

Unit Calculations

- When charting never use 'U', always write out 'Units'.

1A. The doctor orders heparin of 800 units/hr. The solution available is 40,000 units in 1000/mL of D5W. (40,000U/1000mL of D5W). Calculate the flow rate.

$$\text{mL/hr} \quad | \quad 1000\text{mL}/40,000 \text{ U} \times 800 \text{ Units/hr.} = 1000 \times 800 / 40,000 \times 1 = 80,0000/40,000 = 20 \text{ mL/hr}$$

1B. What are the heparin units infusing when an IV bag of 1000 mL D5W containing 40,000 units has been ordered, and you notice it is infusing at 30 mL and hour?

$$\text{Units/hr} \quad | \quad 40,000 \text{ Units}/1000 \text{ mL} \times 30 \text{ mL/hr} = 40,000 \times 30 / 1000 \times 1 = 1,200,000/1000 = 1,200 \text{ units/hr}$$

1 C. Is the amount infusing an hour within normal limits?

Heparin has a normal dosage range of 20,000 to 40,000 units per day. If 1,200 units are infusing in one hour, then $1,200 \times 24 = 28,800$ are infusing in one day. This is within normal limits.

2. Laura was told to give 2500 units of heparin to her patient in an IV solution. After checking the doctor's order she went to get the medication and found she needed to prepare her syringe with the correct amount first. The vial said 5000 units/ml for IV or SC use. In large letters it says 10 mL, multiple dose vial. How many mLs does she need to pull in order to give 2500 units to the IV solution running at 40 mL/hr? The drop rate is 60gtt/min.

$$\text{mLs/Dose} \quad | \quad 1 \text{ mL}/5000 \text{ units} \times 2500 \text{ units/dose} = 1 \times 2500 / 5000 = 2500/5000 = 0.5 \text{ mL/dose.}$$

3. Brandi is preparing a solution for her patient. She has a multiple dose vial labeled 5,000,000 units. The directions say : add 3.2 mL diluent to make 1,000,000 units per mL". After she prepares this correctly, and we know she will, she gives her patient 1.7 mL of this solution. How many units did she give?

$$\text{Units/dose} \quad | \quad 1000000\text{units}/1\text{mL} \times 1.7 \text{ ml/dose} = 1000000 \times 1.7 / 1 = 1,700,000 \text{ Units}$$