



Pulmonary Haemorrhage

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

Summarize the transport considerations for the safe retrieval of neonates with pulmonary hemorrhage

Risk

Delays in recognition and/or management can place neonates at increased risk of deterioration and adverse events. A standardized approach to assessment and management aims to minimize these risks including, but not limited to, severe hemodynamic compromise, and increased morbidity and mortality

Key points

- Neonates who present with pulmonary haemorrhage are critically ill and require appropriate and urgent resuscitation, refer to [Neonatal Resuscitation](#) and [Recognising and Responding to Clinical Deterioration](#).
- It is a form of fulminant lung oedema with leakage of red blood cells and capillary filtrate into lungs.
- Presents as frank oro-nasal or ETT bleeding or increasing requirement for respiratory support and oxygen with concomitant X-ray changes or signs of severe pulmonary hypertension.
- Usually complicates other significant disease process e.g. HMD,

Meconium aspiration, birth asphyxia, sepsis, coagulopathy, patent ductus arteriosus.

- Rarely as part of bleeding diathesis.

Risk Factors

- Prematurity / Lower birth weight
- Overwhelming sepsis/Chorioamnionitis
- Hypothermia
- Hypoxia
- Post-surfactant administration
- Severe RDS
- Coagulation disorders
- Severe HIE
- Left-right shunts causing increased pulmonary flow

Investigations

- Check full blood picture, CRP, blood culture, coagulation screen, Liver Function Tests
- Blood group and cross match (Mother and Baby's blood).
 - Newborn Screening Test if likely to require blood product administration
 - Obtain verbal/written consent for emergency blood transfusion
- Check Arterial Blood Gas, biochemistry
- Chest X-ray: often shows a white-out
- Assess for [Sepsis](#)

Management

- **Always consider taking nitric oxide on retrievals** (refer to [NETS Persistent Pulmonary Hypertension in the Newborn \(PPHN\)](#) for use of iNO during retrievals).
- Consider taking the [High Frequency Oscillatory Ventilation](#) cot in NETS WA ambulances for road retrievals with suspected pulmonary hemorrhage.
- Follow principles of Resuscitation – 'ABC'. Stabilize the airway, breathing and circulation as an urgent priority.
- Consider intubation and ventilation for infants with severe respiratory distress secondary to pulmonary hemorrhage. Use higher PEEP (6-7cmH₂O). Maintain normal SPO₂.
- Can consider [surfactant administration](#) after **discussion with the on-call NETS-WA neonatologist** for worsening pulmonary hemorrhage not responsive to ventilatory management and blood products.
- Avoid unnecessary ETT suctioning. Do not attempt replacing ETT unless unavoidable.
- Obtain adequate peripheral/central access. Start IV fluids. Keep baby NBM for transport.

- Correct acidosis and restore hemodynamic stability by use of blood products and/or inotropes: **discuss with the on-call neonatologist**. Volume expansion can be useful for babies in shock and an anticipated delay in commencing blood products. Consider intramuscular or intravenous Vitamin K, and Fresh Frozen Plasma/Packed Red Cells/Platelet treatment for worsening pulmonary haemorrhage and/or coagulopathy.
- Consider use of [Frusemide](#) where volume load may be a contributing factor to pulmonary haemorrhage (e.g. large PDA in preterm infant). Avoid unnecessary fluid boluses in such cases.
- Ensure IV antibiotics are given.
- Consider sedation/analgesia: discuss with the on-call NETS-WA neonatologist.
- May need to reconsider therapeutic hypothermia in moderate-severe HIE if worsening pulmonary hemorrhage/coagulopathy. Discuss with on-call NETS WA consultant.

Related CAHS internal policies, procedures and guidelines

Neonatal Guidelines

- [High Frequency Oscillatory Ventilation](#)
- [Neonatal Resuscitation](#)
- [Pulmonary Haemorrhage](#)
- [Recognising and Responding to Clinical Deterioration](#)
- [Surfactant Therapy](#)NETS

Guidelines

- [Persistent Pulmonary Hypertension in the Newborn \(PPHN\)](#)
- [Sepsis](#)

NHMRC - [Vitamin K information for parents](#)

This document can be made available in alternative formats on request.

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