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Journal of Prescribing Practice – Calculation Skills

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Considering cost, waste and medicines optimisation in prescribing practice

The updated Royal Pharmaceutical Society (2021) is “hot off the press” and was published in September 2021. Within the “Consultation domain” of this framework, Competency 4 (“Prescribe”) prompts the clinician to adhere to the following standards:

4.5. Accurately completes and routinely checks calculations relevant to prescribing and practical dosing.

4.6 Prescribes appropriate quantities and at appropriate intervals necessary to reduce the risk of unnecessary waste.

4.8 Uses up-to-date information about the availability, pack sizes, storage conditions, excipients, and costs of prescribed medicines.

In accordance with these standards, the British Medical Association & Royal Pharmaceutical Society (2021) and the National Institute for Health & Care Excellence (2015) advocate that an essential facet of prescribing practice is medicines optimisation. Medicine reviews should be a routine feature of prescribing and should include cost-effective decision-making, as advocated by the National Prescribing Centre (1999) EASE mnemonic. By appreciating the cost of medicines, not only to the NHS, but to the patient themselves, prescribers will ultimately reduce waste when working in an NHS with finite resources. Consider the following drug calculations.

Question 1

Your patient has hypertension and has been prescribed Drug X to be taken once daily in the morning. You prescribe this medication for 2 months. The pack size is 28 tablets. To ensure the patient continues to be medicated, what will be the maximum time span (in days) between appointments?

Question 2

Mrs. Jones has been prescribed a new DMARD and is required to start on an increasing dose as follows:

Week 1 – 1 tablet daily

Week 2 – 1 tablet BD

Week 3 – 2 tablets in the morning and 1 tablet at night

Week 4 – 2 tablets BD

How many tablets does Mrs. Jones require until her follow-up appointment in 4 weeks?

Question 3

Mr. Jeffreys requires IV antibiotics for sepsis. He is prescribed 250mg of antibiotic A to be administered in 250ml normal saline three times a day, running over 15 minutes. Mr. Jeffreys has this regime prescribed for 5 days. How many grams of Antibiotic A will he receive in total?

Question 4

Johnny aged 4, and weighing 25kg, requires Drug C to be prescribed in liquid formulation. The strength is 20mg/5ml. The dose is 4mg/kg twice daily. How many millilitres will be required for 10 days' treatment?

Question 5

Patient Y is prescribed a new medication and is issued with 28 days' supply. The drug is to be taken four times a day and costs £10.26 per dose. The patient develops an adverse drug reaction after 3 days and the drug is stopped. What is the overall wastage to the NHS in monetary cost?

Question 6

Your patient has multiple co-morbidities and resultant polypharmacy. The patient is issued with a repeat prescription for 9 items every month. The cost of an NHS prescription, per item is £9.35. What is the cost to the patient per year if they pay for their prescriptions?

Question 7

The patient in Question 6 is advised to purchase a Prescription Prepayment Certificate (PCC) by the pharmacist at a cost of £108.10 per annum. How much will the patient save per year?

Question 8

On your surgical unit, x 16 patients are prescribed Hartmann's Solution infusion 1litre every 12 hours. How many 1litre bags are required in total on your ward over a 48-hour period?

References:

British Medical Association & Royal Pharmaceutical Society (2021) *British National Formulary* 82. Retrieved from: <https://bnf.nice.org.uk/> (24.09.21)

National Institute for Health and Care Excellence (2015) *Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes* CG5. Retrieved from <https://www.nice.org.uk/guidance> (24.09.21)

National Prescribing Centre (1999) Signposts for prescribing nurses - general principals of good prescribing. *Prescribing Nurse Bulletin*. 1, 1, 1-4.

Royal Pharmaceutical Society (2021). *A competency framework for all prescribers*. Retrieved from <https://www.rpharms.com/resources/frameworks/prescribing-competency-framework/competency-framework> (24.09.21)

Answers

Question 1: 56 days

Question 2: 70 tablets

Question 3: 3.75g

Question 4: 500mls

Question 5: £1026.00

Question 6: £1009.80

Question 7: £901.70

Question 8: 64 x 1litre bags