EPIC4Kids Algorithm: For Children

Any Suspicion of TBI (Mechanism, GCS, Exam)

Automatically: 15 L/min O₂ NRB, IV Access q3-5 min: Monitor O₂, BP, HR

Airway/Breathing

O₂ sat <90 &/or hypoventilation (despite NRB)

- BLS airway maneuvers
  - BVM *

Circulation

Hypotension** or other signs of shock

- Continue careful monitoring of O₂ sat and airway
  - No
  - Yes

Disability

Evaluate Mental Status/GCS

- Yes
  - -20ml/kg bolus NS
  - -Repeat until hypotension resolves

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Consider ALS airway if experienced provider available:

- Place advanced airway:
  - Pre-oxygenate: BVM with 100% O₂ @ age-appropriate rate *
  - Check placement using ETCO₂ monitor/detector
  - AVOID even MILD hyperventilation with Ventilation Rate Timer and Pressure-controlled Bag:
    - Carefully keep rate @ age-appropriate rate *
    - ETCO₂ available: Target ETCO₂ 40 mmHg (range: 35-45)
  - Control Ventilatory volume:
    - Ventilator available: utilize as soon as possible
    - Tidal volume = 7 cc/kg
    - Ventilator not available: Continue Pressure-controlled BVM
  - Monitor: O₂ sat and airway every 3-5 minutes:
    - If O₂ sat <90mmHg despite above interventions, consider:
      - Tension pneumothorax & needle thoracostomy

* Ventilation Rates:
  - Infants: (0-24 mo.):
    - 25 breaths/min (bpm)
  - Children: (2-14 yrs):
    - 20 bpm
  - Adolescents: (15-17 yrs):
    - 10 bpm (same as adults)

** Identifying Hypotension in children

- 0-9 yrs: 70 + (age x 2)
- ≥10 yrs: <90mmHg

- Rules of thumb:
  - Newborn: <70mmHg
  - 5 year old: <80mmHg
  - 10 and older: <90mmHg → (Same as adults)

NOTE: NO ONE (not even Respiratory Therapists) can manually ventilate at the proper rate without ventilatory adjuncts (EVERYONE inadvertently hyperventilates unless meticulously preventing it):

- Ventilation Rate timers
- Pressure-controlled bags
- ETCO₂ monitoring with someone watching the level continuously
- Mechanical ventilator with careful ETCO₂ monitoring