



Meconium Aspiration Syndrome (MAS)

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 provide guidance on the management of neonates with meconium aspiration syndrome.

Risk

Failure to diagnose MAS can result in delayed treatment and result in poor health outcomes. Delayed diagnosis can be associated with increased mortality and morbidity.

Key points

- Passing meconium in-utero may be a marker of intra-uterine hypoxia/stress and can cause a unique and complex combination of airflow obstruction, atelectasis and lung inflammation. Meconium can also cause chemical pneumonitis and surfactant inactivation.
- MAS can be associated with HIE and vulnerable to develop pulmonary complications such as pneumothorax and [PPHN](#).
- Infants with severe MAS are very unwell with moderate to severe respiratory distress. Prolonged treatment in referring hospital may not be beneficial.
- Longer journeys require meticulous planning, appropriate equipment, more invasive monitoring, and therapy prior to departure. For metro retrievals, always take a retrieval cot with the Fabian ventilator (HFOV) and nitric oxide.

Management

- Monitor pre and post ductal SpO₂, aim for pre-ductal SpO₂ > 92%. If respiratory support is required commence CPAP at 6 cms H₂O with a flow of 8 litres. Increase if needed to achieve saturations > 92%.
- For infants being retrieved from regional locations by a fixed wing aircraft, further discussion of airway management/stability needs to occur with the NETS Consultant. The need for an escalation of care i.e. intubation and ventilation, risk of air leak, higher pressures and FiO₂ should be discussed prior to departure from the regional location.


Ventilation

- Always use pre-medication prior to intubation.
- Commence on SIPPV/AC modality +/- VG (5mL/kg) as a guide. Infants with MAS frequently need higher pressures, so ensure a higher P_{max} (25-30cms H₂O)
- Some infants might need rescue modality HFOV. Consider HFOV if Mean Airway Pressures (MAP) exceeds 12 cms H₂O. (As a guide: HFOV settings: MAP 1-2 cms H₂O higher than conventional ventilation, VG of 2mL/kg, Amp max 60, Frequency 10 Hz.)
- MAS can be associated with [PPHN](#). Consider inhaled [nitric oxide](#) 20ppm if not maintaining saturations with high ventilatory settings and higher FiO₂ concentrations.
- Insert an IV cannula and ensure access is available. Screen and treat the infant with antibiotics.
- Commence IV fluids at 60mL/kg/day of 10% dextrose.
- For infants with hypotension or hypovolemia, consider a saline bolus (10 mL/kg) prior to commencing inotropes. Central venous access should be considered for monitoring blood pressure en route and the administration of inotropes.
- Sedation is beneficial in decreasing pulmonary arterial pressure (Morphine/Fentanyl and/or Midazolam). See [Medication Protocols](#).
- If the infant is not improving on high pressure settings plus inhaled [nitric oxide](#) then consider surfactant administration. There is limited evidence that surfactant is beneficial in infants with severe MAS so this must be discussed with the on-call NETS Consultant, as infants may deteriorate after surfactant administration. [PORACTANT Alpha \(Curosurf®\)](#) could be the preferred agent because of its lower volume when compared to [BERACTANT Survanta® \(Bovine\)](#).
- In the deteriorating infant, consider [ALPROSTADIL \(Prostaglandin E1\)](#) and muscle relaxants ([Vecuronium](#)) after discussion with the on-call NETS consultant.

- The goal should be to maintain normoxemia and normocapnia during transit for an infant with MAS and respiratory distress. A fine balance needs to be struck between ongoing treatment at the referring hospital, safety during transport and the need for definitive treatment in the receiving centre.

Related CAHS internal policies, procedures and guidelines
<p>Neonatology Guidelines</p> <ul style="list-style-type: none"> • Pneumothorax <p>Neonatology Medication Protocols</p> <ul style="list-style-type: none"> • Midazolam • Morphine <p>NETS WA Guidelines</p> <ul style="list-style-type: none"> • Hypoxic Ischaemic Encephalopathy (HIE) / Asphyxia • Persistent Pulmonary Hypertension of the Newborn (PPHN) • Air Transport (Special Features of).

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

Document Owner:	Neonatology		
Reviewer / Team:	NETS WA		
Date First Issued:	August 2009	Last Reviewed:	Oct 2023
Amendment Dates:		Next Review Date:	Oct 2026
Approved by:	Neonatology Coordinating Group	Date:	11/12/2023
Endorsed by:	Neonatology Coordinating Group		
Standards Applicable:	NSQHS Standards:  Child Safe Standards: 1,10		

Printed or personally saved electronic copies of this document are considered uncontrolled



Healthy kids, healthy communities

Compassion

Excellence

Collaboration

Accountability

Equity

Respect

Neonatology | Community Health | Mental Health | Perth Children's Hospital