

Solutions Manual for Medical Dosage Calculations 11th Emeritus

Chapter

2

Safe and Accurate Drug Administration

Chapter Overview



Chapter 2 is a general introduction to the drug administration process. It introduces the student to the role of the person who administers patient medication and the various forms and routes by which medications are administered. The student will begin to develop a vocabulary of terms necessary to understand pertinent information about drugs and their administration, which will aid in understanding the responsibilities of administering drugs safely. Safety, documentation, and accuracy are stressed throughout the text. Recent *Joint Commission* recommendations are included, and the “Six Rights” of medication administration are discussed extensively. The student will learn how to interpret drug prescriptions, medication orders, medication administration records (MAR), drug labels and package inserts, and military time. The roles of the FDA and other organizations concerned with decreasing medication errors are discussed.

Instructor's Notes

- The PowerPoint slides are particularly useful in presenting the material in this chapter. Slides of drug prescriptions, medication orders, medication administration records, drug labels, and package inserts can be projected as the instructor explains their various components.
- Demonstrate actual examples of various forms of drugs (inhalers, tablets, capsules, patches, suppositories), if available.
- Students who have learned this material in other courses may review this chapter quickly.
- Discuss the abbreviations to be avoided in medication orders and documentation (the “Do Not Use List”).

- Emphasize the importance of the need to be vigilant regarding drugs that “Look Alike-Sound Alike.”
- The *Nurse Alert* newsletter of the Institute of Safe Medication Practice is a good reference for medication safety issues; see Appendix B.
- Interpreting a drug order is very important for the rest of the course and should be stressed.
- If the Internet is accessible in the classroom, pharmaceutical company Web sites can be used to view actual package inserts (prescribing information) for drugs.

Key Terms

automated medication dispensing cart (ADC)	Institute for Safe Medication Practice (ISMP)	prescriber
A.M./P.M.	intracardiac (IC)	prescription
bar code	intraocular (IO)	prn
b.i.d.	intradermal (ID)	q.i.d.
body surface area (BSA)	intramuscular (IM)	registration
buccal	intrathecal	symbol (®)
capsule	intravenous (IV)	route
computerized	local/systemic	safe dose range
physician order entry (CPOE)	lot number	side effect
controlled substance	medication	standing order
delayed-release (DR)	administration record (MAR)	stat
dosage strength	medication order	subcutaneous (subcut)
dry powder inhaler (DPI)	metered dose inhaler (MDI)	sublingual (SL)
elixir	meters squared (m ²)	suspension
enteral	military time	sustained release (SR)
enteric-coated	national drug code (NDC)	syrup
epidural	nebulizer	tablet
extended release (XL)	oral (PO)	t.i.d.
Federal Drug Administration (FDA)	package insert	topical
generic name	parenteral	trade name
inhalation	pharmacist	trademark (™)
	<i>Physician's Desk Reference (PDR)</i>	transdermal
		unit dose
		United States Pharmacopoeia (USP)

Answers to Chapter 2 Additional Exercises

1. montelukast
2. Zocor
3. 100 mL
4. 200 mg/5 mL
5. 80 mg/20 mg per mL
6. (a) Anusol supp
(b) 6 A.M.
(c) 4
(d) Bonivar, Humulin N, Humulin R
(e) December 16
7. (a) Omnicef & Glucophage
(b) 4
(c) 25 mg/h, transdermal
(d) by mouth
(e) 2

8. (a) milnacipran HCl, tablets
 (b) fibromyalgia
 (c) 12.5 milligrams
 (d) No, Savella is not approved for use in pediatrics
 (e) 200 milligrams daily

9.

Standard Time	Military Time
7:30 A.M.	0730h
5:43 P.M.	1743h
12 midnight.	2400h
8:20 P.M.	2020h
12:57 P.M.	1257h
10:30 P.M.	2230h
3:32 P.M.	1532h
4:15 A.M.	0415h
12:04 A.M.	0004h
9:12 A.M.	0912h

10. (a) Administer Norvasc (amlodipine) ten milligrams by mouth daily. Do not administer if the systolic blood pressure is less than 100.
 (b) Administer morphine sulfate five milligrams subcutaneously every four hours as needed for moderate to severe pain.
 (c) Administer Methergine (methylergonovine maleate) two-tenths milligram intramuscularly immediately, then administer two-tenths milligram by mouth every six hours for six doses.
 (d) Administer Ceftin (cefuroxime axetil) one and five-tenths grams by intravenous piggyback thirty minutes before surgery, then administer seven hundred fifty milligrams by intravenous piggyback every eight hours for twenty-four hours.
 (e) Administer heparin five thousand units subcutaneously every twelve hours.
11. (a) Route
 (b) Frequency
 (c) Dose and frequency
 (d) Frequency
 (e) Dose and frequency
12. (a) 60 mg
 (b) 60 mg
 (c) 60 mg
 (d) 20 mg

Chapter 2 Examination Questions

Study the drug labels shown in • Figure 2.1 and supply the following information:

Store at controlled room temperature, 15° to 30°C (59° to 86°F).
PROTECT FROM MOISTURE AND HUMIDITY.
Dispense in tight containers (USP).
DOSAGE AND USE
See accompanying prescribing information.
Each capsule contains 250 mcg (0.25 mg) dofetilide.

Rx only

NDC 0069-5810-60

60 Capsules

Tikosyn®
(dofetilide)

250

250 mcg (0.25 mg)

Pfizer **Pfizer Labs**
Division of Pfizer Inc, NY, NY 10017

7401

MADE IN USA

N3 0069-5810-60 2

05-5552-32-1

(a)

319-3275-0006-00275-31

Singulair® 5 mg
(Montelukast Sodium) CHEWABLE TABLETS
For Pediatric Patients 6-14 Years of Age

MERCK & CO., INC.
Whitehouse Station, NJ 08889, USA

Keep this and all drugs out of the reach of children
Phenylketonurics: contains phenylalanine (a component of aspartame) 0.842 mg per 5-mg chewable tablet.
Each tablet contains 5.2 mg Montelukast Sodium equivalent to 5 mg Montelukast.

30 Tablets

Lot

MRK

275

NDC 0006-0275-31

Store at 25°C (77°F), excursions permitted to 15-30°C (59-86°F) [see USP Controlled Room Temperature].
Protect from moisture and light.
Store in original package.
USUAL DOSAGE: One 5-mg chewable tablet daily.
For asthma: to be taken in the evening. See accompanying circular.
Rx only

9598410

30 | No. 3760

(b)

Store at 25°C (77°F); excursions permitted to 15-30°C (59-86°F) [see USP Controlled Room Temperature].
Dispense in tight containers (USP).
DOSAGE AND USE
See accompanying prescribing information.

*Each tablet contains sildenafil citrate equivalent to 100 mg sildenafil.
05-5487-30-5

NDC 0069-4220-30

30 Tablets

Rx only

Viagra®
(sildenafil citrate) tablets

100

100 mg *

Pfizer **Pfizer Labs**
Distributed by
Division of Pfizer Inc, NY, NY 10017

4002

N3 0069-4220-30 3

8703245

(c)

• **Figure 2.1**
Drug Labels for Questions 1–5.

1. What is the generic name of Viagra?
2. How many capsules are in the Tikosyn container?
3. What is the strength of the Singulair tablets?

4. What is the route of administration for dofetilide?

5. What is the dosage strength for the drug whose NDC number is 0069 5810 60?

Study the portion of a MAR in • Figure 2.2 and answer questions 6–10 below.

Order	time	18	19	20	21
nifedipine 20 mg po b.i.d.	0900h	AD	AD	AD	AD
	1700h	BK	BK	BK	BK
digoxin 0.25 mg po daily	0900h	X	AD	AD	AD
sucralfate 1 g po q.i.d.	0900h	AD	AD	AD	AD
	1300h	BK	BK	BK	BK
	1700h	BK	BK	BK	BK
	2100h	WW	WW	WW	WW

• Figure 2.2

6. How many drugs were administered at 1 p.m. on the 18th?

7. On what date and time was the digoxin first administered?

8. What are the initials of the nurse who administered the nifedipine at 5:00 p.m. on the 20th?

9. What was the route of administration of the sucralfate?

10. How many doses of nifedipine were administered on the 19th?

DECLOMYCIN[®]
DEMECLOCYCLINE HYDROCHLORIDE
FOR ORAL USE

Adults: Usual daily dose, four divided doses of 150 mg each or two divided doses of 300 mg each.

For children above eight years of age: Usual daily dose, 3–6 mg per pound body weight per day, depending on the severity of the disease, divided into two to four doses.

Gonorrhea patients sensitive to penicillin may be treated with demeclocycline administered as an initial oral dose of 600 mg followed by 300 mg every 12 hours for four days to a total of 3 grams.

HOW SUPPLIED
DECLOMYCIN[®] demeclocycline hydrochloride capsules. 150 mg are two-tone, coral colored, soft gelatin capsules, printed with LL followed by 09 on the light side in blue ink, are supplied as follows:
NOC 0005-9208-23 – Bottle of 100

• Figure 2.3

Portion of a package insert for questions 11–12.

11. What is the generic name of the drug?

12. What is the form of the drug?

13. Interpret the following order: *Precose (acarbose) 75 mg po b.i.d.*

14. What is missing from the following order: *Paxil (paroxetine) 50 mg daily*

15. Order: *Zyvox (linezolid) 600 mg po q12h*. How many mg will you administer?

For the partial orders in questions 16–20, indicate how many milliliters you would administer.

16. 60 mL daily

17. 60 mL b.i.d.

18. 60 mL t.i.d.

19. 60 mL daily in two divided doses

20. 60 mL q12h

Answers to Chapter 2 Examination Questions

- | | |
|--|------------------------|
| 1. sildenafil citrate | 2. 60 capsules |
| 3. 5 mg per tablet | 4. By mouth |
| 5. 250 mcg per capsule or 0.25 mg per capsule | |
| 6. 1 (sucralfate) | 7. 19th at 9:00 A.M. |
| 8. BK | 9. By mouth |
| 10. 2 | 11. Demeclocycline HCl |
| 12. Capsule | |
| 13. Administer Precose (acarbose) 75 mg by mouth two times a day | |
| 14. Route of administration | 15. 600 mg |
| 16. 60 mL | 17. 60 mL |
| 18. 60 mL | 19. 30 mL |
| 20. 60 mL | |