NETS WA
Newborn Emergency Transport Service

Bronchiolitis / Viral Respiratory Tract Infections

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NETS WA

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

Aim

To describe the standardised approach to assessment of respiratory status and management of viral infections of the respiratory tract presenting as respiratory distress.

Risk

Delays in recognition and/or management can place neonates at increased risk of deterioration and adverse events.

Key Points

- If the infant is to be retrieved by NETS, the NETS consultant will be the decision maker and remain in charge of all aspects of the retrieval and will provide advice to the referring and retrieval team. The on-call paediatric critical care (PCC)/ Emergency Department (ED) and other subspecialty consultants will be conferenced into the call to provide additional advice as needed.
- For infants outside of 3B admission criteria admission will be ED or PCC:
    - Ventilated infants will be a Direct Admission to PCC on arrival at PCH and therefore need to be accepted by the PCC consultant prior to arrival. Handover (ISOBAR) is to take place between the NETS team and PCC on arrival to PCC.
    - Infants on nasal CPAP will be either directly admitted to PCC or be taken to ED for further assessment regarding removing CPAP. Handover (ISOBAR)

is to take place between the NETS team and PCC/ED Consultant on arrival at ED.

Background

Viral infections of the lower respiratory tract manifest as respiratory distress (and apnoea, especially in the young infant). It is a clinical diagnosis based on typical history and examination findings. For PPE and Management of the Neonate with Suspected Respiratory Viral Infection in the Neonatology Unit refer to Neonatal Viral Infections (health.wa.gov.au)

High risk infants

- Preterm infants
- < 3 months of age at presentation
- Chronic lung disease
- Haemodynamically significant cardiac disease
- Neuromuscular disease
- Immunodeficiency
- Trisomy 21
- Aboriginal and Torres Strait islander population

Investigations

- NPA for respiratory viruses
- Capillary blood gases
- Blood glucose and electrolytes
- CXR
- Septic screen (FBC, CRP, Blood culture), if suspected sepsis (eg, pyrexia >38°C, worsening respiratory distress needing escalation of respiratory support)

Airway & Breathing Assessment

It is better to avoid intubation, if possible, as it often results in hemodynamic instability and difficult ventilation. Intubation and ventilation only after discussion with the on-call NETS consultant. If the infant's transfer destination is PCC, please include in the conference call the PCC on-call consultant to discuss.

Relative indications for intubation

- Persistent apnoea despite maximum non-invasive ventilation
- Severe WOB despite CPAP support and at risk of respiratory arrest
- High O2 requirement. FiO2>60% to keep saturation >90%
- Impending respiratory failure / exhaustion / low state of consciousness

- Existing neuromuscular disease

Refer to NETS WA Intubation guideline and use the NETS Intubation Record MR400.03

- Consider 0.9% Nacl fluid bolus (10mg/kg) prior to sedation.
- Aim for lower rate, longer Ti (0.5-1.0) and Te (so that respiratory rate around 20-30), to allow better oxygenation and CO2 removal but keep Ti < Te.
- PEEP should generally be lower (5cm) to avoid gas trapping, but higher PEEP may be needed in cases of atelectasis. Enough PIP adequate for chest inflation (ideally <30cm).
- Regular ETT suction to prevent ETT occlusion.
- Monitor vital signs and observe for apnoea. There is insufficient evidence for use of caffeine in infants with bronchiolitis associated apnoea. However, it could be considered in ex preterm infants with CGA <12 weeks or any infants at risk of intubation.
- Suctioning nasal secretions if obstructed
- Target sats>90% unless the infant has cyanotic congenital heart disease or chronic respiratory condition with specific saturation target.

Non-invasive respiratory support

- Consider HHF nasal cannula therapy (2L/kg/min)1,2 or CPAP 6-8 cm H2O if moderate to severe work of breathing, titrate FiO2 to keep sats >90%
- Consider changing between supports if not tolerated.
- Consider prone positioning in infants with increased WOB.
- Monitor capillary blood gases on starting support and then at regular intervals.

General Management

- Minimal handling with quiet and calming environment as possible (e.g., use earmuffs, dimming lights, etc)
- Maintain normoglycemia. If the infant is unsettled, consider giving comfort feeds to settle however infants with moderate to severe respiratory distress on respiratory support, at risk of intubation, keep the baby nil by mouth.
- Assess hydration status. Establish IV access and IV fluids (0.9% saline and 10% dextrose if <4 weeks corrected age and 0.9% and 5% dextrose if >4 weeks corrected age) at 2/3 maintenance.
- Consider IV antibiotics if suspected sepsis (compatible CXR/ blood findings), in high-risk infants needing CPAP and/or critically ill infants.

Related CAHS internal policies, procedures and guidelines

- Apnoea (NETS)
- Intubation and Ventilation (NETS)
- HHF nasal cannula therapy
- CPAP
- King Edward Memorial Hospital - Neonatal Medication Protocols (health.wa.gov.au)

References and related external legislation, policies, and guidelines

1. Armarego M, Forde H, Wills K, Beggs SA. High-flow nasal cannula therapy for infants with bronchiolitis. Cochrane Database Syst Rev. 2024 Mar 20;3(3):CD009609. doi: 10.1002/14651858.CD009609.pub3. PMID: 38506440; PMCID: PMC10953464.

2. Dalziel SR, Haskell L, O'Brien S, Borland ML, Plint AC, Babl FE, Oakley E. Bronchiolitis. Lancet. 2022 Jul 30;400(10349):392-406. doi: 10.1016/S0140-6736(22)01016-9. Epub 2022 Jul 1. PMID: 35785792.

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