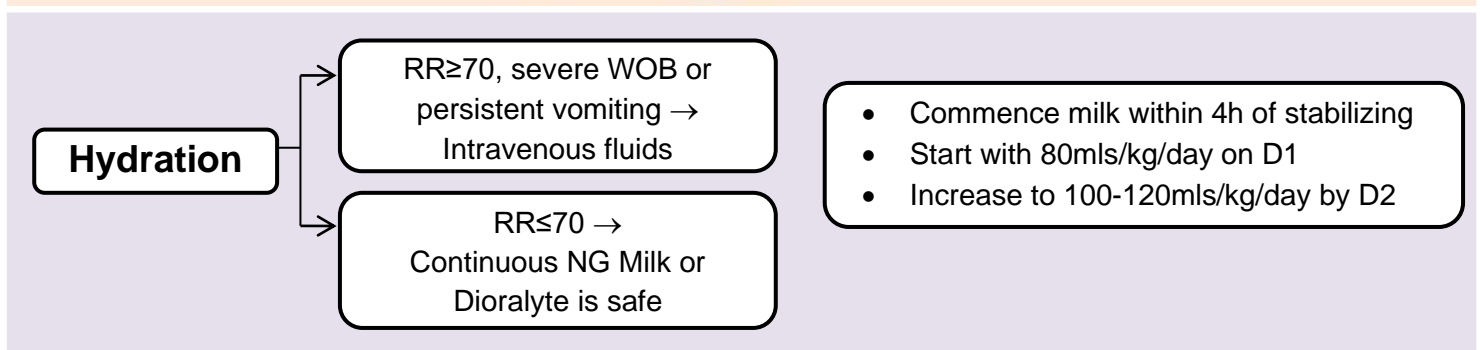
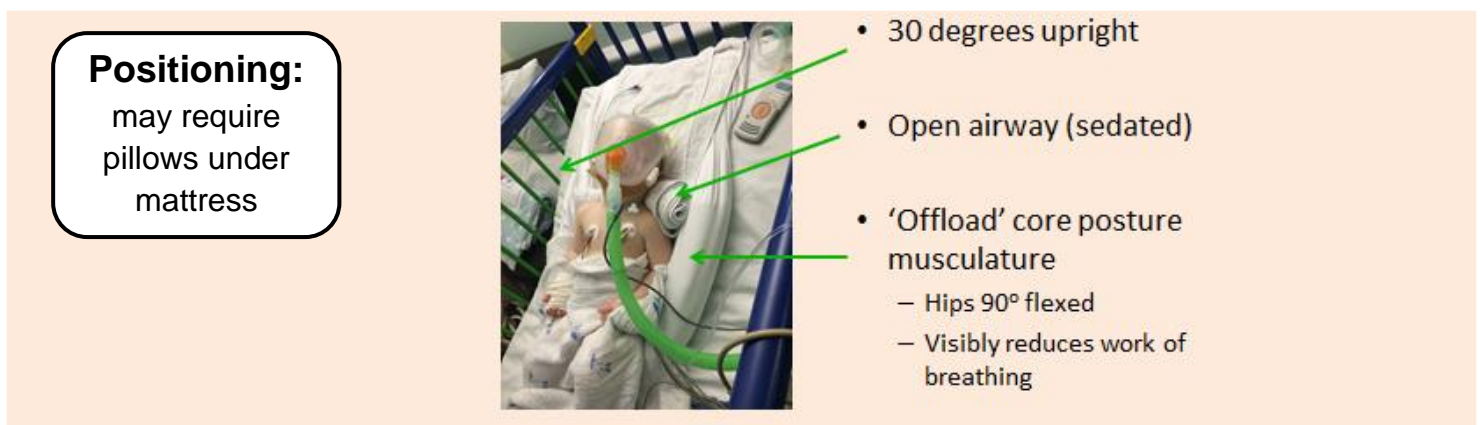
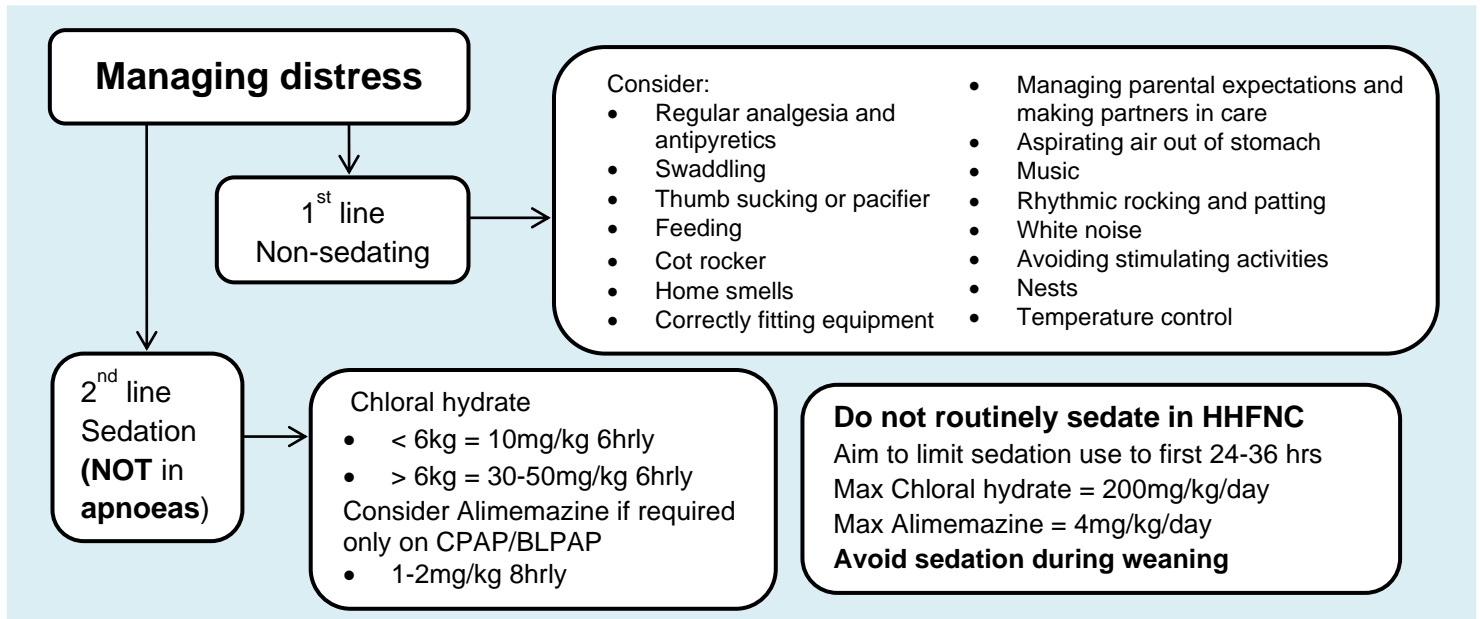


Bronchiolitis management on the Paediatric Critical Care Unit (PCCU aka HDU)

Author: K Patel, O Rahman, M Lazner, N Howley, D Phillips, C Chadwick
 Approved by: UHSussex Medicines Governance Committee Feb 2022
 Publication date / version: October 2022. Version 1
 Review date: October 2024

See also: *Bronchiolitis guideline on Brighton microguide*



CXR and cap gas:

- Before starting CPAP or BLPAP
- Required for HFNC if FiO₂ >50% for >4hr and sats 92-97%

Antibiotics:

Consider Abx only if FiO₂ >50% with sats 92-97% for > 4 hrs on CPAP/BLPAP

Use 'community acquired pneumonia' guideline for antibiotic choice

NIV recommendations

High flow nasal cannula (HFNC)

- See Brighton / STPN guidelines on Microguide
- Routine use of 3L/kg/min not recommended, but selected patients may benefit.

BLPAP

- Consider following initial settings
 - 12/7 (max 16/8)
 - Rise time 1
 - Insp trigger 1-2
 - Exp trigger 3-4
 - Min insp time 0.3
 - Max insp time 0.5
- Aim to trigger >80% breathes
- Aim for leak 20-30 l/min. Higher leak acceptable if there is synchrony

CPAP

- See Brighton / STPN guidelines on Microguide
- Treatment pressure is 7cm H₂O
- Wean pressure = 5cm H₂O

Delivery device options:

- Under 3.5 kg = SiPAP / Hamilton C1
- Over 3.5 kg = Vivo 65 / Hamilton C1

Interface recommendations:

- Under 3.5 kg = can use nasal mask +/- dummy or thumb sucking
- Over 3.5 kg = can use total face mask (smallest = XXS size)

O₂ sats:

Aim 94-97% - in order to calculate accurate S/F ratio

Criteria for physiotherapy on Resp Support:

- Clinical evidence (significantly asymmetric air entry) or radiological evidence of atelectasis
- Children with a reduced cough:
 - Secondary to heavy sedation
 - ≥200mg/kg/day Chloral hydrate
 - ≥3mg/kg/day Alimemazine
 - Secondary to neuromuscular disorder

Weaning from NIV

- Start weaning when FiO₂ < 0.4
- HFNC wean by 1L/kg every 4 hours. Min 1L/kg
- CPAP / BLPAP wean 1–2 cm H₂O every 4 – 8 hours. CPAP min 5. BLPAP min 12/6.
- Wean to CPAP or HFNC from BLPAP

Discharge criteria from PCCU:

- No more than mild to moderate WOB
- beyond D4 bronchiolitis
- > 4hrs off NIV
- feeding > 50%
- O₂ sats > 4 hours including period of sleep:
 - > **90%** for babies aged ≥ 6 weeks
 - > **92%** for babies aged < 6 weeks or underlying health condition

Is NIV effective?

NIV effective if...

- RR ↓10%, HR ↓10% and ↓WOB within 6hrs
- Improving S/F ratio

Consider NIV failure if...

- Unmanageable discomfort within the first hour (can trial switch CPAP→ HFNC)
- S/F ratio < 220 with pARDS* or S/F ratio <180 without pARDS* within 1-24hrs
- Persistent severe WOB >4 hrs
- Excessive &/ or thick airway secretions that are difficult to manage
- pH <7.3 at 8hrs on NIV
- **NB persistent apnoeas requires intubation**

***pARDS**

Manifests as pulmonary inflammation, alveolar oedema, and hypoxemic respiratory failure.

Diagnose using criteria in table:

Age	Exclude patients with perinatal-related lung disease	
Timing	Within 7d of known clinical insult	
Origin of oedema	Respiratory failure not fully explained by cardiac failure or fluid overload.	
Chest imaging	Chest imaging findings of new infiltrates consistent with acute pulmonary parenchymal disease	
Oxygenation	CPAP ≥5cm H ₂ O S/F ratio ≤264	S/F ratio = oxygen saturations / FIO ₂ e.g. 85 / 0.8 = 106
If chronic lung disease	Standard criteria above for age, timing, and origin of oedema with chest imaging consistent with new infiltrate and acute deterioration in oxygenation from baseline that meet oxygenation criteria above.	