Equivalences and Conversions

Study Development Factsheet

When completing nursing calculations, you may be asked to convert between household and metric measures. It is important that you know how to do this accurately, as getting it wrong can be dangerous, especially in dosage calculations.

Metric measures

Most formulae in nursing require measurements to be taken in metric units. If the information you are given is not in metric units, you will likely have to convert it.

Metric measures include variations of grams, litres and metres.

The variations that we must be able to convert between are given prefixes as follows:

Kilo-	1000
Unit	1
Deci-	0.1
Centi-	0.01
Milli-	0.001
Micro-	0.0001

You may have heard of measures like ‘kilograms’, ‘millilitres’ and ‘centimetres’ being used before. As we can see from the table, these mean ‘thousand grams’, ‘thousandths of a litre’ and ‘hundredths of a metre’.

Remember:

- When converting to a larger unit, move the decimal point to the left.

Eg) Convert 3000g into kg. We move the decimal point 3 places to the left, to get 3.000kg.

- When converting to a smaller unit, move the decimal point to the right.

Eg) Convert 4.5m into cm. We move the decimal point 2 places to the right, to get 450cm.

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Metric Equivalences

Mass

1kg = 1000g	1 kilogram = 1000 grams
1g = 1000mg	1 gram = 1000 milligrams
1mg = 1000 micrograms	1 milligram = 1000 micrograms

Length

1km = 1000m	1 kilometre = 1000 metres
1m = 100cm	1 metre = 100 centimetres
1m = 1000mm	1 metre = 1000 millimetres
1mm = 1000 micrometres	1 millimetre = 1000 microns

Volume

1L = 100cL	1 litre = 100 centilitres
1L = 1000mL	1 litre = 1000 millilitres
1mL = 1000 microlitres	1 millilitre = 1000 microlitres
1mL = 1cc	1 millilitre = 1 cubic centimetre

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Common conversions for nursing

- 1kg = 1000g
- 1kg = 2.2lbs
- 1L = 1000mL
- 1g = 1000mg
- 1oz = 30g
- 1tsp = 5mL
- 1lb = 454g
- 1tbsp = 15ml
- 1mg = 1000micrograms

Temperature conversions

- Temperature in Fahrenheit (°F) = $\frac{(9 \times \text{Temperature in Celsius (°C)})}{5} + 32$
- Temperature in Celsius (°C) = (Temperature in Fahrenheit (°F) – 32) x $\frac{5}{9}$

Body temperature is at 37°C or 98.6°F

Time conversions

1 minute = 60 seconds

1 hour = 60 minutes

1 day = 24 hours

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