

جامعة ساوة الاهلية
كلية التقنيات الصحية والطبية
قسم التخدير - اللجنة العلمية



DRUG DOSAGE CALCULATION

جامعة ساوة

كلية التقنيات الصحية والطبية

قسم تقنيات التخدير

المرحلة 2

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Drug Dosage Calculations

Abbreviations Commonly Used in Dosage

Abbreviation	Term
po	by mouth (or orally)
susp	suspension
pm	as needed
tab	tablet
cap	capsule
q	every
bid	twice a day
tid	three times a day
qid	four times a day

Units Equivalent Units of Measurement			
Weight	1 kilogram (kg, Kg)	=	1000 g = 2.2 lb
	1 gram (g, gm, G, Gm)	=	1000 mg
	1 milligram (mg)	=	1000 mcg
	1 microgram (mcg)	=	1000 ng (nanograms)
Volume	1 liter (L)	=	1000 mL (milliliters)

Formula:

$$\frac{D}{H} \times Q = X \quad \frac{\text{Desired}}{\text{Have}} \times \text{Quantity} = X$$

Term	Symbol	Meaning	Example
Dosage ordered or desired dose	D	The amount of medication that the physician prescribed	“Give 500 milligrams” “Give grains/v” “Give 1.2 milliliters”
Dosage strength or supply on hand	H	The amount of drug in a specific unit of measure (what is available; in stock)	250 milligrams Grains/v
Unit of measure or quantity of unit	Q	The unit of measure for the specific dosage strength or supply on hand	per 2 milliliters per capsule per tablet
Unknown Dosage	X	The dosage you are trying to calculate	Not applicable

Example 1:

The doctor orders 90 milligrams of liquid cough syrup. The liquid cough syrup has a label that reads 120 milligrams (mg for short) in 5 milliliters (or mL for short). How much cough syrup should the nurse give to the patient?

Given:

$$D = 90 \text{ mg}$$

$$H = 120 \text{ mg}$$

$$Q = 5 \text{ mL}$$

$$x = \frac{D}{H} \times Q$$

$$x = \frac{90 \text{ mg}}{120 \text{ mg}} \times 5 \text{ mL}$$

$$x = \frac{3}{4} \times 5 \text{ mL}$$

$$x = \frac{15}{4} \text{ mL}$$

$$x = 3.75 \text{ mL}$$

Therefore, the nurse should give 3.75 mL of the cough syrup to the patient.

Example 2:

Ampicillin 500 mg capsules are supplied. MD orders 1.5 g. How many capsules should be given to the patient?

Given:

D = 1.5 g

H = 500 mg

Q = 1 capsule

$$x = \frac{D}{H} \times Q$$

Step 1:

Since the desired dose is in grams, but the capsules available on hand are in milligrams, convert 1.5 grams (g for short) into mg.

$$1.5 \text{ g} \times 1000 \text{ mg/g} = 1500 \text{ mg}$$

Step 2:

Use the formula to calculate the number of capsules that should be given.

$$x = \frac{1500 \text{ mg}}{500 \text{ mg}} \times 1 \text{ capsule}$$

$$x = 3 \text{ capsules}$$

Therefore, 3 capsules of Ampicillin should be given to the patient.

Example 1: Medrol 4 mg/kg is ordered for a child weighing 64.8 lb. Medrol is available as 500 mg/4mL. How many milliliters of medication must the nurse administer?

<p>Step 1: Determine your givens.</p>	<p>Weight: 64.8 lb Dosage ordered: 4mg/kg Available on hand: 500 mg/4mL</p>
<p>Step 2: Convert 64.5 lb to kg since the infant's weight is given in pounds (lb) but the dosage ordered is in mg per kilogram.</p>	<p>$64.8 \text{ lb} \div 2.2 \text{ lb/kg} = 29.45 \text{ kg}$ Therefore, the infant's weight is 29.45 kg.</p>
<p>Step 3: Calculate the required dosage (mg) of medication based on the child's weight.</p>	<p>Weight (kg) x Dosage Ordered (per kg) = Y (Required dosage) $29.45 \text{ kg} \times 4 \text{ mg/kg} = 117.8 \text{ mg}$ Therefore, the required dosage of medication is 58.64 mg.</p>
<p>Step 4: Calculate the volume of medication (mL) to be administered based on what's available on hand.</p>	$\frac{\text{Amount Desired}}{\text{Amount on Hand}} \times \text{Quantity} = \boxed{Y}$ $\frac{117.8 \text{ mg}}{500 \text{ mg}} \times 4 \text{ mL} = \boxed{0.942 \text{ mL}}$

Therefore, the nurse must administer 0.942 mL of medication.

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Thank you



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