Nursing Recruitment Practice Workbook

Name:_____

Welcome to the Royal Wolverhampton NHS Trust.

This document aims to provide guidance for the Nursing Recruitment Practical Assessment and support you in being successful.

It is a practical document that allows you to refresh your knowledge and practice your skills.

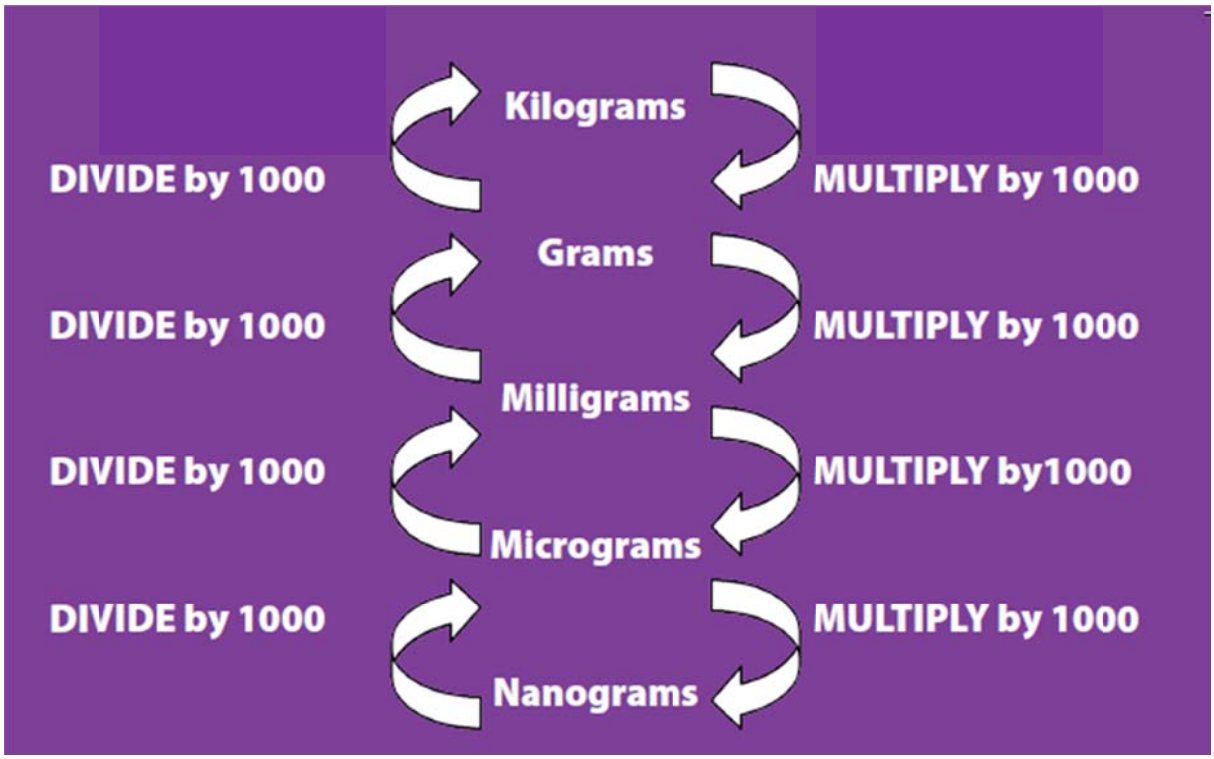
The answers are provided at the back of this workbook so you can check your progress.

Section 1- Conversions.

The International System of Units (SI, abbreviated from the French Système international (d'unités)) is the modern form of the metric system, and is the most widely used system of measurement.

To complete drug calculations we need to be able to convert between unit measurements.

One way to do this is as shown below:



This diagram demonstrates to convert to a smaller unit we should multiply X by 1000 and to convert to a larger unit we should divide / by 1000.

The easiest example is to demonstrate this with paracetamol:

1g or paracetamol can be converted to 1000mg with the following calculation:

1g x 1000 = 1000mg

To convert it back to grams we would work the other way:

1000mg / 1000 = 1g

It also works the same for fluids. Example:

1litres x 1000 = 1000millilitres and

1000mls / 1000 = 1L

Now you practice:

Convert the following:

A) 2L into mls

B) 500mls into litres

C) 1.25mg into mcgs

D) 2.4L into mls

E) 250mgs to g

F) 2.5mcg to ng

Section 2- Working out how many tablets to give.

To work out how may tablets we need to give we need to use the following formula:

$$\frac{\text{Amount prescribed}}{\text{Amount in each tablet}} = \text{Number required}$$

This demonstrates that we need to divide the amount prescribed (what we want) by the amount in each tablet (what the stock tablet is). This will give us the amount of tablets needed.

Example:

If a patient is prescribed 80mg of a drug and the tablets are available as 40mgs each. How many tablets would you give?

$$\frac{80}{40} \ (\text{what we want}) = 2 \ (\text{how many to give})$$

$$40 \ (\text{what it comes in})$$

To be able to calculate some drug doses you may be required to convert some amounts so they are measuring in the same unit.

Example question:

If 1.6g is prescribed and it comes in 800mg tablets, how many tablets would you give?

It makes a calculation easier if both amounts are in the same unit of measurement.

So in this case we would convert 1.6g to mg.

To do this we would use the formula practised above and X it by 1000 so it would become 1600mg. This then allows us to carry out the calculation:

$$\frac{1600\text{mg}}{800\text{mg}} =$$

Now you practice:

A) If 240mg is prescribed and it comes in 80mg tablets, how many tablets would you give?

B) If 1g is prescribed and it comes in 250mg tablets, how many tablets would you give?

C) If 3g is prescribed and it comes in 600mg tablets, how many tablets would you give?

Section 3 Working out what volume to give.

When drugs come in liquid form we need to work out what volume of liquid to administer. To do this we need the following formula:

$$\frac{\text{Strength required}}{\text{Stock Strength}} \times \text{Volume of stock solution} = \text{Amount to be given}$$

This demonstrates we need to divide the strength required by the stock strength and times it by the volume it comes in.

Example:

If a patient is prescribed 75mg of a drug and it comes in 25mg/ml, how many mls will you give?

$$\frac{75\ (\text{Strength required})}{25\ (\text{Stock Strength})} \times 1\ (\text{Volume of stock solution}) = 3\text{mls}\ (\text{Amount to be given})$$

Now you practice:

A) A patient is prescribed 150mg of a drug, it comes in 100mg/2mls, how many mls do you administer?

B) A patient is prescribed 240mg of a drug, it comes in 80mg/2mls, how many mls do you administer?

C) A patient is prescribed 0.8g of a drug, it comes in 200mg/1.5mls, how many mls do you administer?

Section 4 Working out the hourly rate of fluids.

This calculation works out how many mls are administered per hour if a prescribed amount of fluid goes through in a set amount of time.

The formula is: $\frac{\text{Total volume (mls)}}{\text{Total hours}} = \text{Rate (mls/hr)}$

Example question:

If a patient is prescribed 1000mls of normal saline over 8 hours, how many mls run through per hour?

$$\frac{1000\ (\text{Total volume (mls)})}{8\ (\text{Total hours})} = 125\ (\text{Rate (mls/hr)})$$

Now you practice:

A) If a patient is prescribed 1000mls of normal saline over 5 hours, how many mls run through per hour?

B) If a patient is prescribed 1000mls of normal saline over 12 hours, how many mls run through per hour?

C) If a patient is prescribed 1.4L of normal saline over 6 hours, how many mls run through per hour?

Section 5 Working out drip rates.

This calculation is needed to work out how many drips per minute go through intravenously when a set amount of fluid is prescribed over a set amount of time.

We always need to consider the type of fluid being administered as the giving set may differ therefore the drops per ml would be different.

Giving sets:

- Fluids = 20 drops per ml
- Blood = 15 drops per ml

The formula:

$$\text{Rate (Drips/min)} = \frac{\text{Volume (mls)}}{\text{Time (hrs)}} \times \frac{\text{Drops per ml of giving set}}{\text{60 Minutes}}$$

Example question:

A patient is prescribed 1000mls of normal saline over 6 hours. Calculate the drip rate per minute.

$$\frac{1000\ (\text{Volume (mls)})}{6\ (\text{Time (hrs)})} \times \frac{20\ (\text{Drops per ml of giving set})}{60\ (\text{always 60 Minutes})} = 56\ \text{dpm}\ (\text{Rate (Drips/min)})$$

It is easier to work out the top row first, so 1000 x 20 = 20000

Then the bottom row, 6 x 60 = 360

Then you have $\frac{20000}{360}$ which equals 55.555555 but….

Always remember to round up your answers; it then becomes 56dpm, because the number after the decimal place is more than 4.

Now you practice:

A) A patient is prescribed 800mls of normal saline over 6 hours. Calculate the drip rate per minute.

B) A patient is prescribed 1000mls of 5% Dextrose over 5 hours. Calculate the drip rate per minute.

B) A patient is prescribed 350mls of blood over 4 hours. Calculate the drip rate per minute.

Answers

1A) 2000mls

B) 0.5L

C) 1250mcg

D) 2400mls

E) 0.25g

F) 2500ng

2A) 240 = 3 tablets
80

B) 1g x 1000 = 1000g

1000 = 4 tablets
250

C) 3g x 1000 = 3000g

3000 = 5 tablets
600

3A) 150 x 2 = 3mls
100

B) 240 x 2 = 6mls
80

C) 0.8 x 1000 = 800 $\frac{800}{200}$ x 1.5 = 6mls

4A) $\frac{1000}{5}$ = 200mls/hr

B) $\frac{1000}{12}$ = 83.3333333 rounded as 83mls/hr

C) 1.4 x 1000 = 1400 $\frac{1400}{6}$ = 233.333333 rounded as 233mls/hr

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5A) $\frac{800}{6}$ x $\frac{20}{60}$ = $\frac{16000}{360}$ = 44.44444/44dpm

B) $\frac{1000}{5}$ x $\frac{20}{60}$ = $\frac{20000}{300}$ = 66.666666 / 67dpm

C) $\frac{350}{4}$ x $\frac{15}{60}$ = $\frac{5250}{240}$ = 21.875 / 22dpm

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At RWT we also include some comprehension style questions that assess your ability to utilise information. These may include working out fluid balance, early warning scores, pressure injury risk or infusion rates.

Remember:

- It is important not to panic as all of the information you require is provided for you.
- Read the questions carefully
- Show your working out (it is not marked but useful to see if you happen to go wrong)
- Round up answers as necessary
- Always add the unit of measurement to your answer

You may find further practice calculations here:

www.testandcalc.com

Good Luck ☺