

Medication Calculation Worksheet #3 - Answers

1. Medication order: Heparin 25,000 units in 500 mL, infuse 4,000 units/hr. How many mL per hour should it take to administer 4,000 units/hr? **80**

$$4,000 \text{ u} / 25,000 \text{ u} = 0.16 \text{ u} \times 500 \text{ mL} = 80 \text{ mL}$$

2. Medication order: Lidocaine 8 mg in 250 mL, infuse at 10 mcg/min. How many mL per hour should it take to administer 10 mcg/min? Round answer to the 10th. **18.8**

$$10 \text{ mcg} / 8,000 \text{ mcg} = 0.00125 \text{ mcg} \times 250 \text{ mL} = 0.3125 \times 60 \text{ min} = 18.75 = 18.8 \text{ mL}$$

3. Medication order: Aminophylline 1 gram in 250 mL, infuse 25 mg/hr. How many mL per hour should it take to administer 25 mg/hr? Round answer to the 10th. **6.3**

$$25 \text{ mg} / 1,000 \text{ mg} \times 250 \text{ mL} = 6.25 = 6.3 \text{ mL}$$

4. Medication on hand: Insulin 75 units in 125 mL. How many units per mL? **0.6**

$$75 \text{ u} / 125 \text{ mL} = 0.6 \text{ u/mL}$$

5. Medication order: Unipen 750 mg IM q6h. Available: Unipen 1 g/2.5 mL after it has been reconstituted. How many mL of the reconstituted solution should the nurse administer per dose/per day? Round answer to the nearest tenth. **1.9 and 7.6**

$$750 / 1,000 \times 2.5 = 1.875 = 1.950 = 1.9 \text{ mL/dose}; 7.6 \text{ mL/day}$$

6. A nurse is administering an antibiotic via IVPB. The pharmacy dispenses 150 milligrams (mg) of antibiotic mixed in 250 milliliters (mL) of normal saline to infuse over 30 minutes. The nurse should set the infusion pump at _____ mL/hour to administer the IVPB. **500**

$$250 \text{ mL} \times 2 = 500 \text{ mL/hr}$$

7. Administer 3.5 mL of aminophylline liquid (250 mg/2.5mL) PO for pain now. The nurse should administer _____ milligrams. **350**

$$3.5 \text{ mL} / 2.5 \text{ mL} = 1.4 \text{ mL} \times 250 \text{ mg} = 350 \text{ mg}$$

8. Order: Administer cephazolin 60 mg IM daily. Available is a 5 mL vial of cephazolin 100 mg/mL. The nurse should administer how many mL? Do not round. **0.6**

$$60 \text{ mg} / 100 \text{ mg} = 0.6 \text{ mL}$$

9. From 0700 to 1600 the nurse calculates the patient's total intravenous fluid intake as **1** milliliters. An IV is infusing at 150 mL/hour. At 1200, the patient should receive an IVPB of 75 mL for 30 minutes. **1,350**

$$0700-1600= 9 \text{ hrs}$$

$$9 \text{ hrs} - 30 \text{ minutes} = 8 \text{ hrs}, 30 \text{ min (8.5)}$$

$$8.5 \times 150 \text{ mL/hr} = 1,275 \text{ mL}$$

$$1,275 \text{ mL} + 75 \text{ mL (IVPB)} = 1.350 \text{ mL}$$

10. Administer 5 milligrams of acyclovir in 75 milliliters of normal saline over 15 minutes. The nurse should set the IV pump at how many mL/hour. **300**

$$75 \text{ mL} \times 4 = 300 \text{ mL}$$

11. Phenytoin (Dilantin), 7,000,000 mcg PO, is ordered to be given through a nasogastric tube. Phenytoin is available as 5,000 mg / 18 mL. How much should the nurse administer? Round to a whole number. **25 mL**

$$7,000 \text{ mg} / 5,000 \text{ mg} \times 18 \text{ mL} = 25.2 = 25 \text{ mL}$$

12. Solumedrol 1.5 mg/kg is ordered for a patient weighing 74.8 lb. Solumedrol is available as 125 mg / 2 mL. How many mL should the nurse administer? Round answer to the 10th. **0.8**

$$1.5 \times 34 (74.8/2.2) = 51 \text{ mg} / 125 \text{ mg} \times 2 \text{ mL} = 0.816 = 0.8 \text{ mL}$$

13. Administer 24.4 mg of dopamine in 363 mL of D5W at a rate of 9,818 mcg/hr. Calculate the flow rate in mL/hr. Round to a whole number. **146**

$$9.8 \text{ mg} / 24.4 \text{ mg} \times 363 \text{ mL} = 145.795082 = 146 \text{ mL/hr}$$

14. Administer 10.1 mg of dopamine in 251 mL of D5W at a rate of 6 mg/hr. Calculate the flow rate in mL/hr. Round to a whole number. **149**

$$6 \text{ mg} / 10.1 \text{ mg} \times 251 \text{ mL} = 149.1089..... = 149 \text{ mL/hr}$$

15. Ordered Lasix 12,000,000 mcg IV push now. Available: 0.025 kg in 15 mL. How much should the nurse prepare? Do not round. **7.2 mL**

$$12,000,000 = 0.012 \text{ kg} / 0.025 \text{ kg} = 0.48 \text{ kg} \times 15 \text{ mL} = 7.2 \text{ mL}$$

16. Order: Zithromax 250 mg p.o. daily. Available:

FOR ORAL USE ONLY.
Store dry powder below 30°C (86°F).
PROTECT FROM FREEZING.
DOSAGE AND USE
See accompanying prescribing information.
MIXING DIRECTIONS:
Tap bottle to loosen powder.
Add 9 mL of water to the bottle.
After mixing, store suspension at 5° to 30°C (41° to 86°F).
Oversized bottle provides extra space for shaking.
After mixing, use within 10 days.
Discard after full dosing is completed.
SHAKE WELL BEFORE USING.
Contains 300 mg azithromycin.

300 mg (15 mL when mixed)
Zithromax®
(azithromycin for oral suspension)
CHERRY FLAVORED
100 mg* per 5 mL

Pfizer Pfizer Labs
Division of Pfizer Inc, NY, NY 10017

www.zithromax.com

N 3 0069-3110-19 3

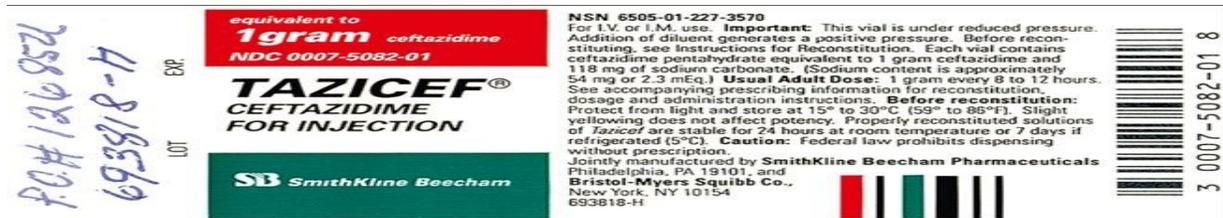
* When constituted as directed, each teaspoonful (5 mL) contains azithromycin dihydrate equivalent to 100 mg of azithromycin.

Rx only 05-5012-32-2

6415
MADE IN USA

- a. How many milliliters of diluent should be added to the bottle? **9 mL**
- b. What is the final concentration of the prepared solution? **300 mg/15mL; 100 mg/5 mL**
- c. How many mL should the nurse administer? Do not round. **12.5 mL**
- d $/300 \text{ mg} \times 15 \text{ mL} = 12.5 \text{ mL}$
- d. What other critical information is on the label?

17. Scenario: Order: Tazicef 250 mg IM q8h. The nurse reconstituted the medication (Tazicef) with 10.6 mL of diluent and administered 2.6 mL to the patient.



RECONSTITUTION			
Single Dose Vials:			
For I.M. injection, I.V. direct (bolus) injection, or I.V. infusion, reconstitute with Sterile Water for injection according to the following table. The vacuum may assist entry of the diluent. SHAKE WELL.			
Table 5			
Vial Size	Diluent to Be Added	Approx. Avail. Volume	Approx. Avg. Concentration
Intramuscular or Intravenous Direct (bolus) Injection			
1 gram	3.0 ml.	3.6 ml.	280 mg./ml.
Intravenous Infusion			
1 gram	10 ml.	10.6 ml.	95 mg./ml.
2 gram	10 ml.	11.2 ml.	180 mg./ml.
Withdraw the total volume of solution into the syringe (the pressure in the vial may aid withdrawal). The withdrawn solution may contain some bubbles of carbon dioxide.			
NOTE: As with the administration of all parenteral products, accumulated gases should be expressed from the syringe immediately before injection of 'Tazicef'.			
These solutions of 'Tazicef' are stable for 18 hours at room temperature or seven days if refrigerated (5°C.). Slight yellowing does not affect potency.			
For I.V. infusion, dilute reconstituted solution in 50 to 100 ml. of one of the parenteral fluids listed under COMPATIBILITY AND STABILITY.			

- a. What error occurred? **2.6 mL (IV) instead of 0.75 mL IM - 3 x the IM dose**
- b. What concentration should have been made? **280 mg/mL**

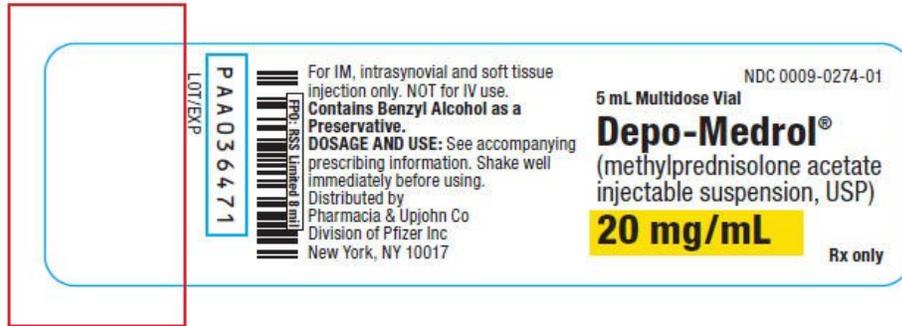
18. Order: Kefzol 250 mg IM q4h. Available is Kefzol 500 mg that must be reconstituted with 2 mL sterile water. The nurse now has 2.2 mL (225 mg/mL).

- a. How many milliliters should the nurse administer? Round final answer to the nearest 10th. **1.1 mL**

19. Order: Linezolid 75 mg/kg/day by mouth in three divided doses. Available is Linezolid 100 mg/5 mL. The patient weighs 66 pounds. How many mL should the patient take per dose? **37.5 mL**

$$75 \times 30 (66/2.2) = 2,250/100 = 22.5 \times 5 \text{ mL} = 112.5/3 = 37.5 \text{ mL}$$

20. Order: Administer Depo-Medrol 10 mg BID IV for five days. How many milligrams should be administered for the entire course of treatment? **0**



21. Administer an IV medication of 50 mL NS in 20 min. Drop factor: 60 gtt/mL. At what rate in gtt/min should the IV be regulated? **150 gtt/min**

$$50/20=2.5 \times 60 = 150$$

22. Administer 1,000 mL D5W to infuse in 12 hr. Drop factor: 20 gtt/mL. At what rate in gtt/min should the IV be regulated? Round answer to a whole number. **28 gtt**

$$1,000 \text{ mL} / 60 \text{ min} = 16.666... \times 20 = 333.333... / 12 \text{ hr} = 27.777... = 28$$

23. Order: 10 units of Humulin regular insulin per hour. 50 units of insulin is placed in 250 mL NS. How many mL/hr should the IV infuse at? **50**

$$10 \text{ u} / 50 \text{ u} = 0.2 \text{ u} \times 250 \text{ mL} = 50 \text{ mL}$$

24. Ativan 3 mg IV push stat. Available: Ativan 4 mg per mL. The literature states not to exceed 2 mg/min.

- a. How many mL of Ativan should the nurse prepare? (Express in hundredths.)
0.75 mL

$$3 \text{ mg} / 4 \text{ mg} = 0.75 \text{ mL}$$

- b. How many minutes should it take to administer the medication as ordered? **1 ½ min**

$$3 \text{ mg} / 2 \text{ mg} = 1.5 \text{ min}$$

25. A patient is receiving Pronestyl 60 mL/hr. The solution available is Pronestyl 2 g in 500 mL D5W. Calculate how many mg the patient **should** receive per hr and per minute.

$$60 \text{ mL} / 500 \text{ mL} \times 2,000 \text{ mg} = \mathbf{240 \text{ mg/hr}}$$

$$240 \text{ mg} / 60 = \mathbf{4 \text{ mg/min}}$$