Breathing (and Airway) Emergencies in Children

Listen for:

- GRUNTING
- STRIDOR
    - **Harsh + barking cough** >> **5 mL nebuliser adrenaline 1:1000**
        - **Prednisolone**
        - Admit
    - Soft + flushed/unwell >> ? Epiglottitis >> Ambulance
    - Sudden onset >> ? **Inhaled FB**
- WHEEZE (insp. & exp.) >>
    - rapid onset >> ? **Anaphylaxis** >> **0.01 mL/kg adrenaline 1:000**
    - **Asthma** >>
    - Pneumonia
- GURGLING >> clear secretions
- BREATH SOUNDS
    - acidotic >> ? DKA >> **IVF**
    - Silent >> ? Severe Asthma
        - Limited speech
        - PP > 25 mmHg
        - PR > 110 (adults)
        - RR > 30 (adults)
        - SaO2 < 91%

Look for:

- mental status
- pallor
- accessory muscle use
- recession
- flaring
- chest expansion
- abdominal excursion
- disorientation / confusion / exhaustion >> **BVM ventilation**
    - Consider intubation

Monitor for: HR / SaO_2

Manage for: ASTHMA

- Patient self-positions: usually sit up (small child on parent's lap)
- Reassure
- Check airway
- High flow O_2
- Nebuliser **salbutamol 5 mg** + **Ipratroprium 0.5 mg** (driven by oxygen supply)
- Assess circulation: PR, BP, CRT
- Cardiac monitor (if available)
- IVC
- Oral (or IV) steroids
    - **Hydrocortisone 2-4 mg/kg IV**
    - Prednisolone

- Reassess:
    - no improvement>> repeat nebulised salbutamol 5 mg
- life threatening >> **IV salbutamol 5 mcg/kg over 10 minutes**
    - 5-20 mcg/kg/hr (watch for hypokalaemia)
- Silent chest / cyanosis / bradycardia / exhausted / PEFR < 30% = imminent arrest
    - **0.1 ml/kg adrenaline 1:10,000 IVI over 5 minutes** (push dose beta-agonist)
        - If stuck can give IMI q 5 min in child
    - 0.01 ml/kg adrenaline 1:1000 IMI in adult
- Call for help
    - Watch for complications
        - PTX, pneumomediastinum /pneumopericardium, subcutaneous emphysema
        - Mucus plugging / atelectasis
        - Lactic acidosis
        - Myocardial infarction
        - Anoxic brain damage
        - Electrolyte disturbance

Manage for: BRONCHIOLITIS

- Position (may prefer sitting on parent's lap)
- Check airway
- **High flow oxygen** (mask / NP)
- Assess breathing / severity of respiratory distress
- Assess circulation: PR, BP, CRT >> +/- IVC (dehydrated / unable to feed)
    - **75% maintenance**
- SaO_2
- Cardiac monitor
- Minimal handling
- Admit for:
    - h/o apnoea
    - Known congenital heard disease (esp. L > R shunt)
    - Chronologically < 6 weeks old, significant prematurity (< 32/40), chronic neonatal lung disease
    - Severe respiratory distress / apnoea
    - Significant dehydration
    - Hypoxaemia SaO2 < 93%
    - Re-presentation < 24 hours
    - Uncertain diagnosis

Manage for: CROUP

- Self-positions
- Reassure
- Check airway
- High-flow oxygen (if tolerated)
- Nebulised adrenaline 5 ml 1:1000 (improvement for 30-60 minutes)
- Assess circulation: PR, BP, CRT
- SaO_2
- Cardiac monitor
- PO / IMI Dexamethasone 0.15 mg/kg (or PO prednisolone 1 mg/kg)
- Admit if stridor at rest or needed adrenaline
- If no improvement after nebulised adrenaline, consider:

    - Bacterial tracheitis or epiglottitis (toxic child)
    - Foreign body!
    - Retropharyngeal abscess
    - Hereditary angioedema
- < 5% will require intubation for impending respiratory failure
    - Change in mental state
    - Fatigue
    - Listlessness or decreased reactions
    - Pallor or dusky appearance
    - Decreased breath sounds with decreasing stridor

Manage for: EPIGLOTTITIS

- Consider nebulised adrenaline if unsure if croup
- Consider surgical airway if inexperienced with difficult intubation
    - **Needle cricothyroidotomy**
        - **Surgical cricothyroidotomy**
- IVC >> blood cultures
    - **Ceftriaxone / cefotaxime 50 mg/kg** (max 2 g)
    - Normal saline bonus 20 ml/kg (if shocked)
    - Check glucometer >> **10% Dextrose** (if BGL < 3)
- Arrange transfer

Reference/s

Rural Emergency Skills Training, 5th Edition (2018), Australian College of Rural and Remote Medicine