

**SNS COLLEGE OF PHARMACY
AND HEALTH SCIENCES**

Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai

Approved by Pharmacy Council of India, New Delhi.

Coimbatore -641035



PHARMACEUTICS (BP103T)

POSOLOGY

CASE STUDY PUZZLES

Case Study Puzzle 1: Wrong Dose for the Wrong Weight

Amoxicillin for Oral Suspension, USP
125 mg per 5 mL

Directions for mixing:

1. Tap bottle until all powder flows freely.
2. Measure 7.2 mL of water (total).
3. Add approximately 1/3 of the water to powder. Replace cap; shake vigorously.
4. Add rest of water. Replace cap; shake vigorously.

Each 5 mL (1 teaspoonful) will contain amoxicillin trihydrate equivalent to 125 mg amoxicillin.

Dosage: See accompanying prescribing information.

Keep tightly closed.
Shake well before each use.
Refrigeration preferable but not required.
Date reconstituted: _____
Discard after 14 days.
Use only if inner seal is intact.
Net contents: (Equivalent to 2.5 g amoxicillin)
Store dry powder at 20° to 25°C (68° to 77°F)
(see USP Controlled Room Temperature).

Amoxicillin 500 mg TID
7-year-old child weighing 20 kg

Usual pediatric dose recommended:
20–40 mg/kg/day
in 3 divided doses

Puzzle Question:

Is the prescribed dose appropriate?

Calculate the correct dose using the **weight-based formula**.

What could be the consequences of giving this prescribed adult dose to the child?

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Case Study Puzzle 2: Geriatric Overdose Risk



An 80-year-old patient with **reduced kidney function** is prescribed the **standard adult dose** of a water-soluble antibiotic. After 48 hours, the patient develops toxicity.

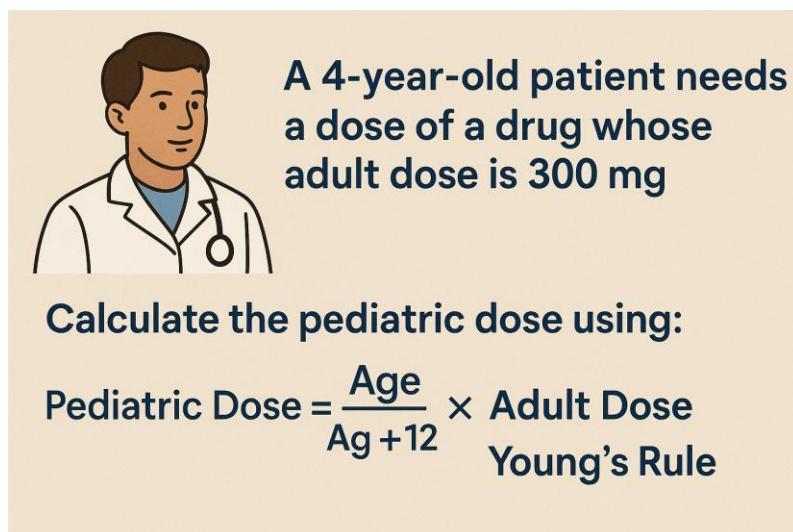
Puzzle Question:

Which **posological factors** were ignored by the prescriber?

How should the dose be modified for geriatric patients?

Explain how **renal impairment** affects dosing.

Case Study Puzzle 3: Pediatric Dose Calculation Confusion



A 4-year-old patient needs a dose of a drug whose adult dose is 300 mg

Calculate the pediatric dose using:

Pediatric Dose = $\frac{\text{Age}}{\text{Age} + 12} \times \text{Adult Dose}$

Young's Rule

- **Young's Rule**

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- **Clark's Rule** (child's weight = 15 kg, average adult weight = 70 kg)

Puzzle Question:

Why do the two rules give different results?

Which rule is more accurate in modern practice and why?

Case Study Puzzle 4: Drug Interaction Altering Dose



A patient taking Warfarin is prescribed Metronidazole. Within days, the INR increases dangerously.

Puzzle Question:

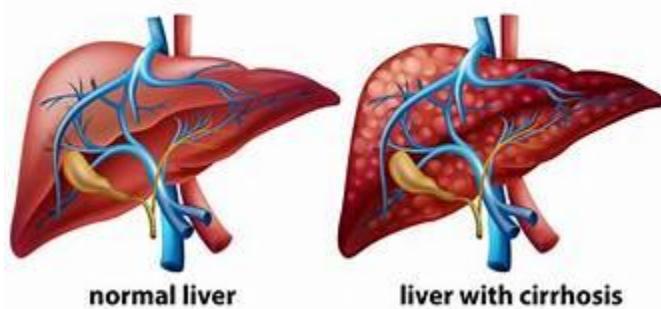
How do **drug–drug interactions** affect posology?

Why should the dose of Warfarin be reduced in this case?

Which posology principle explains the need to monitor and adjust therapy?

Case Study Puzzle 5: Dose Adjustment in Liver Disease

Cirrhosis of the Liver



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A patient with **liver cirrhosis** is prescribed a hepatically metabolized drug at a normal adult dose.

Soon, the patient develops adverse effects even at low plasma concentrations.

Puzzle Question:

Which **physiological factors** affect the dose in hepatic impairment?

How should the dose be adjusted?

What precautions should the prescriber take during therapy?