PEDIATRIC DOSAGE RULES MASTERY PROBLEM ANSWERS

MASTERY PROBLEM 1
The doctor orders an adult dose of Reglan 10 mg. Using the Nomogram method, calculate the dose for a child who weighs 22 lbs and is 32 inches tall.

\[
\text{Child’s BSA in M}^2 \times \text{Adult Dosage} \quad 1.73\text{M}^2
\]

\[
0.46 \text{ M}^2 \times 10\text{mg} = 4.6\text{mg} = 2.65 \text{ mg} = 2.7 \text{ mg}
\]

Because the dose is between 1 and 10 mg, you will round the answer to the nearest tenths place. Therefore, the dose for this child will be 2.7 mg of Reglan based on the Nomogram Method.

MASTERY PROBLEM 2
The doctor orders an adult dose of Ampicillin 2 g. Using the Nomogram method, calculate the dose for a child who weighs 10 lbs and is 24 inches tall.

\[
\text{Child’s BSA in M}^2 \times \text{Adult Dosage} \quad 1.73\text{M}^2
\]

\[
0.27 \text{ M}^2 \times 2000\text{mg} = 540\text{mg} = 312.14 \text{ mg} = 312 \text{ mg}
\]

Because the dose is greater than 10 mg, you will round the answer to the nearest whole number. Therefore, the dose for this child will be 312 mg of Ampicillin based on the Nomogram Method.

MASTERY PROBLEM 3
The doctor orders an adult dose of Pepcid 20 mg. Using the Nomogram method, calculate the dose for a child who weighs 16 lbs and is 28 inches tall.

\[
\text{Child’s BSA in M}^2 \times \text{Adult Dosage} \quad 1.73\text{M}^2
\]

\[
0.37 \text{ M}^2 \times 20\text{mg} = 7.4\text{mg} = 4.28 \text{ mg} = 4.3 \text{ mg}
\]

Because the dose is between 1 and 10 mg, you will round the answer to the nearest tenths place. Therefore, the dose for this child will be 4.3 mg of Pepcid based on the Nomogram Method.

MASTERY PROBLEM 4
The doctor orders an adult dose of Amoxicillin 250 mg. Use Fried’s rule to calculate the dose for a 1 year old child.

\[
\text{Pediatric dose} = \frac{\text{child’s age in months} \times \text{Adult Dose}}{150 \text{ months}}
\]

\[
\frac{12 \text{ months} \times 250 \text{ mg}}{150 \text{ months}} = 20 \text{ mg of Amoxicillin}
\]

**MASTERY PROBLEM 5**

The doctor orders an adult dose of Codeine 10 mg. Use Fried’s rule to calculate the dose for a 3 year old child.

\[
\text{Pediatric dose} = \frac{\text{child’s age in months} \times \text{Adult Dose}}{150 \text{ months}}
\]

\[
\frac{36 \text{ months} \times 10 \text{ mg}}{150 \text{ months}} = 2.4 \text{ mg of Amoxicillin}
\]

**MASTERY PROBLEM 6**

The doctor orders an adult dose of Ibuprofen 600 mg PO PRN pain. Use Young’s rule to calculate the dose for a 5 year old child.

\[
\text{Pediatric dose} = \frac{\text{Child’s age in years}}{\text{Child’s age in years} + 12} \times \text{Adult Dose}
\]

\[
\frac{5 \text{ years}}{7 \text{ years}} \times 500 \text{ mg} = \frac{5 \times 600 \text{ mg}}{17} = 176 \text{ mg}
\]

**MASTERY PROBLEM 7**

The doctor orders an adult dose of Phenergan 25 mg IV PRN nausea. Using Young’s rule, calculate the dose for a 9 year old child.

\[
\text{Pediatric dose} = \frac{\text{Child’s age in years}}{\text{Child’s age in years} + 12} \times \text{Adult Dose}
\]

\[
\frac{9 \text{ years}}{21} \times 25 \text{ mg} = \frac{9 \times 25 \text{ mg}}{21} = 10.71 \text{ mg} = 11 \text{ mg}
\]

**MASTERY PROBLEM 8**

The doctor orders an adult dose of Prednisone 10 mg PO tid. Using Clark’s rule, calculate the dose for a child weighing 42 lbs.
Pediatric dose = \frac{\text{Child's weight in lbs} \times \text{Adult Dose}}{150 \text{ lbs}}

\begin{align*}
42 \text{ lbs} \times 10 \text{ mg} & = \frac{420 \text{ mg}}{150 \text{ lbs}} = 2.8 \text{ mg} \\
\end{align*}

**MASTERY PROBLEM 9**
The doctor orders an adult dose of Benedryl 25 mg PO q 6 hr PRN itching.

Using Clark's rule, calculate the dose for a child weighing 8 lbs.

\begin{align*}
\text{Pediatric dose} & = \frac{\text{Child's weight in lbs} \times \text{Adult Dose}}{150 \text{ lbs}} \\
8 \text{ lbs} \times 25 \text{ mg} & = \frac{200 \text{ mg}}{150 \text{ lbs}} = 1.33 \text{ mg} = 1.3 \text{ mg} \\
\end{align*}

**MASTERY PROBLEM 10**
The doctor orders fluid resuscitation for a 50 lb child with 2nd and 3rd degree burns over his face and head.

Using Parkland's burn formula, calculate the fluid requirements for the first 24 hour period post burn.

\begin{align*}
\text{Fluid Requirements} & = \text{TBSA burned} \times \text{Weight (kg)} \times \frac{4 \text{ mL}}{1 \text{ kg}} \\
\text{Fluid Requirements} & = 18\% \times 22.73 \text{ kg} \times \frac{4 \text{ mL}}{1 \text{ kg}} = 18 \times 22.73 \times 4 \text{ mL} = 1636.56 \text{ mL} = 1637 \text{ mL} \\
\end{align*}

**MASTERY PROBLEM 11**
The doctor orders fluid resuscitation for a 10 lb child with 2nd degree burns to her right arm.

Using Parkland's burn formula, calculate the fluid requirements for the first 8 hours post burn.

\begin{align*}
\text{Fluid Requirements} & = \text{TBSA burned} \times \text{Weight (kg)} \times \frac{4 \text{ mL}}{1 \text{ kg}} \\
\text{Fluid Requirements} & = 9\% \times 4.55 \text{ kg} \times \frac{4 \text{ mL}}{1 \text{ kg}} = 9 \times 4.55 \times 4 \text{ mL} = 163.8 \text{ mL} = 164 \text{ mL} \\
1^{\text{st}} 8 \text{ hours} & = \frac{164 \text{ mL}}{2} = 82 \text{ mL} \\
\end{align*}
MASTERY PROBLEM 12

The doctor orders fluid resuscitation for a 21 lb child with 3rd degree burns to his left leg and left arm.

Using Parkland’s burn formula, calculate the fluid requirements for the first 24 hours post burn.

\[
\text{Fluid Requirements} = \frac{TBSA \text{ burned} (\%) \times \text{Weight (kg)} \times 4 \text{ mL (RL)}}{1 \text{ kg}}
\]

\[
\text{Fluid Requirements} = \frac{(14\% + 9\%) \times 9.55 \text{kg} \times 4 \text{ mL}}{1 \text{ kg}}
\]

\[
= 23 \times 9.55 \times 4 \text{ mL} = 878.6 \text{ mL} = 879 \text{ mL}
\]