Middlesex University London

The Problem with the Nursing Formula

Maths, Stats & Numeracy

Learning Enhancement Team

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A question...

Your patient requires 75mg of a drug. Stock available is 20mg/2mL. How many mL do you administer?

Liquid medication: Examples

1. Your patient is prescribed Amoxicillin 250mg PO. The stock is labelled 125mg/5mL. What volume do you administer?
2. The doctor has ordered 8mg oramorph for pain relief. The stock available is 10mg/5mL. What volume do you give?

10mL
4mL

$$\text{Volume required} = \frac{\text{Amount needed}}{\text{Amount in stock}} \times \text{Volume of stock.}$$

Important: The amounts must be in the same units.

The Nursing Formula

$$\text{Volume required} = \frac{\text{Strength required}}{\text{Stock strength}} \times \text{Volume of stock solution}$$

$$\frac{\text{What you want}}{\text{What you have available}} \times \text{What it's in}$$

$$\frac{\text{Need}}{\text{Have}} \times \text{Stock}$$

What's the problem?

$$\frac{250}{125} \times 5$$

$$\frac{8}{10} \times 5$$

$$\frac{75}{20} \times 2$$

Fractions

Cancelling

Division

Context

Instrumental learning

A solution?

Stock: 20mg in 2mL Required: 75mg

So 40mg in 4mL

60mg in 6mL

10mg in 1mL

5mg in 0.5mL

So 75mg in 7.5mL

See my article in MT266. Available at
https://www.atm.org.uk/write/MediaUploads/Journals/MT266/MT26615.pdf