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ati Tutorial: Dosage Calculation and Safe Medication Administration 3.0  
Module: Critical Care Medications

Calculator

Case studies

A nurse is calculating the dosage of captopril. Available is captopril elixir 1 mg/mL. How many milliliters should the nurse administer? (Review the MAR and flow sheet. Round the answer to the nearest tenth.)

12.5

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ mL} =$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
 $X \text{ mL} = \frac{1 \text{ mL}}{1 \text{ mg}}$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.  
 $X \text{ mL} = \frac{1 \text{ mL}}{1 \text{ mg}} \times \frac{12.5 \text{ mg}}{1}$

**Step 4**  
Solve for X.  
 $X \text{ mL} = 12.5 \text{ mL}$

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Calculator

Case studies

A nurse is calculating the dosage of enoxaparin. Available is enoxaparin injection 100 mg/mL. How many milliliters should the nurse administer? (Review the MAR and flow sheet. Round the answer to the nearest tenth. Measure the correct dose of the medication by dragging the syringe. Then click "Submit.")



0.7

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ mL} =$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
 $X \text{ mL} = \frac{1 \text{ mL}}{100 \text{ mg}}$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to

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Calculator Time Spent: 00:10:50

## Case studies

A nurse is calculating the dosage of lorazepam. Available is lorazepam solution 2 mg/mL. How many milliliters should the nurse administer?

(Review the MAR and flow sheet. Round the answer to the nearest hundredth. Measure the correct dose of the medication by dragging the syringe. Then click "Submit.")



0.25

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ mL} =$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
 $X \text{ mL} = \frac{1 \text{ mL}}{2 \text{ mg}}$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.

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Calculator Time Spent: 00:11:17

## Case studies

A nurse is calculating the dosage of morphine. Available is morphine oral solution 20 mg/mL. How many milliliters should the nurse administer?

(Review the MAR and flow sheet. Round the answer to the nearest tenth.)

1.5

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ mL} =$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
 $X \text{ mL} = \frac{1 \text{ mL}}{20 \text{ mg}}$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.  
 $X \text{ mL} = \frac{1 \text{ mL}}{20 \text{ mg}} \times \frac{30 \text{ mg}}{1}$

**Step 4**  
Solve for X.



Calculator

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## Case studies

A nurse is calculating the dosage of fluoxetine. Available is fluoxetine 20 mg/5 mL. How many milliliters should the nurse administer? (Review the MAR and flow sheet. Round the answer to the nearest tenth. Measure the correct dose of the medication by dragging the syringe. Then click "Submit.")



3.8

### Step 1

What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)

X mL =

### Step 2

Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)

$$X \text{ mL} = \frac{5 \text{ mL}}{20 \text{ mg}}$$

### Step 3

Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.

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Time Spent: 00:12:04

### Case studies

A nurse is calculating the dosage of memantine. Available is memantine solution 10 mg/5 mL. How many milliliters should the nurse administer?  
(Round the answer to the nearest tenth. Review the MAR and flow sheet. Round the answer to the nearest tenth.)

7.5

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ mL} =$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
 $X \text{ mL} = \frac{5 \text{ mL}}{10 \text{ mg}}$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.  
 $X \text{ mL} = \frac{5 \text{ mL}}{10 \text{ mg}} \times \frac{15 \text{ mg}}{1}$

**Step 4**  
Solve for X.  
 $X \text{ mL} = 7.5 \text{ mL}$

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Time Spent: 00:09:12

### Case studies

A nurse is converting a client's weight from pounds to kilograms. What is the client's weight in kilograms?  
(Review the MAR and flow sheet. Round the answer to the nearest tenth.)

73.6

**Step 1**  
What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)  
 $X \text{ kg} =$

**Step 2**  
Find the ratio in the item that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)  
 $X \text{ kg} = \frac{1 \text{ kg}}{2.2 \text{ lb}}$

**Step 3**  
Place any remaining ratios that are relevant to the item on the right side of the equation along with any needed conversion factors to cancel out unwanted units of measure.  
 $X \text{ kg} = \frac{1 \text{ kg}}{2.2 \text{ lb}} \times \frac{162 \text{ lb}}{1}$

**Step 4**  
Solve for X.  
 $X \text{ kg} = 73.636363 \text{ kg}$