



PICU OVERVIEW

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Overview

- Ventilation Strategies
- Problems
- Airway & ET tube security
- Alarms & problems
- Sedation & Analgesia
- Fluids
- Care & Family

Paediatric Ventilation Strategies

Pressure controlled ventilation

- Most used method in paediatrics
- 14-18 cm H₂O will achieve a normal tidal volume (normal lungs)
- Tidal volume range similar to adults 6-8mls/kg. Avoid tidal volumes >10mls/kg
- On PICU insp pressure can be up to 24 cm H₂O any higher may indicate significant lung disease
- Pressure >30 cm H₂O = risk of barotrauma consider HFOV
- PEEP always used, start 4-6 cm H₂O can go up to 10

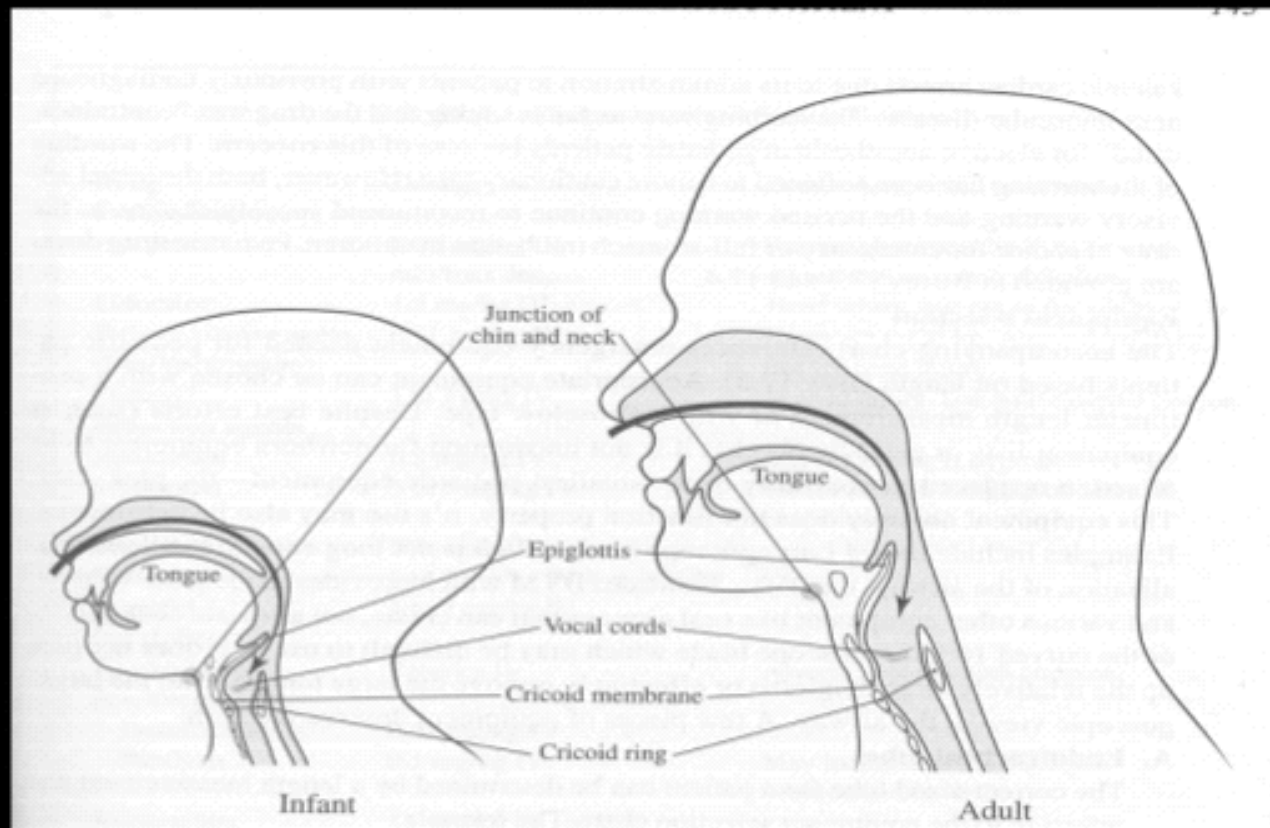
Volume controlled ventilation

- Less commonly used in paediatrics – except when adequate ventilation difficult to achieve
- Use volume of 6 – 8 ml/kg as the tidal volume
- Also measure the minute volume – tidal volume x rate
- Most children will have pressure and a volume cap/alarm set.

Problems ?

- ? tube blocked- suction regularly with +/- saline
- ?tube kinked
- ? tube moved proximally increasing the leak
- ? tube moved distally to the carina or down the R main bronchus
- ? Patient fighting ventilator/ splinting chest
- ? Pneumothorax

Pediatric vs Adult Airway Anatomy



Securing an Endotracheal Tube



Sedation & Analgesia



- All ventilated children and infants will need sedation & analgesia
- Some will require muscle relaxants, Why?
- To provide comfort & tolerance
- Analgesia
- Fear
- Amnesia
- Maintain sleep patterns

IVI Agents Used

- Usually Morphine & Midazolam
- Give a bolus to start then titrate to effect.
- Propofol- Not used as infusion for children, may be used for anaesthetic induction
- Others available according to guidelines

Muscle Relaxants

- For intubation
- During stabilisation
- Used for transfer
- Raised ICP
- Always ensure adequate sedation & analgesia
- Refer to guidelines & Embrace drug chart

Fluid Management

- Usually restricted to 80% Maintenance
- Calculated according to child's weight
- Maintain adequate urine output according to weight
- May need diuretics

Consider The Child

- Communication / reassurance
- Parents
- Comforters
- Warmth
- Nasal ETT
- Toys / music
- Remember simple analgesics e.g Paracetamol

Practical care

- Regular ETT suction
- Keep ETT tapes clean
- Turn regularly – lung drainage and comfort
- Hygiene care
- Hydration/nutrition and fluid balance
- Drugs – sedation, antibiotics, diuretics
- Monitoring and recording
- Family



More Information

Operational Policies & Clinical Guidelines
for
Referral & Care of Critically ill Children
within
Yorkshire & Humber

<https://www.networks.nhs.uk/nhs-networks/yorkshire-humber-paediatric-critical-care-odn>

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