

# PHARMACOLOGY: PEDIATRIC CONSIDERATIONS



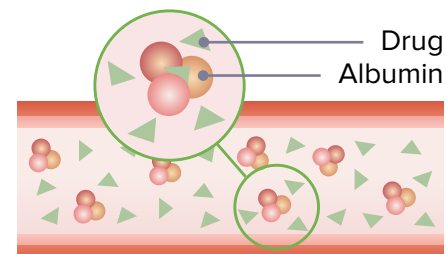
Research in pediatric populations is limited given the ethical considerations involved in conducting medical research on children.

The research we do have reveals wide variation in the pediatric response to medications compared to adults. Immature organ systems put pediatric clients at increased risk for adverse drug reactions. Response to drugs varies by age group and stage of development within the pediatric population, with the youngest clients being most sensitive to medications and most at risk of adverse effects.

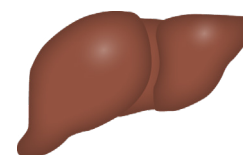
## Pediatric Age Groups

Pre-natal	Post-natal	
< 36 weeks gestational age	First 4 postnatal weeks	Year 1–12
Premature infants	Neonates	Children
36–40 weeks gestational age	Weeks 5–12	Year 12–16
Full-term infant	Infants	Adolescents

## Pediatric Pharmacokinetic Variations

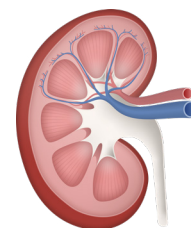


**Limited protein-binding capacity:**  
high free drug concentration

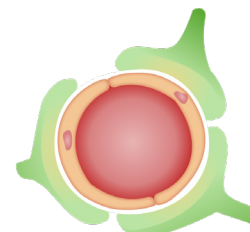


**Immature liver:**

- Reduced hepatic metabolism in neonates/infants
- Faster metabolism than adults in children



**Immature kidneys:**  
reduced renal excretion



**Underdeveloped blood–brain barrier:**  
increased sensitivity to CNS medications

### Medications to Avoid in Pediatric Clients

- **Aspirin**  
(Reye's syndrome)
- **Glucocorticoids**  
(growth suppression)
- **Antibiotics:**
  - **Chloramphenicol**  
(Gray syndrome (neonates/infants))
  - **Tetracyclines**  
(staining of teeth)
  - **Fluoroquinolones**  
(tendon rupture)

### Nursing Considerations

- Pediatric drug doses are typically individualized based on weight.
- Calculate dosage carefully and validate calculations with a second nurse per facility protocol.
- Be aware of fluid volume balance and risk of volume overload when administering IV medications to pediatric clients.
- Be aware of choking hazards when administering oral medications to children.
- Build trust with client and family.
- Educate family members on safe home medication administration.

## NOTES

