**Answers to Practice Problem Set #8**

1. Many health care practitioners recommend delay of vaccine administration for children with an oral temperature of > 38.0°C. A child comes in to your pharmacy for his scheduled vaccination. He has a runny nose, so you check his ear temperature (on oral setting). It reads 100.2°F. Will you vaccinate this child?

__**X**__ yes. His temperature is: **37.9** °C **[(100.2°F – 32)/9] (5) = 37.9°C**

_____ no. His temperature is: _____ °C

2. The mother asks for a product to help with the child's runny nose, and you suggest pseudoephedrine, an oral decongestant available in a 15mg/5ml concentration. The maximum recommended dose for a child is 1mg/kg po q6h prn. You weigh the child and find he is 27 pounds. How many milliliters (round to the nearest 0.2ml) should this mother give her child for each dose?

**4.0** ml (**1 mg/kg)(27 lbs)(1kg/2.2 lbs)(5ml/15mg) = 4.09 ml**

3. A 66 year-old, 160 lb. 5'2" female patient is to receive Timentin (an antibiotic) for a skin infection. The dosage recommendations are as follows:

| CrCl | dosing recommendation |
|---|---|
| >60 ml/min | 3.1g IV q4h |
| 30-60 ml/min | 2g IV q4h |
| 10-30 ml/min | 2g IV q8h |
| <10 ml/min | 2g IV q12h |

The patient's latest lab shows a serum creatinine of 1.0 mg/dL. Please calculate this patient's creatinine clearance and identify the dose you will recommend.

CrCl: **43** ml/min **$\frac{(140 - 66)(49.6)}{(85)(1.0)}$ = 43 ml/min**

dose: **2 g IV q 4 h**

4. A 5'10" 170-pound male patient is to receive doxarubicin, an anticancer agent. at a dose of 45 mg/m$^2$ You remember from your calculations book that:
BSA in m$^2$ = H$^{0.3964}$ x W$^{0.5378}$ x 0.024265
where height is in centimeters and weight in kilograms
Please calculate the total amount of drug he should receive.
**88 (85-90 OK)** mg **$(177.8^{0.3964})(77.3^{0.5378})(0.024265) = 1.96$ m$^2$ x 45mg/m$^2$ = 88.2 mg**

5. You carry 20mg vials in your pharmacy which, when reconstituted with water, make a final solution of 2mg/ml. How many milliliters of this solution will need to be infused into the patient in question #4?

**44 (42.5-45 OK)** ml **(85-90mg)(1ml/2mg) = 42.5-45ml**

6. The same patient is also to receive dexamethasone 6mg/m$^2$/day, orally, on days 1 through 15 of this chemotherapy cycle. You carry dexamethasone tablets in your pharmacy in the following strengths: 0.5mg, 0.75mg, 1.5mg, and 4mg. You will want to give him enough tablets to last him for the *whole* cycle. Please identify the following information that you will place on the prescription label (note: the # refers to the total number of tablets that you will place in the prescription vial):

Dexamethasone **4** mg tablets, # **45** **(1.96)(6)=11.76mg/day**

Directions: Take **3** tablets daily until all tablets are gone.

7. Six months later, the patient noted in question 4 above is having problems swallowing tablets. You consult with the physician and decide to change him from his oral pain tablets to a patch, which can be placed on the skin (drug is then absorbed into the body from the patch through the skin). The pain tablets that the patient is currently taking is

morphine 60mg po q8h. You will change this to a Fentanyl transdermal patch. Facts and Comparisons gives you the following information:

**(60mg/dose)(3 doses/day) = 180 mg/day**

| oral morphine dose mg/day | Fentanyl transdermal patch µg/hr |
|---|---|
| 45-134 | 25 |
| **135-224** | **50** |
| 225-314 | 75 |
| 315-404 | 100 |

Please circle the Fentanyl transdermal product strength that you will dispense:

25µg/hr **50µg/hr** 75µg/hr 100µg/hr

The World Health Organization recommends the following solution for patients who have lost fluid and electrolytes through diarrhea or vomiting:

| | |
|---|---|
| 90 mEq/L sodium | MW: 23 |
| 20 mEq/L potassium | MW: 39 |
| 30 mEq/L bicarbonate | MW: 61 |
| 80 mEq/L chloride | MW: 35.5 |
| 2.5% glucose | MW: 180 |

In your pharmacy, you dispense a package of 20 mEq of KCl and directions for common household items that can be placed into an empty 1-liter container, filled with water to the one liter mark, mixed, and then consumed by the patient. The common household ingredients that the patient will add are table salt, baking soda, and sugar. Table salt, baking soda, and sugar weight 6g, 5g, and 4g, respectively, per teaspoonful.

8. How many teaspoonfuls of sugar will the patient need to add to each liter of the solution? (For the purposes of this question assume that glucose and sucrose are interchangable)

**6** teaspoonful(s)

$$\frac{2.5\text{ g}}{\text{dL}} \times 10\text{dL} \times \frac{1\text{ tsp}}{4\text{ g}} = 25\text{g} \approx 6\text{ teaspoonfuls}$$

9. How much table salt will the patient need to add to each liter of the solution?

**1/2** teaspoonful(s)

$$60\text{ mEq NaCl} \times \frac{58.5\text{ mg}}{\text{mEq}} \times \frac{1\text{ tsp}}{6\text{ g}} \times \frac{1\text{ g}}{1000\text{mg}} = 0.59 \approx 0.5\text{ teaspoonfuls}$$

10. How much baking soda will the patient need to add to each liter of the solution?

**1/2** teaspoonful(s)

$$30\text{mEq } NaHCO_3 \times \frac{84\text{mg}}{\text{mEq}} \times \frac{1\text{ tsp}}{5\text{g}} \times \frac{1\text{ g}}{1000\text{mg}} = 0.5\text{ teaspoonfuls}$$