MEDICATION MATH COMPETENCY REQUIREMENTS

UNIVERSITY OF NEBRASKA MEDICAL CENTER
COLLEGE OF NURSING

Medication Math Competency Requirements	Subsection: **5.2.2**
Section 5.0 - Student Policies	Originating Dates: August 2004
Responsible Reviewing Agency: Undergraduate Curriculum Committee	Revised: December 2008 Revised: May 2010 Reviewed: November 2012 Revised: November 2017
Final Approving Agency: General Faculty Organization	Revised: December 2018 Revised: April 2022 Revised: October 2023

Purpose

Establishes criteria for math competencies.

Scope

This policy applies to all undergraduate students.

Policy

1. Math competency exams will be administered at each level of the curriculum. Testing these competencies is the responsibility of the Patient Centered Care Clinical (PCCC) courses I, II, III and IV. Faculty will provide students with practice exams prior to taking the first competency math test.
2. Competency content includes all items to be tested via the medication math competency. Content will be assessed via quizzes or unit exams during the semester.
3. The following conversions are expected of students in both forward and backward directions :

Criteria for Math Competencies

	Competency Content	Content To Be Taught
Semester 1	1. Knowledge from previous courses 2. Calculate number of pills/milliliters to give 3. Conversions of mcg to mg 4. pounds to kilograms 5. inches to centimeters 6. Kg to mg 7. Ounces to mL, teaspoons to mL 8. L to mL 9. Gm to kg	1. Correctly read labels of vials, ampules, tubexes, and bottles 2. Calculate dose for syringes 3. Calculate correct dosage of insulin 4. Calculate the correct amount of dilute solution for medication (powder reconstitution or diluting total dose) 5. Calculating administration rate of enteral feedings. 6. Calculate range (upper and lower according to recommended range) and dose versus daily amount.
Semester 2	Content tested and taught in semester 1.	1. Calculate body surface area, dose/m^2 ; mg/ body surface area 2. Calculate the rate to administer IV solution/med for a given set rate or order (per different tubing delivery rates) 3. Calculate length of time IV solutions will run 4. Calculating rate of IVP medications 5. Calculate concentration of solution/ medication

Semester 3	Content tested and taught in semesters 1 and 2.	1. Calculate amount of drug when ordered by prescribed units/mL, mL/hour, units/min and units/hour (e.g. heparin, lidocaine)
Semester 4	Content tested and taught in semesters 1, 2 and 3.	1. Calculate infusion rates of a drug for a specific body weight per unit time (mcg/kg)

4. Each test will be administered within the first two weeks of a student's scheduled patient care clinical in that semester. The number of questions on the math competency exam will be agreed upon in the cross campus meetings for the PCCC course. Questions will cover the content taught in previous courses/semester (For example: At the beginning of semester 2, the math exam will cover content tested and learned in semester 1.) Students cannot miss more than one question on the exam.
5. Students do not pass the required math competency exam if they miss more than one question. Students are able to take the test up to a total of five times during the semester. Students are required to complete remediation between exams under the guidance of a faculty member. Students will be allowed to repeat the exam when both student and faculty member are prepared to do so. Students will not pass medications in the clinical area until they have passed the exam. Students will also receive a Needs Improvement (NI) related to medications on the clinical evaluation tool until the student passes the exam if they are in a patient care setting where passing medications is an expectation. If the student fails to pass the math competency exam after five attempts, this will result in failure of the clinical course.
6. The Director of the Undergraduate Program and division assistant dean will be notified of any student not meeting the math competency requirements in any semester.