

## 2005 Calculations Quiz #4

1. An 82 year-old, 115 pound woman diagnosed with breast cancer is to receive enoxaparin. The usual dose is 1 mg/kg SC q12h; it is common practice at your hospital to reduce the dose by 15% in patients with breast cancer. Enoxaparin comes in 30-mg, 40-mg, 60-mg, 80-mg, 100-mg, 120-mg, and 150-mg syringes at your hospital. Which syringe amount (in mg) should she receive for each dose? (Note: patients must administer the entire syringe. They cannot administer a partial amount in a syringe. Choose the commercially-available dose that is closest to your calculated dose.) (44mg, so 40mg syringe)
2. A 195-pound patient is to receive a loading dose of esmolol. The recommended bolus dose is 500 mcg/kg/min, IV over 1 minute. The solution is available in a concentration of 10 mg/ml. How many milliliters of solution should this patient receive? Round to the nearest tenth of a milliliter. (4.4 ml)
3. The same patient will now receive a maintenance infusion of 100 mcg/kg/min, over 4 minutes. The two strengths of the drug available are 10 mg/ml and 250 mg/ml. Which concentration will you give? What will be the infusion rate in ml/min? Round your answer to the nearest tenth. (10 mg/ml; 0.9 ml/min)
4. A 145-pound, 5'6" patient is to receive cyclophosphamide 600 mg/m<sup>2</sup> (the m<sup>2</sup> here is part of the BSA unit, so you won't actually calculate ht<sup>2</sup>). You have a 2 g vial of powder, which you reconstitute to 100 ml solution with diluent. How much of this solution must be given to the patient so she receives the correct dose? (70 kg; 168 cm; 1.8 m<sup>2</sup>; 1080mg; 54 ml)
5. An 45-year-old, 145-pound, 5'2" female with pneumonia is to receive tobramycin. Daily dosing recommendations are for 3-5 mg/kg IV q24h, and you decide to use a midpoint of 4 mg/kg/day. The dosing recommendations are estimated using the patient's ideal body weight, unless the patient is obese. For obese patients, the dose should be adjusted to use the ideal body weight + 40% of the difference between ideal and actual body weight. Patients are considered obese if their body mass index (BMI) is at or above 30 kg/m<sup>2</sup> (here the m<sup>2</sup> refers to height squared, not BSA). What would be a good dose for this patient? Please round your dose to the nearest 10 mg. (BMI = 28.4; IBW = 49.6 kg; 200mg)
6. A 42-pound child is to receive amoxicillin, at a dose of 90 mg/kg/day, for 10 days. You carry in your pharmacy 200mg/5ml and 400mg/5 ml suspension, each available in 75ml and 100ml amounts. Note that you have to dispense full bottles of this suspension, because it is reconstituted with water, and thus has a short shelf life. How many teaspoonfuls should the mother give the

child twice daily? What strength and volume of amoxicillin will you dispense? (2 teaspoonfuls; 400/5, 200 ml)

7. A premature infant is to receive ceftazidime. The infant is currently 4 pounds, 6 ounces. Dosage recommendations for children are 30mg/kg/dose. What dose should this patient receive? Round to the nearest whole milligram. (60 mg)

8. A 65-year old, 120-pound, 5'3" female is to receive vancomycin. The usual dose is 1g IV q12h, but this should be reduced in patients with compromised kidney function. This patient's serum creatinine is 1.7 mg/dL. Calculate this patient's creatinine clearance and use the table from Facts and Comparisons to optimally dose this patient. Patients with creatinine clearances below 50 ml/min usually receive the drug as one daily dose instead of two. What is this woman's calculated creatinine clearance? What regimen (dose and frequency) do you recommend for this patient? Round your dose to the nearest 100mg. (28 ml/min; 500mg IV q24h)

Vancomycin Dosage in Impaired Renal Function	
Ccr (ml/min)	Dose (mg/24 hr)
100	1545
90	1390
80	1235
70	1080
60	925
50	770
40	620
30	465
20	310
10	155

9. A patient has been taking 60 mg of prednisone for a month. Starting today, the physician would like her to reduce her dose by 10 mg/week. You will dispense 10-mg tablets, because that means she will not have to split any tablets. What is the total number of tablets you will give her to last her the 5 weeks it will take her to complete this taper? (105 tablets)

10. A 22-year-old, 105-pound, 5'5" female cystic fibrosis patient with pneumonia is to receive gentamicin 150mg IV q8h. When she complains of ringing in her ears, it is discovered that she accidentally received the second dose twice. Her serum concentration at one hour after the second infusion is 16 mcg/ml. Gentamicin has a half-life around 2.5 hours in patients with good kidney function. A half-life is the length of time it takes for a concentration to reduce by half. It is now 2 hours after she received the second dose. Should she receive her next dose 8 hours after the doubled-dose? If not, by how many hours do you approximate the dose should be delayed? (0.5 to 1 hour)