4. A paediatric vitamin drop contains 0.25 mg of vitamin D in each millilitre. How many micrograms of vitamin D are contained in 0.2 ml of this preparation?

a. 50 micrograms
b. 75 micrograms
c. 100 micrograms
d. 150 micrograms
e. 250 micrograms

5. What weight of sodium bicarbonate (in grams) would be required to make 150 ml of a 6 g/l solution?

a. 0.5 g
b. 0.6 g
c. 0.75 g
d. 0.9 g
e. 1 g

Tailored strength calculations

Often this type of calculation is required if you are attempting to give a tailored dose to a patient using existing pre-prepared stock mixtures.

Example 2.6

A common dose seen in paediatric prescribing is 62.5 mg phenoxymethylpenicillin four times a day. This is the recommended dose for a child 1 month–1 year. The readily available mixture is 125 mg/5 ml. Therefore to provide a dose of 62.5 mg we give 2.5 ml of a 125 mg/ml mixture.

$$\text{Volume required} = \frac{\text{strength required}}{\text{stock strength}} \times \text{volume of stock solution}$$

$$= \frac{62.5}{125} \times 5 \text{ ml}$$

$$= \frac{62.5}{125} \times \frac{5}{1} \text{ ml}$$

$$= \frac{312.5}{125} \text{ ml}$$

$$= 2.5 \text{ ml}$$

Questions

6. A patient requires a dose of 5 mg of a drug. The available stock solution contains 25 mg/5 ml. How much of this stock solution would be required to deliver this dose?

7. A baby requires a dose of 37.5 mg chloroquine base each week to prevent infection with malarial parasite. The solution available for you to dispense contains 50 mg/5 ml chloroquine base. How much of this stock solution should be given to the baby each week?