NRSR 0031 - DOSAGE CALCULATIONS FOR MEDICATION ADMINISTRATION FOR NURSING

Catalog Description

Prerequisite: Acceptance into the Sierra College Associate Degree Nursing program
Corequisite: Concurrent enrollment in NRSR 21
Hours: 18 lecture
Description: Focuses on preparing nursing students with the fundamental skills necessary for accurate dosage calculations in the context of medication administration. Through comprehensive instruction, students will gain proficiency in calculating dosages, ensuring precision and safety in the vital skill of medication delivery within a nursing context. This course emphasizes practical application, enabling students to develop the necessary competence in dosage calculations to excel in nursing practice. (pass/no pass grading) (CSU)

Course Student Learning Outcomes

- CSLO #1: Develop a proficiency in accurately calculating medication dosages.
- CSLO #2: Demonstrate competence to interpret medication labels, prescription orders, equipment, and rate of medication administration.
- CSLO #3: Apply critical thinking skills to assess the safety of administration of dosage calculation for medication administration.

Effective Term

Fall 2025

Course Type

Credit - Degree-applicable

Contact Hours

18

Outside of Class Hours

36

Total Student Learning Hours

54

Course Objectives

1. Demonstrate proficiency in basic mathematical operations to perform addition, subtraction, multiplication, and division accurately.

2. Apply units of measurement commonly used in medication administration: grams, milligrams, milliliters, micrograms, units.

3. Apply conversion techniques to convert between different units of measurement.

4. Interpret physician orders accurately, including medication names, dosages, routes of administration, and frequency.

5. Apply dimensional analysis as a method for dosage calculations.

6. Calculate dosages for oral medications based on prescribed doses, available concentrations, client weight, and client age.

7. Calculate dosages for parenteral medications based on doses and available concentrations.

8. Solve dosage for Reconstitution of solutions

9. Calculate Intravenous flow rate by infusion pump in mL/hr, and gtt/min.

10. Calculate the IV flow rate for medications administered IV piggyback.

11. Calculate the rate for medications administered IV push.

12. Assess safe dosage ranges for medications considering factors of patient age, weight, and therapeutic guidelines.

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- CSU Transferable

Methods of Evaluation

- Objective Examinations
  - Example: Sample Test Questions: Round answers per Sierra College Nursing Program Policy, and label answer with correct measurement/label/unit. Order: D5W to infuse at 100 mL/hr. Drop factor: 10 gtt/mL. At what rate in gtt/min should the IV be regulated?
- Problem Solving Examinations
  - Example: Students must take a dosage calculation quiz. Sample Test Question, Dosage Calculation: The medication order reads Digoxin 0.25 mg PO, once daily. The dose sent by the pharmacy is labeled 0.125 mg/tablet. How many tablets should the nurse administer?

Repeatable

No

Methods of Instruction

- Lecture/Discussion

Lecture:

1. An instructor will lecture on the topic of different units of measurement for medication administration. The student will apply conversion techniques to convert between different units of measurement. Example question: Conversion: Convert mL to oz 105 mL = _____

Typical Out of Class Assignments

Reading Assignments

Read textbook chapters on practice guidelines and protocols to medication administration and be prepared to apply in class.

Writing, Problem Solving or Performance

Use chapter information to complete practice dosage problems.

Other (Term projects, research papers, portfolios, etc.)

Required Materials

- Calculate With Confidence
  - Author: Morris, D. C.
  - Publisher: Elsevier
  - Publication Date: 2022
  - Text Edition: 8th
  - Classic Textbook?: Yes
  - OER Link:
  - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.