# Community, Indigenous and Sub-Acute Services

## Nursing Medication Calculation Exam

**RN, EN**

**Updated April 2015**

| Name: ____________________________________________ |
| Date: ____________________________________________ |

**Pass Mark: 100%**

**Competency Achieved:** Yes/ No

| Assessor Signature: ____________________________ |
| Assessee Signature: ____________________________ |

**Comments:**

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
Reference guide: formulas for drug calculations

Calculation of dose for solid preparations

\[
\frac{\text{Strength required} \times 1 \text{ (tablet)}}{\text{Strength in stock}} = \text{Number of tablets to be administered}
\]

Calculation of dose by volume for liquid preparations

\[
\frac{\text{Strength required} \times \text{Volume of stock (mL)}}{\text{Strength in stock}} = \text{Volume to be administered (mL)}
\]

* Please note that the units of the ‘strength required’ and the ‘strength in stock’ need to be the same e.g. both in (mg)

Calculation of intravenous infusion rate

\[
\frac{\text{Volume to be infused (mL)}}{\text{Duration of infusion (hours)}} = \text{mL per hour}
\]

Calculation of drip rate

\[
\frac{\text{Volume to be infused (mL)} \times \text{drop factor}}{\text{Time (minutes)}} = \text{drops per minute (DPM)}
\]

References:
- Acknowledgement to Redcliffe Hospital
- Information on medication administration is available on the QHEPs intranet site – see Clinicians Knowledge Network (CKN)
- MIMS – (available on CKN)
Please show the **FULL** workings for the following calculations, using the formulas provided.

**Oral Medications / Conversions**

1. Mr Overload is ordered an oral dose of Frusemide 60mg. Stock strength of Frusemide tablets is 40mg. How many tablets would you administer?

   _______________________________________________________________________

2. a) Mrs Discomfort is ordered Paracetamol 1g orally, Q6h. Stock strength is 500mg tablets.

   How many tablets would you administer?

   _______________________________________________________________________

   b) What is the maximum daily dose for paracetamol?

   _______________________________________________________________________

   c) List the 6 rights:

   1. Right ___________________

   2. Right ___________________

   3. Right ___________________

   4. Right ___________________

   5. Right ___________________

   6. Right ___________________
d) What additional considerations should be taken into account prior to administering paracetamol?
NB - 3 responses are required

_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

3. Mr Flutter has a history of atrial fibrillation and has been prescribed Digoxin 250mcg. Stock strength of Digoxin is 0.125mg. How many tablets would you administer?

_______________________________________________________________________

4. Ms Blue is ordered 400mg of oral Flagyl. Stock strength of Flagyl is 200mg. How many tablets would you administer?

_______________________________________________________________________

5. Convert the following metric units:
   a) 20mcg __________mg
   b) 1250mg __________g
   c) 0.355mg __________mcg
   d) 4.25g __________mg
   e) 500mL __________L
   f) 2Lt __________mls
SC/IM/IV Drugs

1. **Drug:** Gentamicin  
   **Dosage Ordered:** 120mg IV  
   **Stock Solution:** 80mg/2ml

   Calculate the volume to be administered?

   _______________________________________________________________________

2. Miss Nancy is to receive 1000mls of Normal Saline over 12 hours using an infusion pump.  
   What rate per hour should be set on the infusion pump?

   _______________________________________________________________________

3. Ms Isotonic is ordered 1000ml of Hartmann’s Solution over 8 hours. There is no infusion pump. Calculate drop rate per minute using a 20 drops/ml drip factor.

   _______________________________________________________________________

4. Mr Smith is a palliative patient requiring continuous analgesia for his pain, and a continuous infusion is a part of his pain management regime.  
   His prescription information is as follows:

   **Subcutaneous Infusion Order**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (Amount to be delivered in 24 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>180mg</td>
</tr>
<tr>
<td>Metoclopramide</td>
<td>30mg</td>
</tr>
<tr>
<td>Midazolam</td>
<td>5mg</td>
</tr>
</tbody>
</table>

   **Available Ward Stock:**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>30mg/mL</td>
</tr>
<tr>
<td>Metoclopramide</td>
<td>10mg/2mL</td>
</tr>
<tr>
<td>Midazolam</td>
<td>5mg/5mL</td>
</tr>
<tr>
<td>BD 30mL Plastipak Syringe</td>
<td></td>
</tr>
</tbody>
</table>
a) How many milligrams of Morphine will Mr Smith receive in 24 hours?
_____________________________________________________________________

b) Using **ALL** of the available ward stock listed above, calculate the total volume in mls of each drug that will be in the syringe.
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

c) To make the volume of the syringe up to 24mls, what volume in mls of Sodium Chloride 0.9% will be required?
_____________________________________________________________________

5. What action would you take in your specific work area, if there was no stock of a medication that was ordered?
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

**Abbreviations**
Complete the following abbreviations with their meaning:

1. QID
   ____________________

2. PO
   ____________________

3. prn
   ____________________

4. g
   ____________________

5. tds
   ____________________