

Revised: Fall 2016

NUR 135

Drug Dosage Calculations

COURSE OUTLINE

Prerequisites:

None

Course Description:

Focuses on apothecary, metric, household conversions in medication dosage calculation for adult and pediatric clients. Provides a practical approach to learning to calculate and prepare medications and solutions. Includes calculating intravenous flow rates.

Semester Credits: 2 Lecture Hours: 2 Lab/Recitation Hours: 0

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Course Outcomes

At the completion of this course, the student should be able to:

1. Compute basic math problems without using a calculator.
2. Perform computations with fractions and decimals (add, subtract, multiply and divide) without using a calculator.
3. List the basic units of weight and volume used in the metric system and the household system (teaspoon, tablespoon, ounce, cup, and pint).
4. State the metric equivalent of household measurements (tsp, TBSP, ounce, cup, pint).
5. Give abbreviations for the frequently used metric and household units and sub-units.
6. Convert units of measurement within the metric system, and between the metric system and the household system.
7. Tell time using the 24-hour clock (military time).
8. Interpret drug labels correctly.
9. Select a method for calculating drug dosage (either ratio/proportion, formula method, or dimensional analysis).
10. Calculate amount of tablets, capsules, and liquid volume needed for administering orally prescribed drugs.
11. Calculate dosages of drugs supplied in units or milliequivalents.
12. Calculate dosages of drugs for injection from solutions in vials and ampules.
13. Compute weight-based dosage.
14. Prepare and calculate medications in powder form for injectable use (reconstitution).
15. Differentiate between syringes labeled as cubic centimeters and units.
16. Calculate hourly flow rate and drops per minute rate of IV fluids.
17. Identify the varying directions for reconstitution and select the correct directions to prepare the dosage ordered.
18. Calculate dosages from reconstituted medications.
19. Calculate the amount of solvent and solute needed to prepare a desired strength for enteral feedings.
20. Calculate all dosage problems according to the rounding rules provided.



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Drug Dosage and Calculations

Required Materials:

None

Textbook:

Buchholz, Susan. (2016). *Henke's Med-Math Dosage calculation, Preparation and Administration* (8th Ed). Philadelphia: PA. Lippincott, Williams, & Wilkins. ISBN 9781496302847

The following supplementary materials are available:

The Point

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Topical Description: (Outline chapters and sections to be covered in the book – may include timeline)

- 1. Unit One: Math Review**
 - A. Roman Numerals (Ch. 1)
 - B. Fractions (Ch. 2)
 - C. Decimals (Ch. 3)
 - D. Ratio and Proportion (Ch. 4)
 - E. Percentages (Ch. 5)

- 2. Unit Two: Systems of Measurement**
 - A. Metric System (Ch. 6)
 - B. Apothecary and Household Systems (Ch. 7)
 - C. Converting between Systems (Ch. 8)
 - D. Additional Conversions Useful in the Health Care Setting (Ch. 9)

- 3. Unit Three: Methods of Administration and Calculation**
 - A. Medication Administration (Ch. 10)
 - B. Understanding and Interpreting Medication Orders (Ch. 11)
 - C. Medication Administration Records and Drug Distribution Systems (Ch. 12)
 - D. Reading Medication Labels (Ch. 13)
 - E. Dosage Calculation Using the Formula Method (Ch. 15)

- 4. Unit Four: Oral and Parenteral Dosage Forms and Insulin**
 - A. Calculation of Oral Medications (Ch. 17)
 - B. Parenteral Medications (Ch. 18)
 - C. Reconstitution of Solutions (Ch. 19)
 - D. Insulin (Ch. 20)

- 5. Unit Five: Intravenous, Heparin, and Critical Care Calculations**
 - A. Intravenous Solutions and Equipment (Ch. 21)
 - B. Intravenous Calculations (Ch. 22)

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C. Pediatric and Adult Dosage Calculation Based on Weight (Ch. 25)

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Notes to Instructors
(List information about optional topics, departmental exams, etc)

None

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