

DOSAGE CALCULATION FORMULAS

Review HESI for additional mathematical conversions such as ratio or dimensional analysis.

Conversion Steps:

1. Convert weight:
 - a. Pounds to kg: Divide pounds by 2.2 kg
2. Convert medication: Multiply by 1000
 - a. grams to mg
 - i. 1 gram X 1000 = 1000 mg
 - b. mg to mcg
 - i. 1 mg X 1000 = 1000 mcg
3. Convert medication concentration:

Amount of medication in solution (gram, mg, mcg, units)
Volume of solution (mL, liters)
4. Use desired mathematical conversions (ratio, equation, dimensional analysis)

Drops

$$\text{gtt/min} = \frac{\text{total volume (mL)} \times \text{drop factor (gtt/mL)}}{\text{total time (minutes/hr)}}$$

$$\text{Infusion rate given} = \frac{\text{infusion rate (mL/hr)} \times \text{drop factor (gtt/mL)}}{\text{total time (minutes/hr)}}$$

Heparin or Insulin Drips (dosed in units/hr) OR mg/hr (desired/have)

$$\text{mL/hr} = \frac{\text{ordered medication dose (mg/hr or units/hr)}}{\text{medication concentration (mg/mL or units/mL)}}$$

mcg/kg/min or mcg/min

INFUSION RATE GIVEN

To find mcg/kg/min or mcg/min

If a weight is not given, leave it out of the equation.

$$\frac{\text{med conc (mcg/mL)} \times \text{infusion rate (mL/hr)}}{\text{weight (kg)} \times 60 \text{ (min/hr)}}$$

FIND INFUSION RATE

To find mL/hr

If a weight is not given, leave it out of the equation.

$$\frac{\text{Wt (kg)} \times \text{dosage (mcg/kg/min)} \times 60 \text{ (min/hr)}}{\text{med concentration (mcg/mL)}}$$

BURNS (Parkland Formula)

$$4 \text{ mL} \times \% \text{ TBSA} \times \text{weight (kg)}$$