

**Nursing Professional Development Department  
Medication Administration Assessment  
Study Guide**

The Department of Nursing at UMass Memorial Medical Center (UMMMC) requires successful completion of a medication administration test by all nurses beginning employment at UMMMC. This must be completed prior to medication administration in the clinical area. This study guide should help you prepare for the test.

**In addition to reviewing calculations, please review general principles for safe administration of medication, including adverse effects, monitoring and antidotes. Please be familiar with drug categories of common medications (i.e. cardiac medications, insulin, pain and sedative medications, and antibiotics).**

**Know your 5 rights of medication administration!**

You will be provided with scrap paper, a pencil, and a calculator.

**Metric equivalents:**

1 kilogram (kg) = 2.2 pounds (lb)

1 kilogram = 1000 grams (g)

1 gram = 1000 milligrams (mg)

1 milligram = 1000 micrograms (mcg)

1 liter = 1000 milliliters (ml)

**One example of a Calculation Method:**

$$\frac{H}{V} = \frac{D}{X}$$

H: The dosage on hand

V: The vehicle or the form which the drug comes (tab, capsule or liquid)

D: The desired dose

X: The unknown amount to be given

Cross multiply and solve for X

**Sample problems:**

1. Patient ordered to receive 75 mg of Lopressor. Available are 50 mg tablets. How many tablets should be administered?

$$\frac{50 \text{ mg}}{1 \text{ tab}} = \frac{75 \text{ mg}}{x \text{ tabs}}$$

$$75 (1) = 50 X$$

$$x = 1.5 \text{ tabs}$$

2. Patient ordered to receive a 5500 unit Heparin Bolus. On hand: Heparin 10,000 units/10 ml. How many mls should be administered?

$$\frac{10000 \text{ units}}{10 \text{ mls}} = \frac{5500 \text{ units}}{X}$$

$$5500 (10) = 10000 X$$

$$X = 5.5 \text{ ml}$$

3. A 220 lb patient is ordered to receive a Heparin bolus of 80 units/Kg. How much Heparin should be given?

**Step 1:** Convert pounds to Kg (1 Kg = 2.2 lbs)

$$\frac{2.2 \text{ lbs}}{1 \text{ kg}} = \frac{220 \text{ lbs}}{X}$$

$$220 (1) = 2.2X$$

$$X = 100 \text{ Kg}$$

**Step 2:**

Multiply 80 units times weight in Kg: 80 (100) = **8000 units**

### **Practice Problems**

1. Patient is ordered to receive 45 mg of po Cardiazem. Available are 30 mg tablets. How many tablets do you administer?

2. A patient is ordered to receive 7.5 mg of IV Lopressor. On hand are 5mg/ml vials. How many ml would you draw up?

3. An IV bolus of 500 ml of normal saline is ordered to run over 4 hours. What is the hourly rate for the infusion pump?

4. Which vital sign would you want to assess prior to giving an antihypertensive?

5. A patient is ordered to receive 3 mg of Morphine. Available are vials of Morphine 10 mg/ml. How many milliliters do you administer to the patient?

**Answers to Practice Problems:**

1. Ans- 1 ½ tablets
2. Ans- 1.5ml
3. Ans- 125ml/hr
4. Ans- blood pressure
5. Ans- 0.3 ml

**Thank You!**