

DOSAGE CALCULATION IM6

Items will consist of a variety of question formats you have learned throughout modules with the focus on Maternal Newborn & Mental Health information.

The exam is 20 questions, and you are expected to achieve an 85 or greater on your first attempt. The exam is scheduled to be taken **01/28 at 1400** in the computer lab.

- If you do NOT meet the expected grade of an 85, you will need to retake the exam **02/06 @ 0800** in the computer lab.
- Students will have 60 minutes to complete the exam (90 minutes for students with accommodation).
- Grading criteria is below

Dosage Calculation is 5% of your grade. The table below provides details on how grades will be entered in the gradebook.

First Attempt		
Requirement	Grade	Grade in Gradebook
>85 expected	> or = 85	100
< 85 Student will RETEST		
Second Attempt		
AVERAGE OF TESTS V1 & V2 WILL BE THE GRADE IN GRADEBOOK		

Dosage Calculation Packet

The following items are general dosage calculations to help you recall information you have learned since Module 1.

Conversions:

1 t or tsp = 5 mL

1 T, Tbsp or tbsp = 15 mL

30 mL = 1 oz

1 cup = 8 oz or 240 mL

1 can = 12 oz

2.2 lb = 1 kg

Kilo = 1000 times the basic unit.

Centi = 1/100 of the basic unit or 0.01.

Milli = 1/1000 of the basic unit or 0.001.

Micro = 1/1,000,000 of the basic unit or 0.000001.

Kilogram = _____ g

Kg to Gr- Move decimal to the right 3 spaces

Gr to Kg- Move decimal to the left 3 spaces

Gram = _____ mg

Gr to Mg- Move decimal to the right 3 spaces

Mg to Gr- Move decimal to the left 3 spaces

Milligram = _____ mcg

Mg to Mcg- Move decimal to the right 3 spaces

Mcg to Mg- Move decimal to the left 3 spaces

Milliliters = _____ Liters

ml to L- Move decimal to the left 3 spaces

L to ml- Move decimal to the right 3 spaces

Units = _____ mU

U to mU- Move decimal to the right 3 spaces

mU to U- Move decimal to the left 3 spaces

Rounding Rules: Injection dosages - Rounded to nearest tenth if the amount exceeds 1 mL. If the amount is less than 1 mL, dosage is rounded to the nearest hundredth.

Calculating Doses:

Step 1: Ask yourself if conversion is needed?

Step 2: Convert as needed

Step 3: Set up Desired over Have Desired = _____ Mg
Place X where needed Have = _____ Mg

Step 4: Cross Multiply & Divide

Step 5: Round and label as specified by question

Practice:

Order: 300 mg Cleocin

Available: Cleocin 0.6
g/4mL

How many mL will you administer?

Step 1: Conversion?	Yes		No
Step 2: Convert	0.6 Gr = 600 mg		
Step 3: Setup Problem Desired over Have	$\frac{300 \text{ mg}}{X}$	=	$\frac{600 \text{ mg}}{4 \text{ mL}}$
Step 4: Solve for X Cross Multiply & Divide	1200 / 600	=	2
Step 5: Round & Label	2 mL		

1. Order: Heparin 4000 units SQ. Available: Heparin 10000 units/ ml. How many mL will you administer?
2. Order: Gentamycin 100mg. Available: Gentamycin 60mg/1.5mL. How many mL will you administer?
3. Order: Levothyroxine 0.2 mg. Available: Levothyroxine 100 mcg tablets. How many tablets will you administer?
4. Order: Temazepam 60 mg PO at bedtime PRN. Available: Temazepam 15 mg tablets. How many tablets will the nurse administer?

5. Order: Cephalexin 0.5 g PO BID. Available: Cephalexin (Keflex) 125 mg capsules. How many capsules will the nurse administer the entire day?

Calculating Oxytocin:

Order: 11mU/min

Available: Oxytocin 30 units/250 mL

How many ml/hr should pump be set at?

Step 1: Convert Move decimal as needed	30 Units	=	30000 mU	
Step 2: Set up your order as a fraction	11 mU	/	1 Min	
Step 3: Set up 2 nd fraction with what is available; Allow for units to cross each other out	250mL	/	30000 mU	
Step 4: Set up 3 rd fraction for min over hour; Allow for min to cross each other out	60 min	/	1 hr	
$\frac{11 \cancel{\text{mU}}}{1 \cancel{\text{min}}} \times \frac{250 \text{ mL}}{30000 \cancel{\text{mU}}} \times \frac{60 \cancel{\text{min}}}{1 \text{ hr}} = \frac{165000}{30000} = 5.5 \frac{\text{mL}}{\text{hr}}$				

6. Order: 8mU/min. Available: Oxytocin 20 units / 125 ml. How many ml/hr should pump be set at?

7. Order: 4mU/min. Available: Oxytocin 30 Units/250ml. How many ml/hr should pump be set at?

8. Order: 8mU/min. Available: Oxytocin 40 Units/250 ml. How many ml/hr should pump be set at?

9. Order: 7mU/min. Available: Oxytocin 20 units/1000ml. How many ml/hr should pump be set at?

10. Order: 3mU/min. Available: Oxytocin 30 units/500mL. How many ml/hr should pump be set at?

Intravenous Practice:

Example: Order: 1000 mL NS IV to infuse over 8 hours. How many ml/hr should pump be set at?

8 hr : 1000 mL :: 1 hr : X mL Multiply outer numbers

Multiply inner numbers

$$\frac{8X}{8} = \frac{1000}{8}$$

Solve for X: divide both 8X and 1000 by 8

$$X = 125 \text{ mL/hr}$$

Shortcut: *Actually all you have to do is divide the total amount of fluid by the number of hours.*

$$1000 \text{ (mL) divided by 8 (hours)} = 125 \text{ mL/hr}$$

If the infusion time is not in whole hours, you must calculate using 60 minutes rather than 1 hour.

Example: Order: ondansetron 10 mg in 100 mL NS IVPB every 8 hours. Infuse over 30 minutes. How many ml/hr should pump be set at?

Note: The mg of medication has nothing to do with calculating the flow rate. Don't be confused and try to use this number in your calculation!

30 min : 100 mL :: 60 min : X mL Multiply outer numbers

Multiply inner numbers

$$\frac{30X}{30} = \frac{6000}{30}$$

Solve for X: divide both 30X and 6000 by 30

$$X = 200 \text{ mL/hr}$$

11. Order: Infuse 3,000 mL LR (Lactated Ringers) over 24 hours. How many ml/hr should pump be set at?

12. Order: Infuse 75 mL of Clindamycin over 30 minutes. How many ml/hr should pump be set at?

13. Order: Infuse 600 mL LR (Lactated Ringers) over 5 hours. How many ml/hr should pump be set at?

14. It is currently 1230 and your patient has 1300mL NS running at a 125 ml/hr. At 1630, the doctor requests for the remaining volume to be run over 4 hours. Calculate the mL/hr for the remaining volume.

15. The nurse is caring for a patient who has a 1000ml bag of LR (Lactated Ringers) running at 150 ml/hr. The physician began rounding on patients 2 hours after the fluids were started and asks the nurse to give the remaining volume over 4 hours. Calculate the mL/hr for the remaining volume.

Reconstituted Medications:

Reconstitution of a powdered drug involves the addition of a sterile diluent, usually distilled water or normal saline. The pharmacist will usually carry out this task, but it may become that of the nurse's. The package inserts or the containers will provide directions for reconstitution.

Example: Ordered: cefazolin 250 mg IM. Available: cefazolin 1 gm vial. For Reconstitution, add 3 mL of 0.9% Normal Saline to obtain a concentration of 1gm per 4 ml.

How many mL of diluent should you add? 3 ml

Instructions state to use 3 ml of NS

What amount of medication will you administer?

Convert: 1000 mg = 1 gram

(Have) : (Desired)

Multiply outer numbers

1000 mg : 4 mL :: 250 mg : X mL

Multiply inner numbers

$$\frac{1000 X = 1000}{1000 \quad 1000}$$

Solve for X: divide both 1000X and 1000 by 1000

X = 1 ml

16. Order: Cefazolin 0.3 g IM. Available: Cefazolin 500 mg powder. For reconstitution, add 2 mL of sterile water to obtain a concentration of 225mg/ml. How many mL will the nurse administer IM? Record your answer using one decimal place.

17. Order: Hydrocortisone 200 mg IV q6h for 1 week. Available: hydrocortisone 250 mg powder. For reconstitution, add 2 mL of sterile water to obtain a concentration of 250 mg/2 ml. How many mL will the nurse administer IV per dose? Record your answer using one decimal place.

18. Order: Cefazolin 500 mg IVPB. Available: 1 g Cefazolin. For reconstitution, add 3 mL of sterile water to obtain concentration of 250 mg / ml. How many milliliters should the nurse administer per dose?

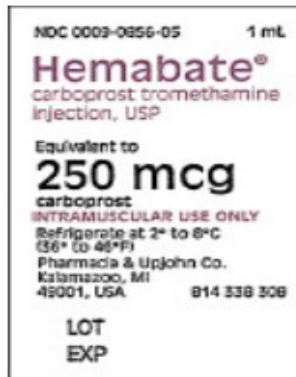
19. Order: Methicillin 2000mg IVPB. Available 1000 mg vials. For reconstitution, add 5 mL of diluent to obtain a concentration of 1g/5ml. How many milliliters should the nurse administer?

20. Order: Ampicillin 0.5g IV. Available: Ampicillin 500 mg powder. For reconstitution, add 2 ml of 0.9% Normal Saline to obtain a concentration of 250mg/ml. How many ml will be given per dose?

Reading Labels & Weight Based

21. Order: 60mg BID

How many tablets will be administered to patient?



22. Order: 0.5mg

How many ml will be administered



23. Order: Tegretol 0.3 g po bid.

How many tablets will be administered?

24. The recommended dosage of Narcan for a child is 0.01 mg/kg q2-3min PRN. What is a safe effective dose for a child weighing 110 lb?

25. The recommended daily dosage of a medication for an infant is 0.06 mg/kg/day in divided doses q8h. What is a safe dosage amount per dose for an infant weighing 22 lb?