



CLINICAL PRACTICE GUIDELINE  
NEWBORN EMERGENCY TRANSPORT SERVICE (NETS WA)

## Surgical Problems

This document should be read in conjunction with the [Disclaimer](#)

For all suspected surgical patients, bring a sample of hand-labelled maternal blood and a form signed by the staff taking the sample (in order to cross-match the baby).

- Gastrointestinal conditions may cause significant fluid shifts into third spaces.

### Bowel Obstruction, Perforation or Peritonitis

- Ventilation may be compromised by abdominal distension.
  - If perforated bowel with respiratory distress, will require intubation.
  - If on CPAP, review the need for intubation.
- Fluid resuscitation is likely to be required (normal saline).
- “Drip and suck”.
  - Keep NBM.
  - Drainage of the stomach with large-bore NGT (size 8F or 10F).
  - If retrieving by air, any free air will be exacerbated by lower cabin pressures, so a sea-level cabin or drainage of free air prior to transport may be required.
  - Start maintenance fluid (dextrose or dextrose/saline solution).
  - If NGT losses are high (>10mL/kg/12 hours), consider replacement with normal saline.
- IV antibiotics Amoxicillin, Gentamicin and Metronidazole (or Tazocin monotherapy).

### Oesophageal Atresia

- Consider in any baby with antenatal history of polyhydramnios who is particularly mucousy, choking with feeds or difficulty in passing a NGT.
- Confirm by passing NGT and confirming position on chest X-Ray:
  - When passing NGT if resistance is felt (usually around 10cm) stop advancing: X-Ray will show tip at 10cm around level of thoracic inlet.
  - If NGT passes easily to 20cm: X-ray will show the NGT curling up in the proximal oesophagus.

### Management

- Nurse in flat position.
- Airway management:
  - Always discuss with the on-call neonatologist.

- Intubation and ventilation should be avoided wherever possible as massive abdominal distension can occur if a distal fistula is present, resulting in stomach perforation.
- Regular suctioning with repleg tube will assist with oral secretions.
- Upper airways suctioning is commonly required as there is build-up of secretions.
- Insert a **repleg tube**:
  - Use a 10F repleg tube.
  - Insert until resistance is felt then pull back ~ 1cm and secure.
  - During transport, manual suction of repleg tube is required using a 50mL syringe. **DO NOT use the portable suction device, as the pressure is too high, & can result in tissue necrosis.**
  - Every 15 minutes: flush infusion port with 0.5mL of normal saline then suction gently with a 50mL syringe.
  - Losses from the repleg tube should be recorded and replaced if excessive.

### Congenital Diaphragmatic Hernia

- Often the sickest/ most complex-to-transport patients. **Always** discuss with the on-call neonatologist.
- Suspect if respiratory distress, a scaphoid abdomen and poor unilateral air entry.
- Confirm with CXR (if available).
- Pulmonary hypoplasia and pulmonary hypertension (PPHN) common.

### Management

- Airway and ventilation:
  - Almost always require intubation and ventilation.
  - Bag and mask ventilation should be avoided to prevent bowel distension.
  - Surfactant is not routinely given, as this can exacerbate matters.
  - The aim of a **lung protective strategy** is to minimise barotrauma and decrease mortality. This is achieved by allowing for **permissive hypercapnia** ( $\text{PaCO}_2$  45-55 mmHg and  $\text{pH} > 7.28$ ) and **relative preductal hypoxaemia** (preductal  $\text{SaO}_2 > 85\%$ ).
  - The Stephan transport ventilator cannot deliver HFOV.
  - Aim for  $\text{PIP} < 25\text{cmH}_2\text{O}$ .
  - Rate ~ 45-60/min.
  - $\text{Ti} \sim 0.4$ seconds.
- Manage **PPHN**:
  - Use of pulmonary vasodilators: Nitric oxide, milrinone or  $\text{PGE}_1$ .
  - Sedate well with morphine infusion (10-20mcg/kg/hr); may require Midazolam infusion.
  - Muscle relax (intermittent boluses of Vecuronium) if still active and struggling against ventilator.
  - Inotropic support and/or volume may be required.

- Insert large-bore nasogastric tube (8F or 10F) to decompress the stomach and small bowel.
- UAC and UVC are desirable.

### Gastroschisis

- The major acute problem is heat and fluid losses from exposed viscera:
  - Minimise by using impermeable plastic bag up to armpits (or cling film).
  - Do not cover with moist packs or cotton wool as these can become cold and exacerbate the problem.
- Observe the circulation to the viscera, but do not handle the bowel excessively:
  - Repositioning may improve this if compromised.
  - Nurse the baby on its right side for transport.

### Management

- Place in impermeable plastic bag.
- If requiring respiratory support for pulmonary disease consider humidified high flow oxygen, otherwise consider intubation. Try to avoid CPAP.
- Fluid resuscitation:
  - May require fluid bolus (normal saline).
  - Start **10/kg/hr** normal saline to cover fluid losses. Once a silo has been applied, the normal saline replacements can be ceased.
  - **In addition, start maintenance fluids at 80-100mls/kg/day.**
- Insert size 8F or 10F NGT and leave on free drainage. Replace NG losses with normal saline if >10ml/kg/12 hrs.
- Give IV antibiotics Amoxicillin, Gentamicin and Metronidazole (or Tazocin monotherapy).
- Observe thermoregulation carefully.

### Exomphalus

- This is not an urgent transport as the protective membrane prevents heat and fluid loss.
- If protective membrane ruptures then should be transported urgently, treat as for Gastroschisis.

### Myelomeningocele

- Contact and inform neurosurgeon on-call and discuss timing of transport (usually this is not a middle of the night emergency).
  - Surgical closure is recommended within the 1<sup>st</sup> 24 hours in order to prevent infection and trauma to the exposed tissues.
- Nurse prone.
- Avoid using latex
- The back should be covered by a protective dressing (Mepilex non-adhesive dressing).
  - Pre-made dressing packs are available in 6B compactus.
- If it is an open defect (CSF leakage,) start amoxicillin and gentamicin.


## Transport of Neonates Following Surgical Procedure

Babies who require transportation to another hospital < 24 hrs post-surgery:

- Are transported in the NETS transport cot.
- Are continuously monitored with SpO<sub>2</sub> & ECG monitoring.
- Require suction, oxygen and an appropriate sized bag and mask available at all times during transportation.

### Related WNHS policies, procedures and guidelines

[NETS WA Clinical Guidelines: Persistent Pulmonary Hypertension of the Newborn \(PPHN\)](#)

Document owner:	Neonatal Directorate Management Committee		
Author / Reviewer:	Neonatal Directorate Management Committee		
Date first issued:	August 2009		
Last reviewed:	1 <sup>st</sup> July 2017	Next review date:	1 <sup>st</sup> July 2020
Endorsed by:	Neonatal Directorate Management Committee	Date endorsed:	26 <sup>th</sup> September 2017
Standards Applicable:	NSQHS Standards: 1  Governance, 6  Clinical Handover		
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