SOUTHAMPTON OXFORD
NEONATAL TRANSPORT

SOUTHAMPTON OXFORD NEONATAL TRANSPORT

NEONATAL SURGICAL CONDITIONS

General Principles

- Transports for surgical conditions are frequently **Time-Critical**
- Prior to transport establish that infant has been referred,accepted by the surgical team and bed arranged
- Give considerable thought to pain relief and adequate fluid resuscitation
- Check that baby has received vitamin K and documented in notes / handover sheet
- Avoid hypothermia
- Ensure parent's telephone contact details have been obtained. Transfer mother if possible.
- Bring hand-labeled maternal blood sample signed by the staff taking it.
- Bring copies of imaging or ensure linkage to PACS

Condition	Management
Diaphragmatic Hernia **Severity markers:** Karyotype abn Other anomalies Liver in chest Stomach in chest Lung Heart Ratio (LHR) <40% O/E Total Lung Volume (TLV) <40% O/E	In the event of an unplanned delivery in an LNU or SCBU of an antenatally diagnosed defect activation of retrieval team to be present at the birth is desirable. Postnatally diagnosed lesions are generally less severe. Pathologies: Pulmonary hypoplasia, pulmonary hypertension and lung immaturity. DO NOT use CPAP or bag & mask ventilation unless absolutely necessary. Surfactant routinely not given (unless <34 weeks). End tidal CO_2 monitoring. NBM, early insertion of large bore NGT on free drainage. Early endotracheal intubation and ventilation, use adequate PIP and PEEP, ↑rate, ↑FiO_2 Monitor pre-ductal saturations. CxR helpful. Discuss with Consultant if ventilation difficult. (permissive hypercapnia may appropriate) Peripheral/central IV access. Ideally invasive arterial monitoring. Sedation & muscle relaxant often beneficial for transfer of an unstable newborn. Volume /inotrope/pulmonary vasodilators may be required.
Gastroschisis	Cover lesion with cling film / occlusive wrap. DO NOT cover with moist pack or cotton wool. Position baby lying right side or supine, support external bowel to prevent injury and stretch Observe bowel colour to ensure circulation is not compromised. Reposition if concern. If bowel condition compromised: record photographically. NBM/indwelling large bore NGT on free drainage. Aspirate NGT every 20 minutes. Observe thermoregulation carefully 2 X IV access- peripheral. Assess pain responses and ensure adequate analgesia. Check circulatory status- perfusion, HR, lactate, acidosis- if concerns consider fluid boluses- likely to require 20-30mls/kg 0.9% Normal Saline (as a minimum – often more). If respiratory support needed ETT intubation minimises bowel distension-avoid CPAP Monitor BS, as babies often growth restricted.
Exomphalos	Position cord clamp well away from lesion to avoid organ damage. Not urgent transport as the protective membrane prevents heat and fluid loss, however if this rupture then treat as gastroschisis. High risk of karyotype abnormalities or associated congenital anomalies. If isolated – consider Beckwith-Weiderman. Monitor BSL closely (hyperinsulinaemia)
Oesophageal atresia ± Tracheo-oesophageal fistula	Check patency of anus. Consider VACTERL anomalies. Keep in prone or lateral position to reduce risk of aspiration Insert Replogle tube, to maintain patency flush with 0.5 mls saline every 15 minutes and suction gently. Check portable suction pressures and avoid high pressures Avoid CPAP, Intubation and ventilation if possible (in case of distal fistula) as can cause massive abdominal distension and possible perforation. **Ventilated TOF: Time Critical**

Perforation, Surgical NEC	Consider paralysis if ventilation difficult. Occasionally an abdominal drain may be required to improve ventilation Check circulatory status- if concerns consider fluid boluses, correct acidosis and consider use of inotropes in sick infant (dopamine first line) Check coagulation and platelets. Give blood products as appropriate Triple antibiotics Care should be taken to provide adequate analgesia

Bowel Obstruction-

Higher the obstruction, earlier the presentation, the lower the obstruction the greater the abdominal distension. With more distal obstructions, fluid and electrolyte disturbance is more likely at presentation.

General management principles:

Commence continuous cardiorespiratory and oxygen saturation monitoring
Provide respiratory support for babies who are acutely unwell or whose condition deteriorates
Keep baby NBM; Insert large bore naso/orogastric tube, place on free drainage
Gain at least 2 peripheral IV access. Administer IV antibiotics.
Carefully assess patient for signs of hypovolemia - low threshold for giving normal saline bolus.
Assess pain and initiate analgesic measures as required

	Diagnosis	Features
Upper Gastrointestinal	**Oesophageal Atresia, Duodenal atresia**	Early presentation with persistent vomiting sometimes bile stained ± Polyhydramnios Features of other associated congenital anomalies Oesophageal atresia: Difficulty in passing NGT, Chest X Ray- Curling of NGT, presence of oesophageal pouch, absence of bowel gas unless coexistent trachea-oesophageal fistula Pyloric atresia: Very rare. Consider co-morbidities: epidermolysis bullosa Pyloric stenosis: Hypochloraemic metabolic alkalosis, hypokalemia Duodenal atresia:X ray may demonstrate dilated stomach and proximal duodenum ('double bubble')
Midgut	**Malrotation Volvulus 'Bilious vomiting'**	**Suspected volvulus: Time critical** due to bowel ischaemia Infrequent, may present as episodic obstruction or acutely with profound shock as a result of volvulus, urgent surgery is required Variable presentation – bilious vomiting ± abdominal distension X-ray Malrotation – non specific, may show abnormal distribution of bowel gas, More commonly dilated stomach without dilated duodenum and with paucity of other abdominal gas Volvulus- Dilated upper bowel loops NB: clinical findings, x-ray appearances poor predictors of need for urgent surgery
Lower gastrointestinal	**Meconium ileus**	Abdominal distension, delayed or failure to pass meconium or passage of meconium plug Obstruction by inspissated meconium X-ray – 'Soap bubble' appearance, dilated loops of bowel 90% of babies with meconium ileus have cystic fibrosis
	Hirschsprung's disease	Abdominal distension, delayed or failure to pass meconium or passage of meconium plug. (70% of cases failure to pass meconium by 48 hours) Poor feeding, vomiting, increasing abdominal distension X-ray – dilated loops of bowel throughout abdomen, fluid levels in lateral decubitus film, absence of air in the rectum