dosage ordered, or the number that is being converted.
3. Our proportion is

   1000 mcg:1 mg::*D*:0.1 mg

4. Cancel units.

$$1000 \text{ mcg} : 1 \cancel{\text{mg}} :: D : 0.1 \cancel{\text{mg}}$$

5. Multiply the means and extremes, and then solve for the missing value.

$$1 \times D = 1000 \text{ mcg} \times 0.1$$
$$D = 100 \text{ mcg} = \text{desired dose}$$

EXAMPLE 2 ▶ The order reads "aspirin gr v PO daily."

The drug label indicates 325-mg tablets.
Find the desired dose.
Again, the drug order and the drug label use different units. In this case, we must convert the dosage ordered (5 grains) to milligrams to find the desired dose.

Follow the steps of Procedure Checklist 6-2.

1. Since we are converting to milligrams, our conversion ratio is

$$65 \text{ mg} : 1 \text{ gr}$$

Note: For this medication 65 mg per 1 gr is used.
2. Our second ratio will be $D : 5$ gr.
3. Our proportion is

$$65 \text{ mg} : 1 \text{ gr} :: D : 5 \text{ gr}$$

4. Cancel units.

$$65 \text{ mg} : 1 \cancel{\text{gr}} :: D : 5 \cancel{\text{gr}}$$

5. Multiply the means and extremes, and then solve for the missing value.

$$1 \times D = 65 \text{ mg} \times 5$$
$$D = 325 \text{ mg} = \text{desired dose}$$

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Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-2. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

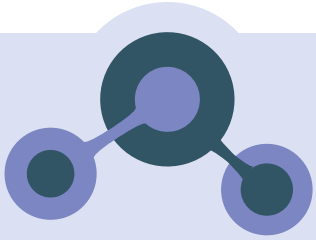
Caution!

In a ratio proportion, units can be canceled *only* when they are found in the same part of each of the ratios.

In an earlier example, the dosage ordered was in milligrams, and the dosage strength was measured in micrograms. Suppose that you had used the conversion ratio 1 mg : 1000 mcg instead of 1000 mcg : 1 mg. Your incorrect proportion would then have been 1 mg : 1000 mcg : : D : 0.1 mg.

The common unit in the two ratios is not found in the same part of the ratios—grams are found at the beginning of the first and at end of the second ratio. Therefore, the units cannot be canceled. You should immediately realize that the conversion ratio is incorrect because the units cannot be canceled. If you had not included the units when setting up the proportion, the error might have gone unnoticed. *Always include the units when you are performing calculations.*

Using Conversion Factors



Dimensional Analysis

The dimensional analysis (DA) method is a modification of the fraction proportion and ratio proportion methods. When we are using DA, the unknown value stands alone on one side of an equation. In this case, the unknown is the desired dose *D*. The conversion factor is placed on the other side of the equation, and the number being converted is placed over 1.

Procedure Checklist 6-3

Converting Using the Dimensional Analysis (DA) Method

1. Determine the unit of measure for the answer, and place it as the unknown on one side of the equation.
2. On the other side of the equation, write a conversion factor with the units of measure for the answer on top as the numerator and the units you are converting from on the bottom as the denominator.
3. Multiply the conversion factor by the number that is being converted over 1.
4. Cancel units on the right side of the equation. The remaining unit of measure on the right side of the equation should match the unknown unit of measure on the left side of the equation.
5. Solve the equation.

EXAMPLE 1 ▸ The dosage ordered is 0.1 mg once a day.

The dosage strength is 50 mcg per tablet.

Find the desired dose.

The drug is measured in milligrams on the drug order and in micrograms on the drug label. The units for the desired dose must match the units of the dose on hand. We must determine how many micrograms are equivalent to 0.1 mg.

Follow the steps of Procedure Checklist 6-3.

1. The unit of measure for the answer is micrograms. Place this on the left side of the equation.

$$D \text{ mcg} =$$

(D represents the desired dose, which is the unknown.)

2. Since we are converting to micrograms, micrograms must appear in the numerator of our conversion factor. Our conversion factor is

$$\frac{1000 \text{ mcg}}{1 \text{ mg}}$$

This will go on the other side of the equation.

3. Multiply the numerator of the conversion factor by the number that is being converted (the dosage ordered over 1).

$$D \text{ mcg} = \frac{1000 \text{ mcg}}{1 \text{ mg}} \times \frac{0.1 \text{ mg}}{1}$$

4. Cancel units. The remaining unit on both sides is micrograms.

$$D \text{ mcg} = \frac{1000 \text{ mcg}}{1 \cancel{\text{mg}}} \times \frac{0.1 \cancel{\text{mg}}}{1}$$

5. Solve the equation.

$$D \text{ mcg} = 1000 \text{ mcg} \times 0.1 = 100 \text{ mcg} = \text{desired dose}$$

EXAMPLE 2 ▸ The order reads "aspirin gr v PO daily."

The drug label indicates 325-mg tablets.
Find the desired dose.

Again, the drug order and the drug label use different units. In this case, we must convert the dosage ordered (5 grains) into milligrams (mg) to find the desired dose.

Follow the steps of Procedure Checklist 6-3.

1. The unit of measure for the answer is milligrams. Place this on the left side of the equation.

$$D \text{ mg} =$$

(D represents the desired dose, which is the unknown.)

2. Since we are converting to milligrams, our conversion factor is

$$\frac{65 \text{ mg}}{1 \text{ gr}}$$

Note: For this medication 65 mg per 1 gr is used.

3. Multiply the numerator of the conversion factor by the number being converted (dosage ordered over 1).

$$D = \frac{65 \text{ mg}}{1 \text{ gr}} \times \frac{5 \text{ gr}}{1}$$

4. Cancel units.

$$D = \frac{65 \text{ mg}}{1 \cancel{\text{gr}}} \times \frac{5 \cancel{\text{gr}}}{1}$$

5. Solve the equation.

$$D = 65 \text{ mg} \times 5 = 325 \text{ mg} = \text{desired dose}$$

Super Tech . . .

Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-3. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

Caution!

In dimensional analysis, units can be canceled *only* when they are found in both the numerator and the denominator of the fraction.

In an earlier example, the dosage ordered was in milligrams and the dosage strength was measured in micrograms. Suppose that you had used the conversion factor $\frac{1 \text{ mg}}{1000 \text{ mcg}}$ instead of $\frac{1000 \text{ mg}}{1 \text{ mg}}$. Your incorrect equation would then have been $D = \frac{1 \text{ mg}}{1000 \text{ mcg}} \times \frac{0.1 \text{ mg}}{1}$.

You may cancel units within a fraction only when they are found in both the numerator and the denominator. Here, the common unit (grams) is found in the numerator only and cannot be canceled. You should immediately realize that the conversion factor is incorrect because the units cannot be canceled. If you had not included the units when setting up the equation, the error might have gone unnoticed. *Always include the units when you are performing calculations.*

Review and Practice 6-1 Doses and Dosages

In Exercises 1–18, using your method of choice, convert the dosage ordered to the same unit as that of the dose on hand or measuring device and determine how many times a day the patient will take each medication.

1. Ordered: Amoxicillin 0.25 g qid for 10 days
   On hand: Amoxicillin 125-mg capsules

   Desired dose: _____

   How many times per day will the patient take this medication? _____

2. Ordered: Erythromycin 0.5 g bid for 7 days
   On hand: Erythromycin 500-mg tablets
   Desired dose: _____

   How many times per day will the patient take this medication? _____

3. Ordered: Phenobarbital gr ss po daily
   On hand: Phenobarbital 15-mg tablets
   Desired Dose: _____

   How many times per day will the patient take this medication? _____

4. Ordered: Penicillin VK 0.25 g tid for 10 days
   On hand: Penicillin VK 500 mg
   Desired dose: _____

   How many times per day will the patient take this medication? _____

5. Ordered: Levoxyl® 0.15 mg po daily
   On hand: Levoxyl® 300-mcg tablets
   Desired dose: _____

   How many times per day will the patient take this medication? _____

6. Ordered: Duratuss® HD 5 mL po q 6 hours prn
   Available measuring device is marked in teaspoons.
   Desired dose: _____

   How many times per day will the patient take this medication? _____

7. Ordered: Robitussin® DM 2 tsp po q 4 to 6 hours prn
   Available measuring device is marked in mL.
   Desired dose: _____

   How many times per day will the patient take this medication? _____

8. Ordered: Keppra® 1 g PO daily
   On hand: Keppra® 500 mg tablets
   Desired dose: _____

   How many times per day will the patient take this medication? _____

9. Ordered: Morphine $\frac{1}{4}$ gr q 12 hours prn severe pain
   On hand: Morphine sulfate 15 mg immediate-release tablets
   Desired dose: _____

   How many times per day will the patient take this medication? _____

10. Ordered: Synthroid® 0.05 mg po daily
    On hand: Synthroid® 50 mcg
    Desired dose: _____

    How many times per day will the patient take this medication? _____

11. Ordered: Synthroid® 0.088 mg PO daily
    On hand: Synthroid® 88 mcg
    Desired dose: _____

    How many times per day will the patient take this medication? _____

12. Ordered: Depakote® 0.5 g PO q am
    On hand: Depakote® 125 mg tablets
    Desired dose: _____

    How many times per day will the patient take this medication? _____

13. Ordered: Levsin® 250 mcg PO daily
    On hand: Levsin® 0.125 mg
    Desired dose: _____

    How many times per day will the patient take this medication? _____

14. Ordered: 1½ teaspoon Zithromax® 200 mg/ 5 mL PO q6h Desired dose: _____
    On hand: Zithromax® 200 mg/5 mL
    Available measuring device is marked in mL.

    How many times per day will the patient take this medication? _____

15. Ordered: 7.5 mL clarithromycin PO q4h Desired dose: _____
    On hand: clarithromycin 125mg / 5 mL
    Only available measuring device is a teaspoon.

    How many times per day will the patient take this medication? _____

16. Ordered: Levothroid® 0.137 mg PO daily Desired dose: _____
    On hand: Levothroid® 137 mcg

    How many times per day will the patient take this medication? _____

17. Ordered: Risperdal® 250 mcg PO daily Desired dose: _____
    On hand: Risperdal® 0.5 mg

    How many times per day will the patient take this medication? _____

18. Ordered: Metformin 1 g po qd Desired dose: _____
    On hand: Metformin 500 mg

    How many times per day will the patient take this medication? _____

Calculating the Amount to Dispense

Amount to dispense: The volume of liquid or number or solid dosage units that contain the desired dose.

Once you have determined the desired dose, you still have one more step that must be completed. While the desired dose tells you how many grams, milligrams, or grains of a drug the patient is to receive, you will need to know how many tablets, capsules, teaspoons, or milliliters of the medication must be given to deliver the desired dose. You must calculate an **amount to dispense,** which is the volume of liquid or number or solid dosage units that contain the desired dose.

In this section, you will be presented with four methods for calculating the *amount to dispense*. As with previous calculations, you may choose to use fraction proportion, ratio proportion, or dimensional analysis. We will also introduce the formula method. Again, the method that you choose to use is up to you—each will give you the same result.

To calculate the amount to dispense A, the following information must be known:

- The desired dose D, or the amount of drug to be given at a single time. This is the dosage ordered converted to the same units as those of the dose on hand, if necessary.
- The dosage strength of the dose on hand H per dosage unit Q. Recall, the dose on hand H is the amount of drug contained in a dosage unit. The dosage unit Q is the unit by which you will measure the medication—tablets, capsules, milliliters, teaspoons, etc. This is obtained from the medication label.

EXAMPLE Ordered: Famvir® 500 mg PO q8h.

On hand: 250-mg tablets

In this case the dose on hand is 250 mg and the dosage unit is tablets. You determine that the dose on hand is 250 mg and the dose ordered is 500 mg. In this case you do not need to convert the dose ordered because it is already in the same unit of measurement as that of the dose on hand. You have all the necessary information to calculate the amount to dispense.

- D = desired dose = 500 mg
- H = dose on hand = 250 mg
- Q = dosage unit = 1 tablet

Calculating the Amount to Dispense

Fraction Proportion Method

Procedure Checklist 6-4

Calculating the Amount to Dispense by Fraction Proportion Method

1. Set up the proportion as follows:

$$\frac{\text{Dosage unit}}{\text{Dose on hand}} = \frac{\text{amount to dispense}}{\text{desired dose}} \quad \text{or} \quad \frac{Q}{H} = \frac{A}{D}$$

2. Cancel units.
3. Cross-multiply and then solve for the unknown value.

EXAMPLE 1 Find the amount to dispense. See Figure 6-3.

Ordered Famvir® 500 mg PO q8h
On hand: 250 mg tablets

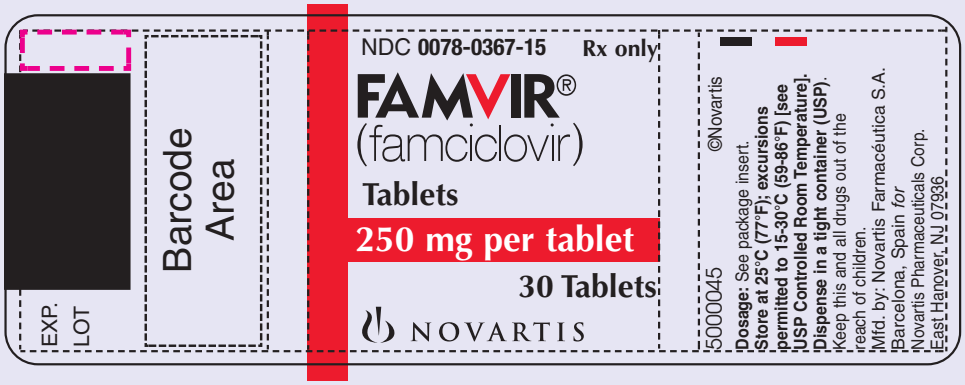


Figure 6-3 Famvir® 250-mg Tablets

The drug is ordered in milligrams, which is the same unit used on the label. Therefore, the dosage ordered is the same as the desired dose (500 mg). By reading the label we find that the dosage unit is 1 tablet and the dose on hand is 250 mg.

Therefore,

$D = 500$ mg
$Q = 1$ tablet
$H = 250$ mg

Follow the Procedure Checklist 6-4.

1. Fill in the proportion.
   (Think: If 1 tablet equals 250 mg, then how many tablets equal 500 mg?)

$$\frac{1 \text{ tablet}}{250 \text{ mg}} = \frac{A}{500 \text{ mg}}$$

2. Cancel units.

$$\frac{1 \text{ tablet}}{250 \cancel{\text{mg}}} = \frac{A}{500 \cancel{\text{mg}}}$$

3. Cross-multiply and solve for the unknown.

$$250 \times A = 1 \text{ tablet} \times 500$$

$$A = \frac{500}{250} \text{ tablets}$$

$$A = 2 \text{ tablets} = \text{amount to dispense}$$

EXAMPLE 2 ◗ Ordered: Metformin 2 g PO daily. See Figure 6-4.

On hand: 1000-mg tablets

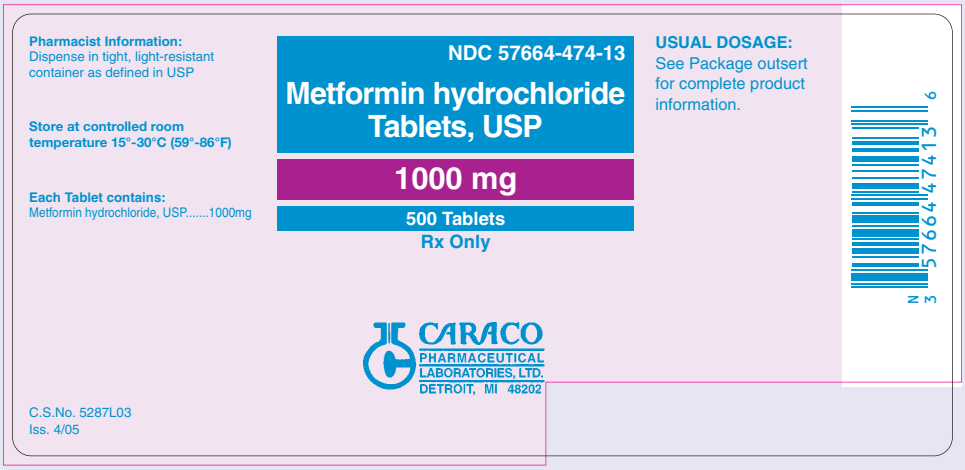


Figure 6-4 Metformin 1000-mg Tablets

In this case, the order is written in grams, and the drug is labeled in milligrams. Before we can determine the amount to dispense, we must calculate a desired dose that is in milligrams.

Follow the Procedure Checklist 6-1.

1. Recall that 1 g = 1000 mg. Since we are converting to milligrams, our conversion factor is

$$\frac{1000 \text{ mg}}{1 \text{ g}}$$

2. The other fraction for our proportion is $\frac{D}{2 \text{ g}}$.
3. Set up the fraction proportion equation:

$$\frac{D}{2 \text{ g}} = \frac{1000 \text{ mg}}{1 \text{ g}}$$

4. Cancel units.

$$\frac{D}{2 \cancel{\text{g}}} = \frac{1000 \text{ mg}}{1 \cancel{\text{g}}}$$

5. Solve for the unknown.

$$1 \times D = 1000 \text{ mg} \times 2$$
$$D = 2000 \text{ mg} = \text{desired dose}$$

We now have the three necessary pieces of information: The desired dose is 2000 mg, the dosage unit is 1 tablet, and the dose on hand is 1000 mg.

Follow the Procedure Checklist 6-4.

1. Fill in the proportion.
(Think: *If 1 tablet has 1000 mg, then how many tablets will have 2000 mg?*)

$$\frac{1 \text{ tablet}}{1000 \text{ mg}} = \frac{A}{2000 \text{ mg}}$$

2. Cancel units.

$$\frac{1 \text{ tablet}}{1000 \cancel{\text{mg}}} = \frac{A}{2000 \cancel{\text{mg}}}$$

3. Cross-multiply and solve for the unknown.

$$1000 \times A = 1 \text{ tablet} \times 2000 \qquad \text{(divide both sides by 1000)}$$

$$A = \frac{2000}{1000} = 2 \text{ tablets} = \text{amount to dispense}$$

Super Tech . . .

Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-4. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

Tech Check

When in Doubt, Double Check Your Work!

Always use critical thinking skills to evaluate your answer before you administer a drug. For example, in Example 2 the medication ordered is 2 g, and the medication comes in bottles of 1000-mg tablets. If you set up the problem incorrectly, you may get the answer $\frac{1}{2}$. Here is how.

First you determine that the desired dose is 2000 mg, and then you set up the problem, reversing the dose on hand with the desired dose.

$$\frac{1 \text{ tablet}}{2000 \text{ mg}} = \frac{A}{1000 \text{ mg}}$$

$$\frac{1 \text{ tablet}}{2000 \cancel{\text{mg}}} = \frac{A}{1000 \cancel{\text{mg}}}$$

(Canceling the units makes the problem appear correct.)
When you cross-multiply, you come up with the following.

$$2000 \times A = 1 \text{ tablet} \times 1000 \text{ (Divide both sides by 2000)}$$

$$A = \frac{1000}{2000} = \frac{1}{2}$$

Think Before You Act

If 1 tablet of Metformin is 1000 g and you need to give the patient 2000 g, you realize that you need to give more than $\frac{1}{2}$ tablet. With critical thinking you would determine that the answer appears incorrect and you should recalculate. *Never administer a medication if you are uncertain or uncomfortable with the answer you obtain.*

Calculating the Amount to Dispense

Ratio Proportion Method

Procedure Checklist 6-5

Calculating Amount to Dispense by Ratio Proportion Method

1. The proportion will be set up as follows:
   Dosage unit : dose on hand : : amount to dispense : desired dose, or
   $Q : H : : A : D$
2. Cancel units.
3. Multiply the means and extremes and then solve for the missing value.

EXAMPLE 1 ▸ Ordered: Famvir® 500 mg PO q8h

On hand: Famvir® 250 mg per/tablet (see Figure 6-3 on page 168).
Find the amount to dispense.

The drug is ordered in milligrams, which is the same unit used on the label. Therefore, the desired dose is 500 mg. Reading the label tells us that the dosage unit is 1 tablet and the dose on hand is 250 mg.

Follow Procedure Checklist 6-5.

1. Fill in the proportion.
   (Think: *If 1 tablet is 250 mg, then how many tablets make 500 mg?*)

$$1 \text{ tablet} : 250 \text{ mg} :: A : 500 \text{ mg}$$

2. Cancel units.

$$1 \text{ tablet} : 250 \cancel{\text{mg}} :: A : 500 \cancel{\text{mg}}$$

3. Multiply the means and extremes, and then solve for the missing value.

$$250 \times A = 1 \text{ tablet} \times 500$$
$$\frac{250}{250} \times A = 1 \text{ tablet} \times \frac{500}{250}$$
$$A = 2 \text{ tablets} = \text{amount to dispense}$$

EXAMPLE 2 ◗ Ordered: Metformin 2 g PO daily.

On hand: Metformin hydrochloride 1000 mg (see Figure 6-4 on page 169)
Calculate the amount to dispense.

In this case, the order is written in grams, and the drug is labeled in milligrams. Before we can determine the amount to dispense, we must calculate a desired dose that is in milligrams.

Follow Procedure Checklist 6-2.

1. Recall that 1 g = 1000 mg. Since we are converting to milligrams, our conversion factor is 1000 mg : 1 g
2. The other ratio in our proportion is:

$$D : 2 \text{ g}$$

3. Set up the ratio proportion equation:

$$1000 \text{ mg} : 1 \text{ g} :: D : 2 \text{ g}$$

4. Cancel units.

$$1000 \text{ mg} : 1 \cancel{\text{g}} :: D : 2 \cancel{\text{g}}$$

5. Multiply the means and extremes, and solve the equation.

$$1 \times D = 1000 \text{ mg} \times 2$$
$$D = 2000 \text{ mg} = \text{desired dose}$$

We now have the three necessary pieces of information: The desired dose is 2000 mg, the dosage unit is 1 tablet, and the dose on hand is 1000 mg.

$$D = 2000 \text{ mg}$$
$$Q = 1 \text{ tablet}$$
$$H = 1000 \text{ mg}$$

Follow Procedure Checklist 6-5.

1. Fill in the ratio proportion. (Think: *If 1 tablet equals 1000 mg, then how many tablets equal 2000 mg?*)

$$1 \text{ tablet} : 1000 \text{ mg} :: A : 2000 \text{ mg}$$

2. Cancel units.

$$1 \text{ tablet} : 1000 \cancel{\text{mg}} :: A : 2000 \cancel{\text{mg}}$$

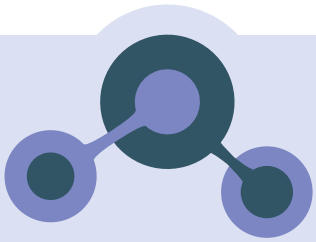
3. Multiply the means and extremes, and solve for the unknown.

$$1000 \times A = 2000 \times 1 \text{ tablet} \qquad \text{(Divide both sides by 1000)}$$
$$A = 2 \text{ tablets} = \text{amount to dispense}$$

Super Tech . . .

Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-5. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

Calculating the Amount to Dispense



Dimensional Analysis

Procedure Checklist 6-6

Calculating the Amount to Dispense by the Dimensional Analysis Method

With dimensional analysis, you will not need to calculate the desired dose and amount to dispense separately. You will place your unknown (amount to dispense) on one side of the equation and then multiply a series of factors on the right side of the equation. Canceling units will help you determine that the equation has been set up correctly.

1. Determine the unit of measure for the answer, and place it as the unknown on one side of the equation. (In this case the answer would be the amount to dispense. The unit of measure will be the same unit of measure as that of the dosage unit.)
2. On the right side of the equation, write a conversion factor with the unit of measure for the desired dose on top and the unit of measure for the dosage ordered on the bottom. *(This is necessary if the dose ordered is in a different unit of measurement than the dose on hand.)*
3. Multiply the conversion factor by a second factor—the dosage unit over the dose on hand.
4. Multiply by a third factor—dose ordered over the number 1
5. Cancel units on the right side of the equation. The remaining unit of measure on the right side of the equation should match the unknown unit of measure on the left side of the equation.
6. Solve the equation.

EXAMPLE 1 Ordered: Famvir® 500 mg PO q8h

On hand: Famvir® 250 mg per tablet (see Figure 6-3 on page 168)
Find the amount to dispense.

Follow Procedure Checklist 6-6.

1. The unit of measure for the amount to dispense will be tablets. This is the dosage unit.

$$A \text{ tablets} =$$

2. Since the unit of measurement for the dosage ordered is the same as the dose on hand, no conversion factor is necessary.
3. The dosage unit is 1 tablet. The dosage strength is 250 mg. This is our first factor.

$$\frac{1 \text{ tablet}}{250 \text{ mg}}$$

4. The dose ordered is 500 mg. Place this quantity over the number 1 for the next factor.

$$A \text{ tablet} = \frac{1 \text{ tablet}}{250 \text{ mg}} \times \frac{500 \text{ mg}}{1}$$

5. Cancel the units.

$$A \text{ tablet} = \frac{1 \text{ tablet}}{250 \cancel{\text{mg}}} \times \frac{500 \cancel{\text{mg}}}{1}$$

6. Solve the equation.

$$A \text{ tablet} = 1 \text{ tablet} \times \frac{500}{250}$$

$$A = 2 \text{ tablets} = \text{amount to dispense}$$

EXAMPLE 2 Ordered: Metformin 2 g PO daily

On hand: Metformin hydrochloride 1000 mg (see Figure 6-4 on page 169)
Find the amount to dispense.

Follow Procedure Checklist 6-6.

1. The unit of measure for the amount to dispense will be tablets.

$$A \text{ tablets} =$$

2. The unit of measure for the dosage ordered is grams. The unit of measure for the desired dose is milligrams. Recall the conversion factor 1 g = 1000 mg. We will be converting to milligrams.

$$\frac{1000 \text{ mg}}{1 \text{ g}}$$

3. The dosage unit is 1 tablet, and the dose on hand is 1000 mg. This is our second factor.

$$\frac{1000 \text{ mg}}{1 \text{ g}} \times \frac{1 \text{ tablet}}{1000 \text{ mg}}$$

4. The dose ordered is 2 g. Place this over 1:

$$A \text{ tablet} = \frac{1000 \text{ mg}}{1 \text{ g}} \times \frac{1 \text{ tablet}}{1000 \text{ mg}} \times \frac{2 \text{ g}}{1}$$

5. Cancel units.

$$A \text{ tablet} = \frac{1000 \cancel{\text{mg}}}{1 \cancel{\text{g}}} \times \frac{1 \text{ tablet}}{1000 \cancel{\text{mg}}} \times \frac{2 \cancel{\text{g}}}{1}$$

6. Solve the equation.

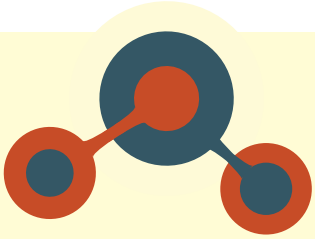
$$A \text{ tablet} = \frac{2000}{1000} \qquad \text{(Reduce the fraction to lowest terms)}$$

$$A = 2 \text{ tablets} = \text{amount to dispense}$$

Super Tech . . .

Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-6. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

Calculating the Amount to Dispense



Formula Method

Procedure Checklist 6-7

Calculating the Amount to Dispense by the Formula Method

1. Determine the desired dose. Calculate it using the fraction proportion, ratio proportion, or dimensional analysis method. Determine the dose on hand H and dosage unit Q.
2. Fill in the formula:

$$\frac{D}{H} \times Q = A$$

where

D = desired dose—this is the dose ordered changed to the same unit of measure as the dose on hand
H = dose on hand—the amount of drug contained in each unit
Q = dosage unit—how the drug will be administered, such as tablets or milliliters
A = amount to dispense (unknown).

3. Cancel the units.
4. Solve for the unknown.

EXAMPLE 1 ◗ Ordered: Famvir® 500 mg PO q8h

On hand: Famvir® 250 mg per tablet (see Figure 6-3 on page 168)
Find the amount to dispense.

Follow Procedure Checklist 6-7.

1. The drug is ordered in milligrams, which is the same unit used on the label. Therefore, the desired dose is 500 mg. Reading the label tells us that the dosage unit is 1 tablet and the dose on hand is 250 mg. Therefore,

$$D = 500 \text{ mg}$$
$$Q = 1 \text{ tablet}$$
$$H = 250 \text{ mg}$$

2. Fill in the formula.

$$\frac{500\ mg}{250\ mg} \times 1\ tablet = A$$

3. Cancel units.

$$\frac{500\ \cancel{mg} \times 1 \text{ tablet}}{250\ \cancel{mg}} = A$$

4. Solve for the unknown.

$$\frac{500}{250} \times 1 \text{ tablet} = A$$

$A = 2$ tablets = amount to dispense

EXAMPLE 2 ◗ Ordered: Metformin 2 g PO daily

On hand: Metformin hydrochloride 1000 mg (see Figure 6-4 on page 169)
Calculate the amount to dispense.

In this case, the order is written in grams, and the drug is labeled in milligrams. Before we can determine the amount to dispense, we must calculate a desired dose that is in milligrams. (In this example we will use the ratio proportion method Procedure Checklist 6-2.)

1. Recall that 1 g = 1000 mg. Since we are converting to milligrams, our conversion factor is:

$$1000 \text{ mg} : 1 \text{ g}$$

2. The other ratio in our proportion is:

$$D : 2 \text{ g}$$

3. Set up the ratio proportion equation.

$$1000 \text{ mg} : 1 \text{ g} :: D : 2 \text{ g}$$

4. Cancel units.

$$1000 \text{ mg} : 1\ \cancel{g} :: D : 2\ \cancel{g}$$

5. Multiply the means and extremes and solve the equation.

$$1 \times D = 1000 \text{ mg} \times 2$$

$$D = 2000 \text{ mg} = \text{desired dose}$$

Follow Procedure Checklist 6-7.

1. The three necessary pieces to complete the formula are the desired dose of 2000 mg, the dosage unit of 1 tablet, and the dose on hand of 1000 g.

$$D = 2000 \text{ mg}$$
$$Q = 1 \text{ tablet}$$
$$H = 1000 \text{ mg}$$

2. Insert the numbers and units into the formula.

$$\frac{2000 \text{ g}}{1000 \text{ g}} \times 1 \text{ tablet} = A$$

3. Cancel units.

$$\frac{2000 \cancel{\text{g}}}{1000 \cancel{\text{g}}} \times 1 \text{ tablet} = A$$

4. Solve for the unknown.

$$\frac{2000}{1000} \times 1 \text{ tablet} = A$$

$A = 2$ tablets = amount to dispense

Super Tech . . .

Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-7. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

Review and Practice 6-2 Calculating the Amount to Dispense

In Exercises 1–14, calculate the amount to dispense and write out the full drug order.

Example: Ordered: Ritalin® 15 mg PO bid ac
On Hand: Ritalin® 5 mg
Amount to dispense = 3 tablets
Drug order: Take 3 tablets by mouth two times per day with meals

1. Ordered: Thorazine® 20 mg PO tid
On hand: Thorazine® 10 mg tablets

Amount to dispense: _____

Drug order: _____

2. Ordered: Ranitidine hydrochloride 150 mg PO bid
   On hand: Zantac® syrup 15 mg ranitidine hydrochloride per mL

   Amount to dispense: _____

   Drug order: _____

3. Ordered: Ceclor® 0.375 g PO bid
   On hand: Ceclor® Oral Suspension 187 mg per 5 mL

   Amount to dispense: _____

   Drug order: _____

4. Ordered: Nitroglycerin gr 1/100 SL stat
   On hand: Nitroglycerin 0.3-mg tablets

   Amount to dispense: _____

   Drug order: _____

5. Ordered: Amoxicillin 250 mg PO tid
   On hand: Amoxicillin 250 mg/5 mL

   Amount to dispense: _____

   Drug order: _____

6. Ordered: Tricor® 108 mg PO daily
   On hand: Tricor® 54 mg tablets

   Amount to dispense: _____

   Drug order: _____

7. Ordered: Procardia® 20 mg PO tid
   On hand: Procardia® 10 mg capsules

   Amount to dispense: _____

   Drug order: _____

8. Ordered: Moexipril hydrochloride 15 mg PO q.d. a.c.
   On hand: Moexipril hydrochloride 7.5 mg tablets

   Amount to dispense: _____

   Drug order: _____

9. Ordered: Synthroid® 0.3 mg PO q.d.
   On hand: Synthroid® 150 mcg

   Amount to dispense: _____

   Drug order: _____

10. Ordered: Wellbutrin® 0.2 g PO bid
    On hand: Wellbutrin® 100 mg

    Amount to dispense: _____

    Drug order: _____

11. Ordered: Keflex® 500 mg PO q12h
On hand: Keflex® 250 mg per 5 mL

Amount to dispense: _____

Drug order: _____

12. Ordered: Decadron® 6 mg IM q.i.d.
On hand: Decadron® 4 mg per mL

Amount to dispense: _____

Drug order: _____

13. Ordered: Ketoconazole 100 mg PO qd
On hand: Ketoconazole 200-mg scored tablets

Amount to dispense: _____

Drug order: _____

14. Ordered: Erythromycin oral suspension 150 mg PO bid
On hand: Erythromycin oral suspension 200 mg per mL

Amount to dispense: _____

Drug order: _____

Estimated Days Supply

Estimated days supply: How long the medication will last the patient if taken correctly.

As a pharmacy technician you may need to determine the **estimated days supply** of a prescription, which is how long the medication will last the patient if taken correctly. If the physician orders Zocor 20 mg tablets #90 i po daily, the prescription will last the patient 90 days. To determine estimated days supply you will multiply amount of medication to dispense by days needed over the number of dosage units per day.

$$\frac{\text{Amount to dispanse}}{\text{Dosage units per day}} = \text{Estimated days supply}$$

EXAMPLE 1 The physician orders Motrin® 600 mg tablets #20 i po bid.

$$\frac{20 \text{ tablets}}{2} = 10 \text{ days}$$

The prescription should last the patient 10 days.

EXAMPLE 2 The physician orders Robitussin® AC 240 mL ii tsp tid.

The patient is to receive 10 mL (2 tsp) three times per day. So, the patient should take 30 mL per day.

$$\frac{240 \text{ mL}}{30 \text{ mL}} = 8 \text{ days}$$

The prescription should last the patient 8 days.

You will get additional practice calculating estimated days supply for the different routes of administration in Chapter 7.

Super Tech . . .

Open the CD-ROM that accompanies your textbook and select Chapter 6, Exercise 6-8. Review the animation and example problems, and then complete the practice problems. Continue to the next section of the book once you have mastered the information presented.

Review and Practice 6-3 Estimated Days Supply

In Exercises 1-5 calculate the estimated days supply.

1. Procardia® 20 mg tablets # 180 i PO tid
2. Keflex® 500 mg capsules # 20 i PO q12h
3. Synthroid® 0.3 mg tablets # 30 i PO q.d.
4. Amoxicillin 250 mg/5 mL Disp 210 mL take i tsp PO tid
5. Thorazine® 20 mg # 90 i PO tid

Chapter 6 Review

Test Your Knowledge

Multiple Choice

Select the best answer and write the letter on the line.

_____ 1. What is the abbreviation for dosage ordered?
A. *H*
B. *Q*
C. *D*
D. *O*
E. *A*

_____ 2. What is the abbreviation for desired dose?
A. *H*
B. *Q*
C. *D*
D. *O*
E. *A*

_____ 3. What is the abbreviation for dosage unit?
A. *H*
B. *Q*
C. *D*
D. *O*
E. *A*

_____ 4. What is the abbreviation for dose on hand?
A. *H*
B. *Q*
C. *D*
D. *O*
E. *A*

_____ 5. What is the abbreviation for amount to dispense?
A. *H*
B. *Q*
C. *D*
D. *O*
E. *A*

Practice Your Knowledge

Check Up

In Exercises 1–18, calculate the desired dose. Then calculate the amount to dispense.

1. Ordered: Valium® 5 mg PO tid
   On hand: Valium® 2-mg scored tablets

   Desired dose: _____ Amount to dispense: _____

2. Ordered: Atacand® 16 mg PO bid
   On hand: Atacand® 8-mg tablets

   Desired dose: _____ Amount to dispense: _____

3. Ordered: Cimetidine 400 mg PO qid hs
   On hand: Tagamet® 200 mg tablets

   Desired dose: _____ Amount to dispense: _____

4. Ordered: Noroxin® 800 mg PO qd ac
   On hand: Noroxin® 400-mg tablets

   Desired dose: _____ Amount to dispense: _____

5. Ordered: Pergolide mesylate 100 mcg PO tid
   On hand: Pergolide mesylate 0.05-mg tablets

   Desired dose: _____ Amount to dispense: _____

6. Ordered: Zyloprim® 0.25 g PO bid
   On hand: Zyloprim® 100-mg scored tablets

   Desired dose: _____ Amount to dispense: _____

7. Ordered: Zaroxolyn® 7.5 mg PO daily
   On hand: Zaroxolyn® 2.5-mg tablets

   Desired dose: _____ Amount to dispense: _____

8. Ordered: Ciprofloxacin hydrochloride 500 mg PO q12h
   On hand: Ciprofloxacin hydrochloride 250 mg tablets

   Desired dose: _____ Amount to dispense: _____

9. Ordered: Lexapro® 20 mg PO daily
   On hand: Lexapro® 10 mg tablets

   Desired dose: _____ Amount to dispense: _____

10. Ordered: Toprol® XL 100 mg PO bid
    On hand: Toprol® XL 25 mg extended-release tablets

    Desired dose: _____ Amount to dispense: _____

11. Ordered: Depakene® 250 mg PO bid
    On hand: Depakene® 250 mg capsules

    Desired dose: _____ Amount to dispense: _____

12. Ordered: Dilantin® 60 mg PO daily
    On hand: Dilantin® 30 mg capsules

    Desired dose: _____ Amount to dispense: _____

13. Ordered: Lisinopril 40 mg PO daily
    On hand: Lisinopril 20 mg tablets

    Desired dose: _____ Amount to dispense: _____

14. Ordered: Biaxin® 125 mg PO tid
    On hand: Biaxin® 250 mg per 5mL oral suspension

    Desired dose: _____ Amount to dispense: _____

15. Ordered: Augmentin® 1 gram PO bid
    On hand: Augmentin® 400 mg/ 5 mL

    Desired dose: _____ Amount to dispense: _____

16. Ordered: Singulair® 5 mg PO daily
    On hand: Singulair® 5 mg chewable tablets

    Desired dose: _____ Amount to dispense: _____

17. Ordered: Augmentin® 200 mg PO q8h
    On hand: Augmentin® 125 mg/ 5 mL suspension

    Desired dose: _____ Amount to dispense: _____

18. Ordered: Valtrex® 0.5 g PO daily
    On hand: Valtrex® 500 mg caplets

    Desired dose: _____ Amount to dispense: _____

Apply Your Knowledge

What Is the Dosage Ordered?

You are the pharmacy technician working in a retail pharmacy. You are working in a pharmacy when the following prescription comes in: Valium® 7.5 mg PO tid for 7 days. The drug is available in 2-mg scored tablets, 5-mg scored tablets, and 10-mg scored tablets, and you have all three strengths on hand for filling this prescription.

Answer the following questions:

1. What is the desired dose?

   _____

2. What is the amount to dispense?

   _____

Internet Activity

Many times medications come in different dosage strengths. (Recall the dosage strength is the dose on hand per dosage unit.) If you do not look at the label carefully, you can easily select the wrong medication and/or calculate the amount to dispense incorrectly. Search the Internet for at least three medications that come in different dosage strengths. List each medication and its various dosage strengths. You may want to focus on the top 200 medications at www.rxlist.com.

Super Tech . . .

Open the CD-ROM that accompanies your textbook, and complete a final review of the rules, practice problems, and activities presented for this chapter. For a final evaluation, take the chapter test and email or print your results for your instructor. A score of 95 percent or above indicates mastery of the chapter concepts.