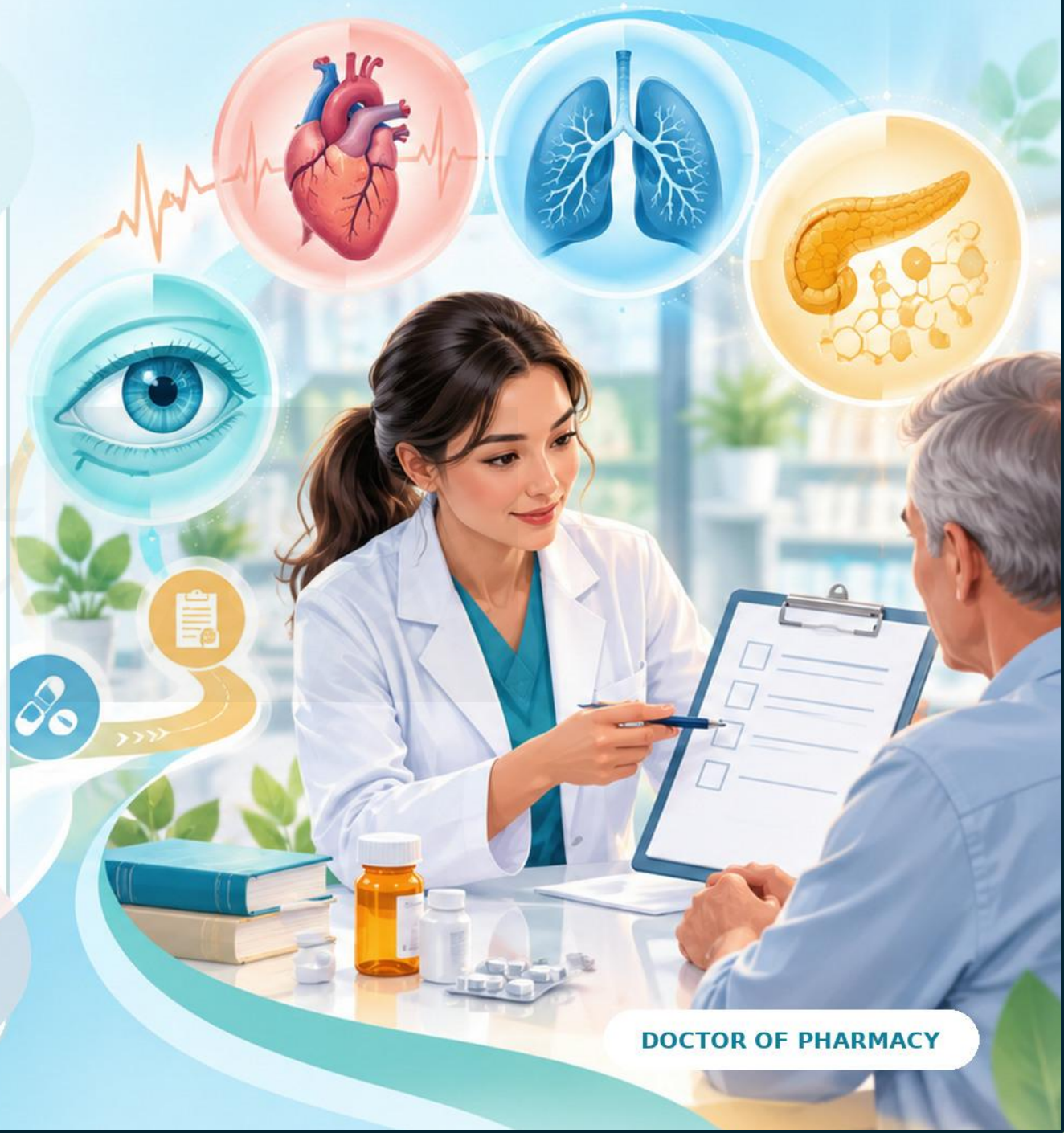
PHARM.D • YEAR 2

Pharmacotherapeutics

CHAPTER 3

General Prescribing Guidelines for Paediatric, Geriatric, Pregnant and Breastfeeding Patients

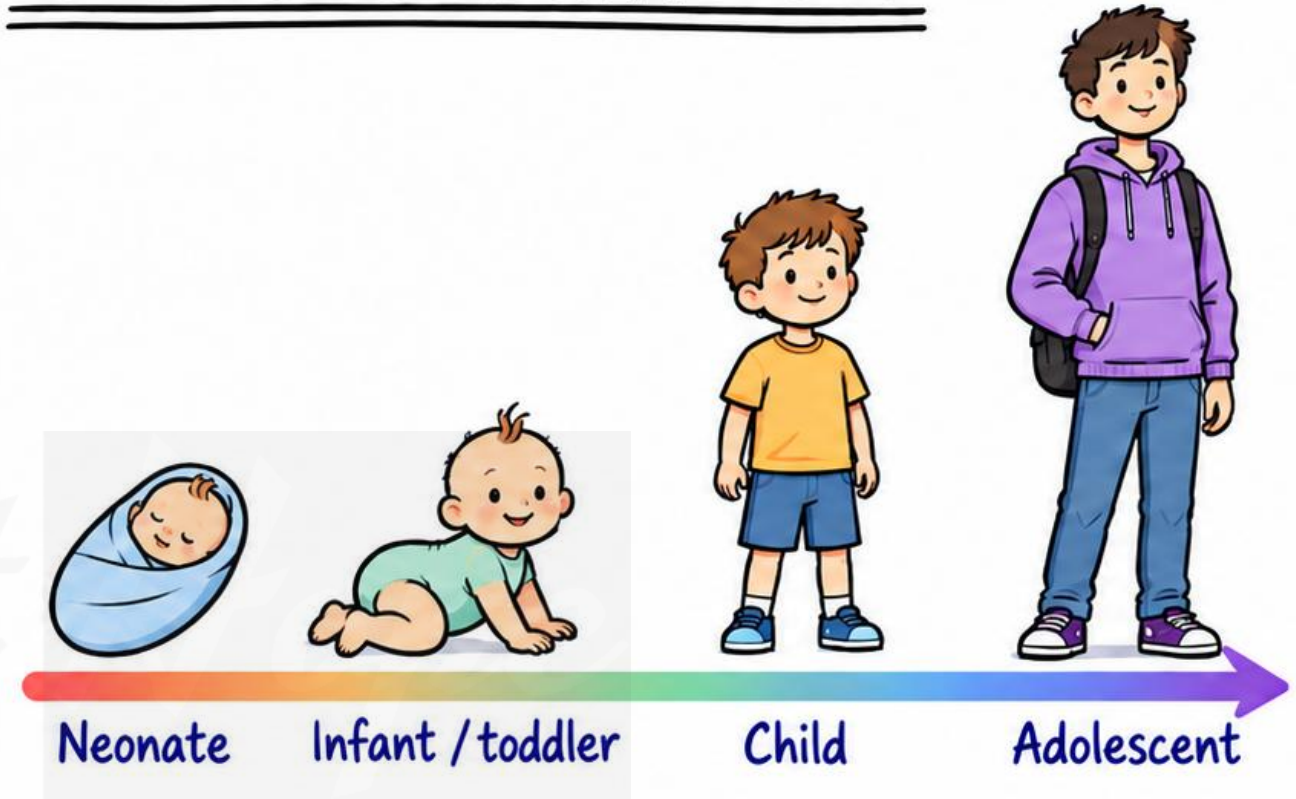
PPT CHAPTER COVER



DOCTOR OF PHARMACY

Paediatric prescribing: children are different

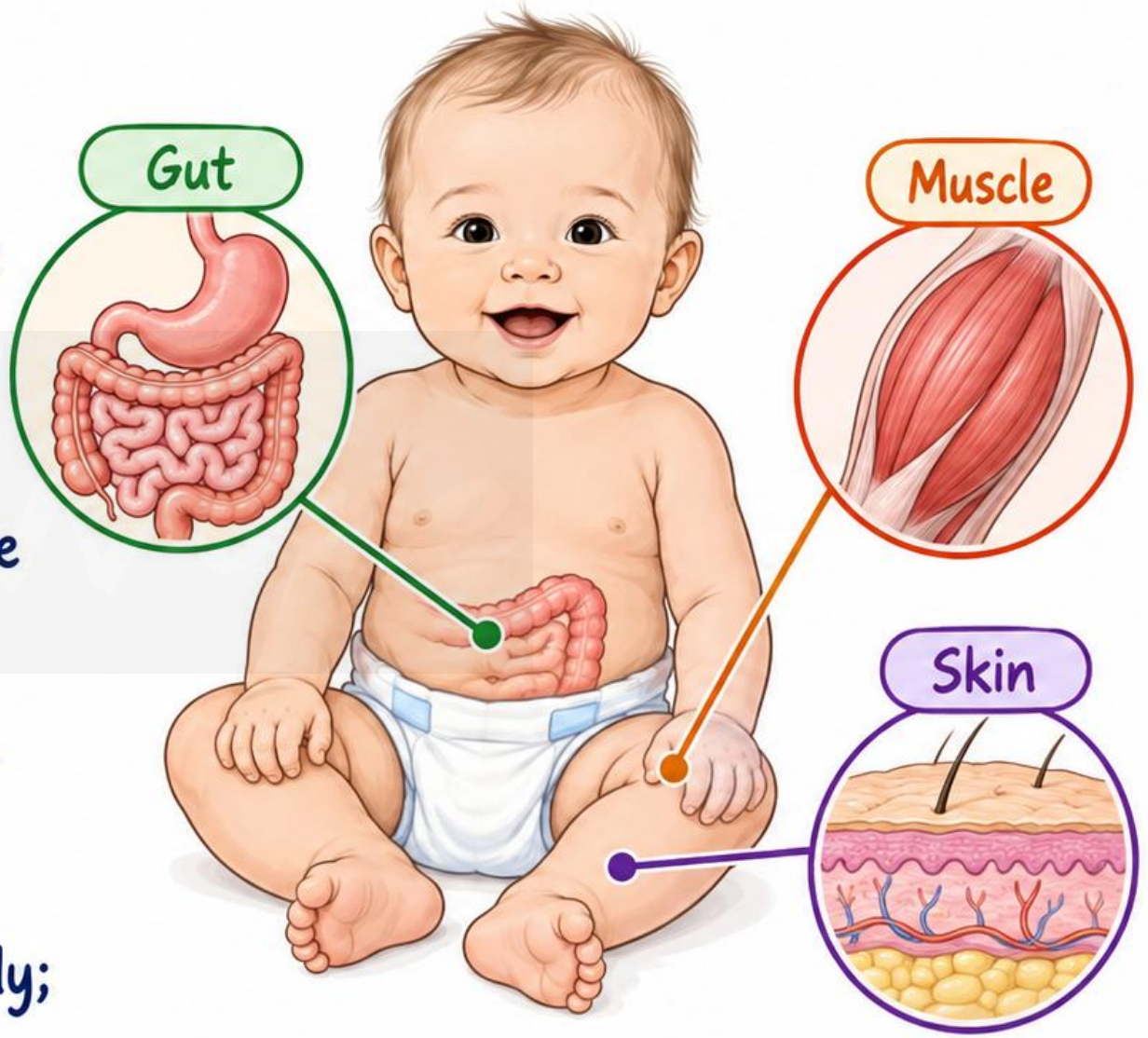
- Children are not simply small adults; growth changes medicine handling and response.
- Consider gestational age, postnatal age, weight, organ maturity and the clinical condition.
- Neonates, infants, children and adolescents have different developmental needs.
- Choose a medicine with evidence for the indication and age group whenever possible.
- Off-label use may be clinically justified, but requires reliable evidence, appropriate consent and monitoring.
- A suitable formulation, accurate measuring device and caregiver understanding are essential.
- Reassess doses as the child grows or organ function changes.



Dose from a validated paediatric regimen — never a fixed adult-dose fraction.

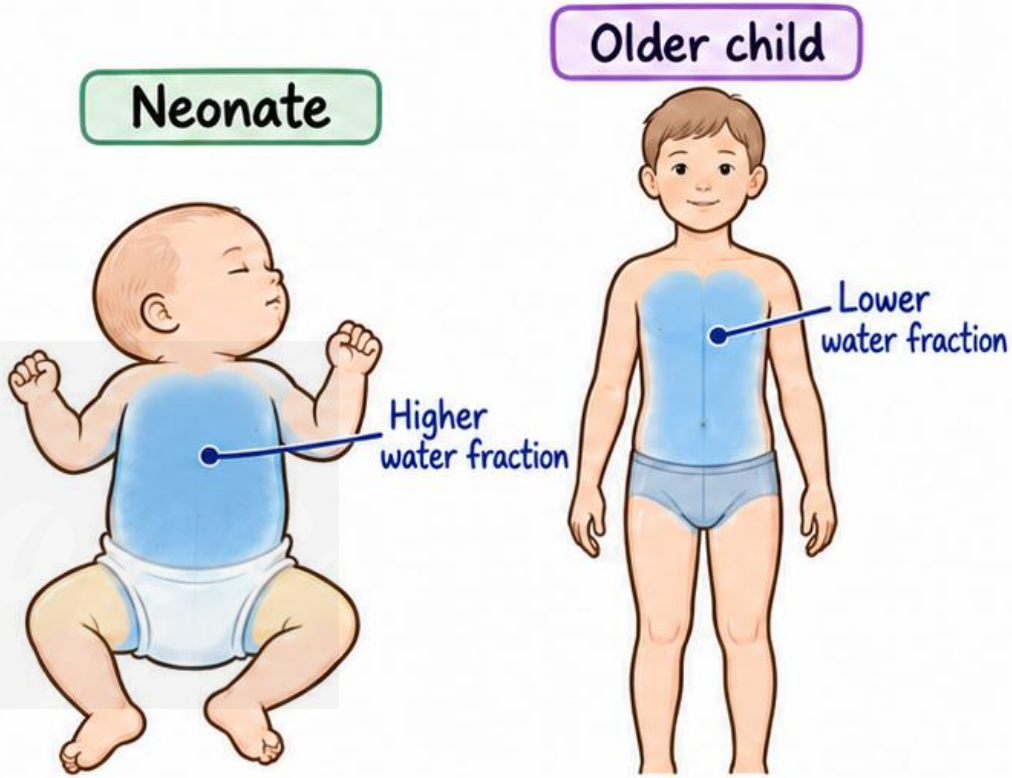
Paediatric pharmacokinetics: absorption

- Gastric pH, emptying, intestinal motility and feeding patterns change during development.
- These changes can alter the rate or extent of oral absorption in a drug-specific way.
- Vomiting, diarrhoea and illness can make oral delivery unreliable.
- Intramuscular absorption varies with muscle mass and perfusion, especially in small or critically ill infants.
- Thin skin and a large surface-area-to-body-mass ratio can increase systemic exposure to topical medicines.
- Consider the route and formulation carefully; "topical" does not always mean free from systemic effects.

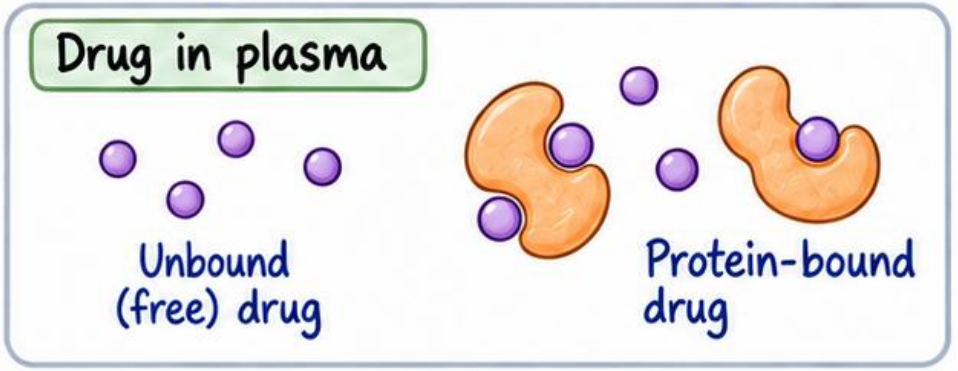


Paediatric pharmacokinetics: distribution

- Body-water and fat proportions change with age and affect apparent volume of distribution.
- Neonates have relatively more body water, which can influence dosing of water-soluble medicines.
- Protein binding may be reduced or altered; the unbound fraction can therefore differ.
- Illness, jaundice and other medicines can change binding and toxicity risk.
- Distribution is drug-specific; neither total plasma concentration nor an adult dose fraction tells the whole story.
- Loading-dose requirements and maintenance dosing solve different problems and should not be confused.

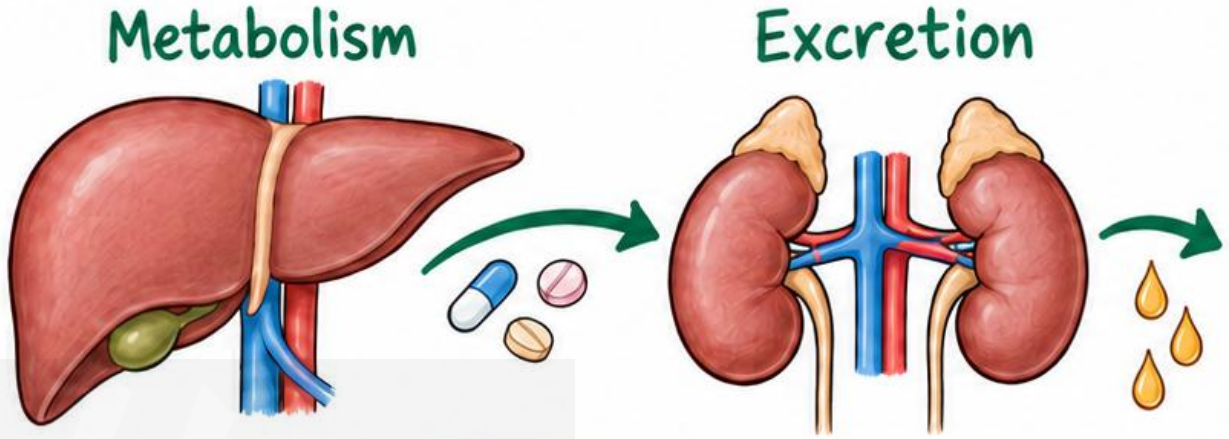


Body composition varies with age.



Paediatric pharmacokinetics: clearance

- Hepatic enzyme systems mature at different rates, so metabolism varies by drug and developmental stage.
- Some neonates clear medicines slowly; some older children clear particular medicines faster per kilogram than adults.
- Glomerular filtration and tubular function develop after birth and are affected by illness.
- Renal impairment can increase exposure to renally eliminated medicines.
- Use age-appropriate dosing evidence, renal assessment and therapeutic drug monitoring when indicated.
- Do not assume all liver and kidney functions become fully adult at one exact birthday.



Maturation is not identical for every pathway.



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