Journal of Prescribing Practice – Calculation Skills

July 2021

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Keeping it simple

The complexity of mathematics has been pondered since the dawn of time and it is considered one of the fundamental skills required of prescribers to facilitate effective, safe practice. Williams & Davis (2016) remind us that the potential for serious health consequences for patients is dependent on the accuracy (or inaccuracy) of the clinician's drug calculations. Indicator 4.6 in '*A competency framework for all prescribers'* (Royal Pharmaceutical Society, 2016) requires that the prescribing practitioner "Accurately completes and routinely checks calculations relevant to prescribing and practical dosing". However, there remains a significant amount of anxiety in respect of numerical literacy amongst some clinicians, often characterised by negative emotions that interfere with performance (Rolison, Morsanyi & Peters, 2020). Opportunities for maths education is often avoided in those with maths anxiety, thus compounding the problem. Exposure to drug calculations and embracing numerical problem-solving should be a central component of the prescriber's continuous professional development, particularly if maths anxiety is acknowledged. The Royal College of Nursing (2019) advocate that harm to patients will be minimised if drug calculations are not rushed, but divided into smaller steps, using mental arithmetic, a calculator, applying a formula and using conversion tables. Try the following drug calculations and remember that Sir Isaac Newton [1643-1727] once said *"Truth* [the answer] *is ever to be found in the simplicity, and not in the multiplicity and confusion of things."* To this end, try to keep it simple!

Question 1

Drug A is available in 250 microgram tablets. Your patient requires 2mg twice daily. How many tablets will the patient require each day?

Question 2

Sarah weighs 60kg. The BNF recommends a dose of 5mg/kg four times a day of drug B. What total amount of Drug B (in g) will Sarah take each day?

Question 3

An injection contains 0.75g/ml of drug C. Express the amount of Drug C in mg.

Question 4

Your patient has liver disease and the BNF recommends that Drug D should be prescribed at 25% of the normal adult dose. The normal adult dose is 80mg daily. What daily dose of Drug D should the patient receive?

Question 5

Intravenous infusion E is available in 1 litre bags. How many litres of fluid will be infused over 4 days if 1 litre is infused every 8 hours?

Question 6

Drug F is prescribed for 28 days at a dose of 1g twice daily. Drug F is available in 250mg tablets. How many tablets need to be dispensed?

Question 7

Suspension G is prescribed for 2-year-old Jamie at a dose of 25mg every 6 hours and is available at a concentration of 50mg/5ml. How many millilitres are required for a 7-day course?

Question 8

Inhaler H has 100micrograms per actuation and contains 200 doses. You have prescribed 2 puffs twice daily for your patient. How many days will this inhaler last?

Question 9

Drug X is available in 10mg tablets and is prescribed in a reducing dose regime of 40mg daily for 7 days, 30mg daily for 7 days, 20mg daily for 7 days then 10mg daily for 7 days. How many tablets should be supplied?

Question 10

Drug Y is prescribed orally four times a day for 25 days and is available in 500mg strength. What total amount of drug Y (in g) will the patient consume?

References:

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Answers

Question 1: 8 tablets

Question 2: 1.2g

Question 3: 750mg

Question 4: 20mg

Question 5: 12 litres

Question 6: 224 tablets

Question 7: 70ml

Question 8: 50 days

Question 9: 70 tablets

Question 10: 50g