

Dose calculation

- ✓ **Formula method:** $\frac{\text{Desired}}{\text{on Hand}} \times \text{Vehicle}$
- ✓ **Proportion method:** set the stock as one fraction and the order as the other, with matching labels, then cross-multiply
- ✓ **Percent solution to mg/mL:** take the number before the %, add three zeros for mg, over 100 mL. A 2% solution is 2,000 mg per 100 mL
- ✓ **Pediatric weight-based dose,** three steps:
 - pounds $\div$ 2.2 = kg
 - kg $\times$ the mg/kg order = mg
 - mg $\div$ stock concentration = mL
- ✓ **Round intermediate steps two places beyond the final answer's precision**

Measurement conversions

Household	Metric
1 teaspoon (tsp)	5 mL
1 tablespoon (tbsp) = 3 tsp	15 mL
1 fluid ounce = 2 tbsp	30 mL
1 cup = 8 fl oz	240 mL
1 pint = 2 cups	480 mL
1 quart = 2 pints	960 mL
2.2 lb	1 kg
1 inch	2.54 cm

Metric: 1 kg = 1,000 g; 1 g = 1,000 mg; 1 mg = 1,000 mcg; 1 L = 1,000 mL; 1 mL = 1 cc; 1 m = 100 cm; 1 cm = 10 mm

Apothecary: 1 grain = 60 mg (65 mg in some references; use one throughout a calculation, never both); 1 dram = 4 mL, about 1 tsp; 1 ounce = 30 mL; 1 minim $\approx$ 0.06 mL, about 1 drop

Drug names, references and orders

- ✓ **Four names:** chemical (the formula), **generic** (assigned by the USAN Council, required on all packaging), official (USP—NF), brand/trade (manufacturer, capitalized with ®)
- ✓ **NDC:** National Drug Code, a unique 10-digit number required by federal law on every package
- ✓ **PDR:** Prescribers' Digital Reference, which replaced the Physicians' Desk Reference
- ✓ **Patent** runs 20 years from filing; **exclusivity** 3—5 years

Order type	Meaning
Routine	Regular interval until cancelled; most non-narcotic routine orders expire at 12 months
Standing	Applies to every patient meeting the criteria, signed collectively
PRN	As needed, for a stated symptom
Single / one-time	Given once
STAT	Given once, immediately

- ✓ **Solutions** (dissolved): tincture, fluid extract, spirit, elixir, syrup
- ✓ **Suspensions** (settle, must be shaken): emulsion, gel/magma, liniment, lotion, aerosol
- ✓ **Slow release:** CD, CR, DR, ER, LA, SA, SR, TD, TR, XL, XR

Writing a dose safely

Rule	Right	Wrong
Space, then the unit, no period	10 mL, 2 mg	10mL, 2 mg.
Fractions as decimals	0.5 mg	$\frac{1}{2}$ mg
Leading zero under 1	0.75 mcg	.75 mcg
No trailing zero	2 mL	2.0 mL