Pre-Registration Calculations Training Exercise 2

1. You receive a prescription for hydroxycarbamide 80 mg/kg every third day for the month of March, with the first dose to be taken on the 2nd March. The patient weighs 75 kg therefore you should supply 120 hydroxycarbamide 500 mg capsules.

2. A patient is prescribed Nutriflex® plus (2000 mL bag). The prescribing doctor wants you to increase the potassium content in the bag to 80 mmol. It would be appropriate to add 25 mL of sterile potassium chloride concentrate 15% to the bag.

3. At 10.30 am a 1L bag of normal saline infusion is set up for a patient at an administration rate of 1 mL/min. After 9 hours the doctor requests the flow rate to be increased to 90 mL/hour. The bag will be due for replacement at 1 am the next day.

4. A child is prescribed 5 mL of reconstituted CellCept® oral suspension twice daily in combination with a corticosteroid and ciclosporin as prophylaxis against acute rejection after a renal transplant. Upon checking the patient's case notes you find that the child is 4 feet 4 inches tall and weighs 30 kg. As part of your ward role you double check the prescribed dose against the standard recommended dose. It is appropriate for you to contact the prescriber as you consider this dose to be an under dose.

    Body Surface Area (m^2) = $\sqrt{}$ {weight (kg) x height (cm) ÷ 3600}

5. A patient with diabetes uses Byetta® as one of his medications. Following his recent hospital review his dose has been adjusted to 5 mcg before lunch and 10 mcg before his evening dinner. He currently has three unopened 5 mcg/dose prefilled pens at home and asks you how many days in total these two pens will now last him. It is correct to advise him they will last 60 days in total.

6. You are a hospice pharmacist and are contacted by a local GP about the transfer of a terminally ill patient from oral morphine sulphate to a subcutaneous infusion of diamorphine hydrochloride. The patient has previously been taking one MST Continus® 100 mg sachet and one MST Continus® 20 mg sachet every 12 hours. It would be appropriate for you to suggest to the GP that he prescribes for this patient diamorphine hydrochloride 40 mg by subcutaneous infusion in glucose 5% continuously over 24 hours.

7. Sodium nitroprusside is being prescribed for a 65 kg patient in hypertensive crisis. 50 mg of sodium nitroprusside has been diluted to 1000 mL in 5% glucose infusion. The drug is to be administered to the patient at an initial rate of 1.5 mcg/kg/min and then increased in steps of 500 ng/kg/min every 5 minute intervals. The infusion rate 18 minutes after treatment is commenced is 3.9 mL/min.

8. The BP lists the following formula for the extemporaneous preparation of Paediatric Ferrous Sulfate Oral Solution:

   Ferrous Sulphate Heptahydrate 12 g
   Ascorbic Acid   2 g
   Orange Syrup   100 mL
   Double-strength Chloroform Water 500 mL
   Water   Sufficient to produce 1000 mL

   You are required to produce one dozen bottles of Paediatric Ferrous Sulphate Oral Solution each containing 120 mL. The first stage of this process is to prepare the double-strength chloroform water from concentrated chloroform water. This first step will require you to use 36 mL of concentrated chloroform water. You can assume no excess is made at any stage.

9. There is the same amount of oxycodone hydrochloride in 150 mL of OxyNorm® oral solution and 15 mL of OxyNorm® concentrated oral solution.

10. You have in your pharmacy 400 mcg potassium permanganate tablets. You are requested to dispense 200mL of a potassium permanganate solution such that the patient will dilute this 1 in 10 to obtain a 0.01% solution suitable for wound washing. To prepare this you would dissolve 30 of the tablets in a small amount of water and make the solution up to a final volume of 200mL with water.

11. Pregaday® tablets are currently unavailable due to a supply issue with one of the inactive ingredients. You regularly dispense this tablet for Miss Y at a dose of 1 tablet twice daily. Following a discussion with her prescriber you both agree to it is appropriate to supply her Galfer® Syrup at a dose of 10 mL once daily because this contains an equivalent daily dose of iron.

12. The fluoride in a water supply is 0.6 ppm. This is equivalent to a concentration of 0.00006% w/v.

13. 2 litres of chlorhexidine gluconate 5% w/v is needed to produce 2500 mL of chlorhexidine gluconate 4% w/v.

14. A cream contains 1% w/w zinc oxide. The amount of zinc oxide powder that should be added to 150 g of the cream to produce a 3% w/w zinc oxide is 0.3 g.

15. A 26 year old woman is prescribed two medicines daily. She is completely compliant with her therapy.   Every week, she will consume less than 150mmol K^+ from her medicines. Her PMR records that her medicines and their doses are:

   | 500mL | Kay-Cee-L® oral solution | 10mL twice daily |
   | 500mL | Movicol® liquid | 25mL daily |