

Medical/Surgical Medication Test Study Guide

The Inpatient Nursing Management Staff at Rockdale Medical Center would like to take this opportunity to congratulate you for being selected interview with our organization. As part of your interview process, you will be required to take a Medical/Surgical Medication Test. This study guide is intended to help guide you as you prepare for this test. This study guide gives you a basic overview of what the test will contain, however, it is not all inclusive and it is expected that you will do some preparation on your own. There are plenty of excellent websites available on line if you search for “nursing math for medications” that will provide you with several examples and practice problems. Good luck!

Calculating Flow Rates:

You must know how to calculate a flow rate for an IV medication given the total volume of fluid to administer and the specified time frame. In other words, you need to be able to demonstrate on the test that you know what rate at which to set the pump.

Example:

The patient has an order for 1000 cc of fluid to run over 6 hours – At what rate do you set the pump?

$$\begin{array}{rcl} \text{Total volume to be delivered} & & 1000 \text{ cc} \\ \text{-----} & = & \text{-----} = 167 \text{ cc/hrs} \\ \text{Prescribed \# of hours} & & 6 \text{ hrs} \end{array}$$

Dosage Calculation – Formula Method:

D = desired The dosage ordered, in mg, g, etc

H = have The dosage strength available in mg, g, etc

Q = quantity The volume the dosage strength available is contained in, mL, cc, etc.

X = unknown What you're trying to figure out

D

-- x Q = X

H

Example:

A dosage of 80 mg is ordered. You have 100 mg in 2 mL available. How many mL's do you administer?

80 mg

----- x 2 mL = 1.6 mL

100 mg

Ratio and Proportion (cross multiplication):

Example # 1:

You receive a patient who has 40 mL of Heparin infusing per hour. The concentration of Heparin listed on the bag is 50,000 units per 500 cc of solution. How many units is the patient receiving per hour.

$$\begin{array}{r} 50,000 \text{ units} \\ \hline 500 \text{ cc} \end{array} \quad \times \quad \begin{array}{r} X \\ \hline 40 \text{ cc} \end{array}$$

$$50,000 (40) = 500X$$

$$X = \frac{50,000 (40)}{500}$$

$$X = 4,000 \text{ units}$$

Example # 2:

Pharmacy has sent up a bag of Heparin that contains 25,000 u in 500 cc of NS. You are to deliver 2000 u per hour. At what rate do you set the pump?

$$\begin{array}{r} 25,000 \text{ units} \\ \hline 500 \text{ cc} \end{array} \quad \times \quad \begin{array}{r} 2000 \text{ u} \\ \hline X \end{array}$$

$$25,000 (X) = 500 (2000)$$

$$X = \frac{500 (2000)}{25,000}$$

$$X = 40 \text{ cc/hr}$$

Conversions:

Please study how to convert mcg to mg, kg to g, L to ml, kg to pounds and vice versa. Some common conversions are listed below.

- 1 kg = 1000 mg
- 1 mg = 1000 mcg
- 1 L = 1000 cc
- 1kg = 2.2 lbs

Example #1:

You have a 180 lb patient who is to receive Neupogen 10 mcg/kg/day. How many mcg do you administer?

First you must convert lbs to kg:

$$\begin{array}{r} 1 \text{ kg} \\ \hline 2.2 \text{ lbs} \end{array} \quad \times \quad \begin{array}{r} X \\ \hline 180 \text{ lbs} \end{array}$$

$$X = \frac{1(180)}{2.2}$$

$$X = 81.82 \text{ kg}$$

Then you multiply the kg by the dose ordered to determine the number of mcg you must deliver:

$$10 \text{ mcg (81.82 kg)} = 818.20 \text{ mcg}$$

Example #2:

You are ordered to give 1 mg of a medication. It is only available in 500 mcg tablets. How many tablets do you give?

First convert mcg to mg:

$$500 \text{ mcg} = .5 \text{ mg}$$

Then use the formula:

$$X = \frac{1}{.5 \text{ mg}}$$

$$X = 2 \text{ tablets}$$

Insulin:

Familiarize yourself with regular, Lantus, Humalin and other forms of insulin. Know proper administration as well as peak times, half lives, etc.

Medication Safety:

Familiarize yourself with basic medication safety.