Dosage Calculations V – Pediatrics & Body Weight

EXERCISES

1. A toddler who weighs 22 lbs is prescribed 2.5 mg/kg of Tobramycin q12h. Tobramycin is available as 100 mg/2 mL.
   a) How many milligrams is one dose of Tobramycin?
   b) What strength of Tobramycin will the infant receive in one day?
   c) What volume of Tobramycin will you give the infant per dose?
   d) How much liquid medication will the infant receive in 24 hours?
2. A 3-year-old patient with a weight of 25 lbs requires 1.5 mg/kg of Topiramate. The PDTM indicates a maximum dose of 25 mg/day. Topiramate is available in liquid form with a strength of 6 mg/mL.
   a) What is the strength of the dose you will give the patient?
   b) How much liquid Topiramate will you give the patient? Round to the nearest tenth.
3. The patient, a 6-year-old male who weighs 44 lbs, is to receive 40 mg/kg of Rocephin over 30 minutes. Rocephin is available as 300 mg/mL. What strength of drug will the patient receive?
4. A premature infant weighing 1300 grams is prescribed Ampicillin 120 mg/kg/dose. Ampicillin is available in a 250 mg vial and the PDTM recommends diluting the vial with 5 mL sterile H_2O.
   a) What is the concentration of Ampicillin after reconstitution (mg/mL)?
   b) How much drug (mg) will the infant receive?
   c) What volume of drug will the infant receive? Round to the nearest tenth.
5. The doctor prescribes 20 mg/kg vancomycin IV b.i.d. The patient is 2 years old and weighs 24 lbs. Round to the nearest whole number.
   (a) How much (mg) is a single dose?
   (b) How much (mg) will the child receive in one day?

6. The recommended range for acetaminophen is 10-15 mg/kg/dose, not to exceed 2600 mg in 24 hours. A 52 lb child is prescribed 300 mg q6h.
   (a) What is the minimum dose for this child that would exceed the recommended range? Round to the nearest whole number.
   (b) How much drug will the child receive in 24 hours?

7. The doctor orders Diuril 20 mg/kg for a 20 kg child. The instructions on the 800 mg vial of powder read: “Add 4 mL sterile water to reconstitute”.
   (a) What is the concentration of the reconstituted solution?
   (b) What volume of Diuril will be administered to the child?

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(c) You accidentally add 5 mL of water to the vial of powder but are told you can still use it. How much of this new solution would you administer to the child?

8. You are given this table of fluid maintenance requirements:

Weight range	**Required Daily Fluid**
For the first 0-10 kg	100 mL/kg
For the next 10-20 kg	50 mL/kg
For >20 kg	20 mL/kg

What is the daily fluid replacement for…
(a) An infant weighing 5 kg?
(b) A 3-month-old infant weighing 15.4 lbs?
(c) An infant of 15 months weighing 12 kg?
(d) A 2-year-old weighing 33 lbs?
(e) A 4-year-old weighing 21 kg?
(f) A child of 6 years weighing 55 lbs?

9. The recommended range for Diazepam is 100-500 mcg/kg/dose, not to exceed 5 mg in 24 hours for children under 5 years. A child weighing 33 lbs is prescribed 3 mg in four equally divided doses over 24 hours.
(a) What is the strength of one dose? Give your answer in micrograms.
(b) Does the dose fall within the recommended range?

10. A patient weighing 26.4 lbs is prescribed Prednisolone sodium phosphate 1.5 mg/kg/day PO in 4 equally divided doses. The drug is available as 15 mg/5 mL. Round all answers to the nearest tenth.
(a) How often will you be administering the medication?
(b) What is the strength of one dose?
(c) How much liquid medication will the patient receive per dose?
(d) What volume of medication will you give the patient in 24 hours?

SOLUTIONS

(1) (a) 25 mg (b) 50 mg (c) 0.5 mL (d) 1 mL (2) (a) 17 mg (b) 2.8 mL (3) 800 mg (4) (a) 50 mg/mL (b) 156 mg (c) 3.1 mL (5) (a) 218 mg (b) 436 mg (6) (a) 355 mg (b) 1200 mg (7) (a) 200 mg/mL (b) 2 mL (c) 2.5 mL (8) (a) 500 mL (b) 700 mL (c) 1100 mL (d) 1250 mL (e) 1520 mL (f) 1600 mL (9) (a) 750 mcg (b) *No, the dose falls below the recommended range (but is still safe)* (10) (a) every 6 hrs (b) 4.5 mg (c) 1.5 mL (d) 6 mL