

Margaret H. Rollins School of Nursing  
Nursing 201- Nursing Care of Special Populations  
Newborn Pediatrics Calculations 2025

Due September 8th by 1600

\*\*May submit via dropbox or mailbox, but please show your work\*\*

Name: Destiny Romano

Date: \_\_\_\_\_

1. George, 8 years old is admitted to the hospital in diabetic ketoacidosis. His doctor orders an insulin drop as follows:

100ml normal saline with 200 units of regular insulin to run at 2 units/hour

You would set the IV pump at 10 ml per hour.

$$200 - 100 = 2 \text{ units/ml}$$

2 units per 1 ml

2. Amy is admitted with severe asthma and the chest x-ray shows pneumonia. Amy weighs 82 lbs. The primary healthcare provider orders the following:

- 200ml D5 1/2 NS with 0.8mg of Aminophylline per kg per hour. The IV rate is 40 ml/hr
- SoluMedrol 30mg IV push q6hr
- Ampicillin 400mg IV push Q6hr

- a. How much Aminophylline should be added to the IV bag?

$$82 \div 2.2 = 37.3 \text{ kg} \times 0.8 \text{ mg} = 29.84 \text{ mg/hr}$$

$$\frac{200 \text{ ml}}{40 \text{ ml/hr}} = 5 \text{ hr} \quad 29.84 \times 5 \text{ hr} = 149.2 \text{ mg}$$

- b. SoluMedrol comes in a vial of 125mg/2ml. How much medication would you draw up to give the ordered dosage?

$$\frac{30 \text{ mg}}{125 \text{ mg}} \times 2 = 0.48 \text{ ml}$$

- c. The 500mg vial of ampicillin is reconstituted with 5ml sterile NS. How much would you draw up to give the correct dose?

$$\frac{400}{500} \times 5 = 4 \text{ ml}$$

3. A child weighing 70lbs has osteomyelitis. The doctor orders Rocephin IM 50mg/kg/24hrs in 2 evenly divided doses. Rocephin comes in a 1gm vial which needs to be reconstituted with 1.5ml sterile NS. The resulting concentration is 500mg/ml.

a. How many mgs would the child need to receive for each dose?

$$70 \text{ lb} \div 2.2 = 31.8 \text{ kg} \times 50 \text{ mg} = 1590 \text{ mg} / 24 \text{ hr} \div 2 = \boxed{795 \text{ mg} / \text{dose}}$$

$$\frac{795}{500 \text{ mg}} = 1.59 \text{ mg}$$

b. How much would you give for each dose? Express your answer in mls.

$$\frac{795 \text{ mg}}{500 \text{ mg}} \times 1.5 \text{ mL} = \boxed{1.6 \text{ mL}}$$

4. Liquid Acetaminophen 240mg is ordered every 6 hours PRN for a 3 1/2 year old febrile child weighing 36 lbs. The label on the bottle indicates that the concentration is 80mg/ 2 1/2 mls. The safe dosage for Acetaminophen is 10-15mg/kg/dose.

a. How many mls would you administer per dose?

$$36 \div 2.2 = 16.4 \text{ kg}$$

$$\frac{240 \text{ mg}}{80 \text{ mg}} \times 2.5 = 7.5 \text{ ml}$$

b. Is the ordered dosage safe for this child?

Safe Dose =  $\frac{10}{\times 16.4} = 164 \text{ mg}$  -  $\frac{15}{\times 16.4} = 246 \text{ mg}$  ✓ Yes

5. A 2 year old weighing 25lbs.

a. Calculate his 24hr fluid needs.

$$25 \div 2.2 = 11.4 \text{ kg}$$

$$10 \times 100 = 1000$$

$$1.4 \times 20 = 28$$

$$1028 \text{ ml} / 24 \text{ hr}$$

b. If the infant was NPO, you would need to set the IV pump at 42.8 ml/hr.

$$1028 \div 24 = 42.8$$

c. What is the range of urinary output for this child?

0.5 - 2 ml/kg/hr

$$\begin{array}{r} 11.4 \text{ kg} \\ \times 0.5 \\ \hline 5.7 \end{array} \quad \begin{array}{r} 11.4 \text{ kg} \\ \times 2 \\ \hline 22.8 \end{array}$$

5.7 - 22.8 ml/hr

For the following newborns, calculate:

- ① Estimated Weight Loss- expressed in expected grams to be lost AND the new weight in pounds and ounces
- ② Nutritional Needs for 24 hours in calories (unless otherwise stated) 110 cal/kg/day  $\rightarrow$  20 cal/oz
- ③ Fluid Maintenance Needs for 24 hours
- ④ Expected Urinary Output (range)

Show your math for all calculations.

6. Newborn weight = 2330 gms 2.3 kg

Feeding method: Isomil every 4 hours. How many ounces should the infant take per feeding?

- ①  $10\% = 233g$   $2330 - 233 = 2097g$   $\leftarrow$  New weight in grams  $2.097 \rightarrow 2.1 kg \times 2.2 = 4.62$   
 $.62 \times 16 = 9.92$   
 $\downarrow$   
 ① New Weight: 4lb 10oz
- ②  $2.3 kg \times 110 = 253 \div 20 = 12.7 \div 4 = 2.1 oz/feed$
- ③  $2.3 kg \times 100 = 230 ml \div 24 = 9.6 ml/hr$
- ④  $2.3 \times .5 = 1.15$   $2.3 \times 2 = 4.6$  1.2 - 4.6 ml/hr

7. Newborn weight = 4233 gms

Feeding method: Breastfeeding 8-12x/day.

- ①  $10\% = 423.3g$   $4233 - 423.3 = 3809.7g$   $3.8 kg \times 2.2 = 8.36$   $.36 \times 16 = 5.76$   
 $\downarrow$   
 ① 8lb 6oz
- ②  $4.2 kg \times 110 = 462 \div 20 = 23.1 oz \div 12 = 1.9 oz/feed - 2.9 oz$
- ③  $4.2 kg \times 100 = 420 ml \div 24 = 17.5 ml/hr$
- ④  $4.2 \times .5 = 2.1$   $4.2 \times 2 = 8.4$  2.1 - 8.4 ml/hr

8. Newborn weight = 8lbs 3oz  $\div 16 = 0.1875 + .19 = 8.19 \div 2.2 = 3.7 kg$  \* 3700g  
 Feeding method: Similac Advanced every 3 hours. How many calories should the infant take per feeding?

- ①  $10\% = 370g$   $3700 - 370 = 3330g$   $3.3 kg \times 2.2 = 7.26$   
 $.26 \times 16 = 4oz$   
7lb 4oz = New Weight
- ②  $3.7 kg \times 110 = 407 \div 20 = 20.4 \div 8 = 2.6 oz/feed$
- ③  $3.7 kg \times 100 = 370 \div 24 = 15.4 ml/hr$
- ④  $3.7 kg \times .5 = 1.9$   $3.7 \times 2 = 7.4$  1.9 - 7.4 ml/hr

9. Newborn weight = 3lbs 10oz  $\div 16 = .625 + 3 = 3.63 \div 2.2 = 1.7 kg$  \* 1700g  
 Feeding method: Similac NeoSure 24cal/oz q2 hours.

- ①  $10\% = 170g$   $1700 - 170 = 1530g$   $1.5 kg \times 2.2 = 3.3$   $.3 \times 16 = 4.8$   
 $\downarrow$   
 ① 3lb 5oz = New Weight
- ②  $1.7 kg \times 110 = 187 \div 20 = 9.4 \div 12 = 0.78 oz/feed$
- ③  $1.7 kg \times 100 = 170 \div 24 = 7.1 ml/hr$
- ④  $1.7 kg \times .5 = 0.85$   $1.7 kg \times 2 = 3.4$   
0.85 - 3.4 ml/hr