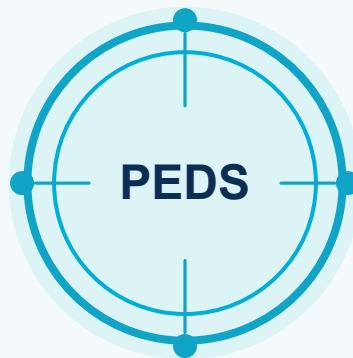


PEDIATRICS

NURSING STUDY NOTES

Pediatrics nursing bundle



PRINTABLE PDF

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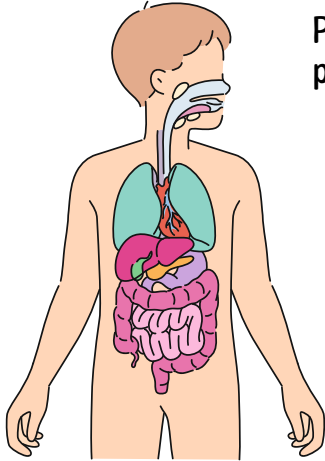
STUDY ANYWHERE

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PEDIATRIC PHYSIOLOGY



Pediatric physiology has key differences when compared to adult physiology & comes with increased risks for disorders such as:

- ① Airway obstruction
- ② Infection
- ③ Hypothermia
- ④ Dehydration
- ⑤ Hypoglycemia
- ⑥ Injury

Important to keep in mind when using critical thinking & remember to always prioritize **ABC's** !

(airway, breathing, circulation)



CNS

- Brain & nervous system begin to develop at 6 weeks
- Incomplete myelination at birth
- Myelination occurs in head to tail direction (Cephalocaudal)
- Vision not fully developed until 3-5 years old



RESPIRATORY

- Infants are obligatory nasal breathers
- Smaller, shorter airways
 - ▶ More susceptible to airway obstruction
- Tongue larger in proportion to mouth
 - ▶ Can obstruct airway when unconscious
- ↑ Metabolic rate & ↑ O₂ requirements
- Poorly developed intercostal muscles (tire quickly)



CARDIOVASCULAR

- Larger heart in relation to body size
- ↑ HR & ↑ CO
- ↑ SA & ↑ fluid loss through evaporation
 - ▶ Require more fluids to maintain circulatory volume
- Small veins + ↑ SQ tissue (IV access can be difficult)
- ↑ Metabolic rate = ↑ cardiac workload



RENAL

- ↓ GFR
- ↓ ability to concentrate urine
 - ▶ ↑ risk of dehydration
- Immature tubular function
 - ▶ ↑ risk of hyponatremia



GASTROINTESTINAL

- ↑ glucose requirements + poor glucose storage
 - ▶ ↑ risk of hypoglycemia
- Larger colon in relation to body size
 - ▶ ↑ fluid loss
- Cylindrical-shaped abdomen
 - ▶ Less protection for vital organs



SKIN

- Blood vessels closer to skin's surface
 - ▶ Lose heat easily
- Epidermis 20-30% thinner than adults
- Cells and collagen fibers are smaller and thinner
 - ▶ More susceptible to dry skin



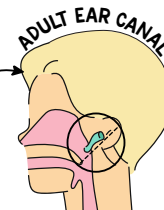
IMMUNE

- Immature immune system
 - ▶ ↑ risk of infection
- ↓ inflammatory response
- Limited exposure to diseases (lose immunity from maternal antibodies)



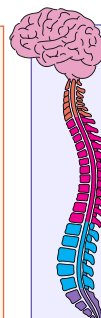
EARS

- Eustachian tubes are wide, short & flat
 - ▶ Makes drainage difficult (fluid stays stagnant) & harbors bacteria
- **↑ RISK OF EAR INFECTION**



MUSCULOSKELETAL

- ↓ muscle tone & coordination
- Bones soft until puberty
 - ▶ Serious injuries can occur without fractures
- Growth plates between middle & end of long bones
 - ▶ If fractured require special attention
- Infants born with more bones than adults (bones fuse together as they grow)



HEAD, BRAIN & SPINAL CORD

- Thinner cranial bones (↑ risk of hemorrhage)
- Temperature regulation not well developed (↑ risk of hypothermia)
- Spine is highly mobile (↑ risk of cervical spine injury)
- Incomplete motor development (↑ risk of falls)
- Larger head-to-body ratio (more susceptible to head injuries)

PEDIATRIC CPR

1 CHECK RESPONSIVENESS

Infant <1 year old: Flick bottom of foot
Child >1 year old: "Hey hey are you okay?"

2 CALL FOR HELP

- Shout for nearby help/ activate emergency response
- Delegate someone to call 911 & get AED

3 CHECK PULSE & BREATHING (SIMULTANEOUSLY)

Infant <1 year old: Check brachial
Child >1 year old: Check carotid
Breathing: Gaspings or apnea **not** normal

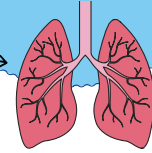
**NO MORE THAN
10 SECOND
ASSESSMENT!**

4 INITIATE CHEST COMPRESSIONS

- Remove clothes to visualize chest if possible
- 2 minutes of CPR (before retrieving AED)
- Rate 100-120 compressions/minute
- Allow for full chest recoil between compressions

Primary cardiac arrest is very rare in infants & children
 Commonly stems from **RESPIRATORY CAUSE**

RESCUE-BREATHING IS VERY IMPORTANT!



HAND PLACEMENT

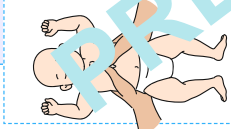
INFANT

Use 2 fingers or 2 thumbs on the sternum
(TWO FINGER TECHNIQUE)

TWO FINGER TECHNIQUE

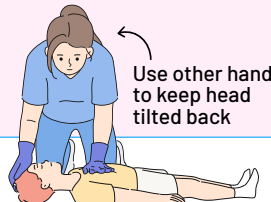


TWO THUMB TECHNIQUE



SMALL CHILD

Use heel of one hand on the sternum
(ONE HAND TECHNIQUE)



LARGER CHILD

Use two heels of hands on the sternum (same as adults)



RESCUE BREATHING

INFANT

- Cover infants mouth and nose with airtight seal
- Watch for chest rise

Infants have *much* smaller lungs so require less than a full breath to fill them

SINGLE RESCUER

30:2
 Compression-to-breath ratio

TWO RESCUERS

15:2
 Compression-to-breath ratio

SMALL & LARGER CHILDREN

- Head-tilt/ chin lift method
- Watch for chest rise

AED PAD PLACEMENT

USE AED AS SOON AS IT ARRIVES

INFANT <1 YEAR OLD

Manual defibrillation recommended

- 1 pediatric pad on chest
- 1 pediatric pad on back

CHILD 1-8 YEARS OLD

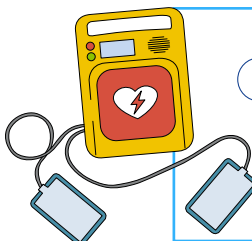
If pediatric pads not available:

- 1 adult pad on chest
- 1 adult pad on back

CHILD >8 YEARS OLD

Placement same as adults

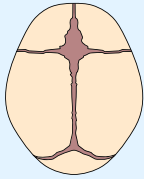
- 1 pad high right
- 1 pad low left



PEDIATRIC MILESTONES

INFANT

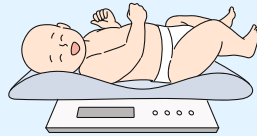
FONTANELLES



ANTERIOR FONTANEL
Closes by 18 months

POSTERIOR FONTANEL
Closes by 2 months

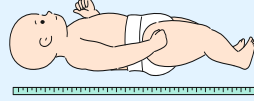
WEIGHT



6 MONTHS
Doubles from birth weight

12 MONTHS
Triplies from birth weight

LENGTH



Grows **1/2–1 INCH** every month until 6 months

Grows **50%** by 12 months

TEETH



Lower central incisors erupt around **10 MONTHS** (first teeth to grow)

	GROSS MOTOR	FINE MOTOR	LANGUAGE	SOCIAL/ COGNITIVE
1 MONTH	→ Attempts to hold head up in prone position → Turns head side to side	Fisted hands	Cries when hungry or upset	→ Looks at parent's face when speaking → Develops recognition between different parent's voices
2–3 MONTHS	→ Able to maintain head upright → Smoother movements of extremities 	→ Smiles → Grasp reflex 	→ Cooing and gurgling sounds → Turns head towards sound	Smiles at people as response mechanism
4–5 MONTHS	→ Rolls tummy to back → Sits with up or → Head leads body when pulled to sit	→ Palmar grasp → Brings hands to mouth → Reaches for objects	→ Laughs → Babbles → Copies sounds heard 	→ Cries when playing stops → Copies smiling expression → Calmed by parent's voices
6–9 MONTHS	→ Sits unsupported → Tripod sits → Rolls in both directions → Crawling 	→ Moves objects from one hand to another → Rakes object with whole hand → Object permanence	→ Responds to own name → Strings vowels together → Starts to say consonants	→ Stranger anxiety → Responds to emotions of others
10–12 MONTHS	→ Pulls to stand → Walks with assistance 	→ Mature pincer grasp → Offers objects to others	→ Simple words like "mama" & "dada" → Understands "no"	→ Plays peek-a-boo → Starts to understand cause & effect