SLCC Math 1020 Project 5 Names: Jessica Knox

Introduction:

This is a group project allowing students to work together in a professional manner. In this project, students will face a hospital scenario similar to what registered nurses will face in a hospital or clinic. Students will record a patient's name, gender, age, weight, and height. You will have to convert some information to different units. Assuming the doctor prescribes some medication for this patient, students will have to decide whether the doctor's prescription is within a safe range and to find the amount to administer.

Objectives:

- Define terminologies used in general mathematics as related to health sciences.
- Use conversions to solve related problem(s).
- State the meanings of the commonly used abbreviations in the administration of medications.
- Approximate Body Surface Area by formula.
- Avoid overdosing the patient.
- Correctly use calculators.
- Develop the knowledge and skills to be civically engaged, and/or work with others in a professional and constructive manner.
- Reflect on what students learn from this project.

Group work:

No more than 3 students should be in a group. There should be no sharing information related to this project with classmates outside your group. Students who desire to do this group project individually must have a valid reason, with appropriate documentation to support your claim, and obtain instructor's approval a week before the deadline.

Recording a patient's information:

Remember that your patient is a person. He or she should have a name. You are asked to make up a name for your patient. You should not use your instructor's name or any of the names of your classmates in the class. Other than that, you are free to create a name. Then, also make up the age, gender, height, and weight of this patient. Try to make it as realistic as possible.

1. *Patient's information:*

Name: Jay Thomas Gender: Male Age: 33

Weight: 190 lb Height: 5 ft 10 in

2. *Conversion:*

Because one of the drugs the patient needs uses the metric system, you need to convert the patient's weight to the metric system. **Find the patient's weight in kilograms.** B sure to show the steps. Your result should be rounded two decimal places.

Steps: $190 \div 2.2$

Answer: ~86.36kg

Prescription 1:

The doctor prescribed 1 tablet Antibiotic *XYZ* tid for this patient.

3. **What does tid mean?**

Answer: Three times a day

The following was an excerpt from the literature:

> **Antibiotic *XYZ***
> ...Each tablet contains 3,000 mcg of antibiotic...
> The total daily dose for adults should not exceed
> 0.5 mg/kg/day...

4. **What is the maximum amount of Antibiotic *XYZ* in micrograms can this patie take per day?**

Steps: $0.5 \times 86.36 = \frac{43.18 \text{ mg}}{1} \quad \frac{1000 \text{ mcg}}{1 \text{ mg}}$

Answer: 43,180 mcg/day

5. **Does the doctor's prescription exceed the maximum amount according to the literature?**

Steps: 1 tablet = 3,000 mcg

3,000 mcg x 3 = 9,000 mcg/day

Answer:

NO

6. **How much drug will you actually administer to this patient?**

Answer: 3 tablets = 9,000 mcg.

Prescription 2:

Your patient has Neoplastic disease. The doctor prescribed methotrexate[1] 5 mg/m²/day.

BSA:

$$BSA = \sqrt{\frac{\text{weight in kg} \times \text{height in cm}}{3600}}\ m^2 \text{ or}$$

$$BSA = \sqrt{\frac{\text{weight in lb} \times \text{height in inches}}{3131}}\ m^2$$

7. **Find the body surface area of your patient.** Your result should be rounded two decimal places.

Steps: $\sqrt{\frac{190 \times 70}{3131}}\ m^2$

Answer: $2.06\ m^2$

The drug label states that each methotrexate[1] tablet contains 2.5 mg. The tablets are not scored.

8. **How many tablets do you administer to the patient per day?**

ordered: 2.06 × 5 = 10.3 mg/day

Steps: 4 ~~10 mg~~ / 1 · 1 tablet / ~~2.5 mg~~

Answer:

4 tablets.

9. ***Reflection paper***

Write a two-page paper on either:

1. What you have learned from doing this group project?

Or 2. What you love/hate about group projects?

Or 3. Why is medical math more important than just a passing grade?

Reference

[1] Drugs.com [Internet]. Methotrexate Information from Drugs.com; c2000-10 [Revised: 2009 December; Cited: 2010 May 25]. Available from: http://www.drugs.com/methotrexate.html.