

EASTERN ARIZONA COLLEGE

Medical Dosage Calculations

Course Design
2018-2019

Course Information

Division Allied Health
Course Number HCE 116
Title Medical Dosage Calculations
Credits 2
Developed by Diane Knapp/Revised by John Clegg
Lecture/Lab Ratio 2 Lecture/0 Lab

Transfer Status

ASU	NAU	UA
Non Transferable	Elective Credit	Non Transferable

Activity Course No
CIP Code 51.0800
Assessment Mode Pre/Post Test (50 Questions/50 Points)
Semester Taught Fall and Spring
GE Category None
Separate Lab No
Awareness Course No
Intensive Writing Course No
Diversity and Inclusion Course No

Prerequisites

MAT 100 or higher with a grade of “C” or higher or math placement test score as established by District policy or instructor approval

Educational Value

This course is designed to prepare nursing students to calculate medication dosages. Assist students in understanding the importance of safety controls pertaining to administering medication in order to prevent medication errors, provide patient education and involving the patient in their care in regards to their medication regimen. It is intended for students and community members who are interested in nursing or any healthcare professional who is responsible for administering medications.

Description

This course involves reading medication documents and accurate calculation of medical dosages and solutions. The content includes math review, systems of measurements, medication administrations, dosage calculations, and unit conversions.

Supplies

Calculator

Competencies and Performance Standards

1. Review math.

Learning Objectives

What you will learn as you master the competency:

- a. Compare fractions; add, subtract, divide, and multiply fractions; and reduce fractions.
- b. Compare the size, add, subtract, divide, multiply, and round off decimals.
- c. Change fractions to decimals and decimals to fractions.
- d. Convert and compare fractions to percentages and ratios.

Performance Standards

Competence will be demonstrated:

- on assigned activities
- on written exams in class or on WebStudy

Criteria - Performance will be satisfactory when:

- learner demonstrates the ability to solve the variety of math problems

2. Convert within and between systems of measurements.

Learning Objectives

What you will learn as you master the competency:

- a. Convert metric measures to their equivalents in metric.
- b. Identify symbols and interpret measures in the apothecaries' and household systems.
- c. Convert a unit of measure to its equivalent in another system of measure (for example, metric to apothecaries').
- d. Calculate intake and output.

Performance Standards

Competence will be demonstrated:

- on assigned activities
- on written exams in class or on WebStudy

Criteria - Performance will be satisfactory when:

- learner demonstrates the ability to convert units within and between systems of measurements

3. Describe methods of administration and calculation.

Learning Objectives

What you will learn as you master the competency:

- a. State the six "rights" of safe medication administration.
- b. Identify common routes for medication administration.
- c. Identify important critical thinking skills necessary in medication administration.
- d. Identify home care considerations in relation to medication administration.
- e. Interpret a given medication order.

- f. Interpret medication labels.
- g. Calculate doses using ratio-proportion.
- h. Calculate doses using the formula method.
- i. Calculate doses using dimensional analysis.

Performance Standards

Competence will be demonstrated:

- o on assigned activities
- o on written exams in class or on WebStudy

Criteria - Performance will be satisfactory when:

- o learner responds correctly to questions related to methods of administration and calculation

4. Calculate oral and parenteral dose forms, insulin, and pediatric dosage.

Learning Objectives

What you will learn as you master the competency:

- a. Calculate oral medications.
- b. Calculate parenteral medications.
- c. Reconstitute medications with more than one direction for mixing.
- d. Measure insulin in single doses and combined insulin doses.
- e. Calculate pediatric doses using the body surface area and weight.
- f. Differentiate between various devices used to administer I.V. solutions (Example: Patient-controlled analgesia {PCA} pumps, electronic pumps).
- g. Calculate infusion time.
- h. Calculate the flow rate for medications ordered I.V. over a specified time period.
- i. Calculate flow rates for pediatric I.V. therapy.
- j. Calculate heparin doses being administered I.V. and s.c.

Performance Standards

Competence will be demonstrated:

- o on assigned activities
- o on written exams in class or on WebStudy

Criteria - Performance will be satisfactory when:

- o learner demonstrates the ability to calculate oral and parenteral dose forms

Types of Instruction

Classroom Presentation with possible WebStudy supplementation, or online only on WebStudy.

Grading Information

Grading Rationale

A pretest will be administered at the beginning of the course, which will not count as part of the final grade. The final written exam (posttest) will count as 25% of the final grade. All other written exams will count as 50% and assignments will count as 25% of the final grade.

Grading Scale

A	91-100%
B	83-90.99%
C	75-82.99%
D	68-74.99%
F	0-67.99%