NM | NURSING EDUCATION CONSORTIUM

New Mexico Nursing Education Consortium (NMNEC)
Medication Calculation Testing Guidelines

Introduction and Purpose

Accuracy in medication calculations is a vital competency for all nurses as it is well known that medication errors have serious consequences for patients and Medication Calculation Testing is required in all NMNEC nursing programs so that students demonstrate their competency. The purpose of these guidelines is standardize components of the NMNEC Medication Calculation Tests across the NMNEC nursing programs.

Guidelines

1. The test will focus on calculations, requiring interpretation of clinical data appropriate for the level.
2. Copy of rounding rules may be available for students during testing, as determined by individual schools.
3. Generic names for medications will be used.
4. Guidelines from 'Do Not Use Abbreviations' from Joint Commission will be incorporated.
5. When medical and prescription abbreviations are used, they are consistent with the Common Medical and Prescription Abbreviations Table at https://www.drugs.com/article/prescription-abbreviations.html

Calculations to be tested at each curricular level:

Level 1

1. Interpret medication orders and standard abbreviations needed for dosage calculations.
2. Convert within and between these selected measurement systems:
    a. Convert weight between micrograms, milligrams, grams and kilograms.
    b. Convert volume between milliliters and liters.
    c. Convert metric to household.
    d. Convert weight between pounds and kilograms.
    e. Convert volume between ounces and milliliters.
    f. Convert volume between teaspoons and milliliters.
3. Calculate dosages of oral medications.
4. Calculate parenteral medication volumes and dosages. Parenteral for Levels 1 and 2 includes subcutaneous, intradermal and intramuscular but **not** intravenous.
5. Translate between military and regular time.

Level 2

Same as Level 1 with the following additions:

1. Determine if an ordered oral or parenteral (not intravenous) amount is within the safe/recommended range.
2. Determine oral and parenteral dosages (not intravenous) based on a patient's clinical data (age, weight, vital signs or lab results).

Level 3

Same as Level 1 and 2 with increasing difficulty appropriate for Level 3 plus the following:

1. Calculate infusion rates and times for intravenous administration.
2. Calculate volumes between milliliters per hour and drops per minute.
3. Calculate total/end infusion times for intravenous fluids.
4. Calculate amounts/times to administer intravenous push medications.
5. Calculate infusion rates/times for intermittent intravenous (piggyback) infusions.
6. Determine intravenous dosages based on a patient's clinical data (age, weight, vital signs or lab results).
7. Calculate rates/dosages/amounts for intravenous medication drips.

Levels 4 & 5

All of the above with increasing difficulty appropriate for the level

NMNEC Rounding Rules

1. For dosage less than 1, round answers to the nearest hundredth. Leading zero is required.
2. For dosages between 1 - 10, round answers to the nearest tenth.
3. Exception: Do not use a trailing zero. For example, if dosage is 6.02 mg, round answer to 6 mg. If dosage is 6.05, round answer to 6.1 mg.
4. For dosages greater than 10, round answers to the nearest whole number.
5. All weight-based calculations are rounded to the nearest tenth.
6. All IV hourly rates round to the nearest tenth.
7. All IV drops per minute rates round to the nearest whole number.

Reference/Resource Information

Official "Do Not Use" List of Abbreviations

Do Not Use	Potential Problem	Use Instead
U, u (unit)	Mistaken for "O" (zero), the number "4" (four) or "cc"	Write "unit"
IU (International Unit)	Mistaken for IV (intravenous) or the number 10 (ten)	Write "International Unit"
Q.D., QD, q.d., qd (daily) Q.O.D., QOD, q.o.d., qod (every other day)	Mistaken for each other Period after the Q mistaken for "I" and the "O" mistake for "I"	Write "daily" Write "every other day"
Trailing zero (X.0 mg) Lack of leading zero (.Xmg)	Decimal point is missed	Write X mg Write 0.X mg
MS MSO4 and MgSO4	Can mean morphine sulfate or magnesium sulfate Confused with one another	Write "morphine sulfate" Write "magnesium sulfate"

A "trailing zero" may not be used in medication orders or other medication related documentation.
Retrieved from Facts about the Official "Do Not Use" List/Joint Commission at https://www.jointcommission.org/facts_about_do_not_use_list/

The NCLEX uses consistent language for every examinee. In order to achieve accurate, stable measurement, terminology used in exam items can have only one meaning. NCSBN understands most clinicians acknowledge both generic and brand/trade names when referring to drug medications. At this time, the NCLEX will reflect, on most occasions, the use of generic medication names only. We take into account that the use of the medication generic name is more consistent while a brand/trade medication name may vary. Some items may refer to general classifications of medications.

Retrieved from What the Exam Looks Like/NCSBN at https://www.ncsbn.org/9010.htm

Table: Common Medical and Prescription Abbreviations retrieved from *Medical Abbreviations on Pharmacy Prescriptions* at https://www.drugs.com/article/prescription-abbreviations.html