NETS WA
Newborn Emergency Transport Service

STANDARD OPERATING PROCEDURE

Bilious vomiting, suspected malrotation/volvulus

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 a standardised procedure to follow for the management and urgent retrieval of infants with possible gut obstruction.

Risk

Bilious vomiting is NEVER normal and must be promptly investigated to exclude malrotation, volvulus, or gut obstruction. Delay in getting urgent management could result in gut necrosis, loss and mortality.

Key points

The gold standard management for investigating suspected malrotation is an urgent upper gastrointestinal contrast study and review by a surgical team in a tertiary paediatric hospital (PCH).

Normal abdominal examination, abdominal x-ray (AXR), lactate levels, blood pressure, urine output, and blood gases do not rule out early intestinal gangrene secondary to these conditions. Hence, these transfers should always be designated as urgent Priority 1 (P1) and not delayed.

The NETS-WA consultant is always to designate infants with bilious vomiting as a P1 retrieval on the call-conference system. It MUST also be documented on the NETS WA call sheet and verbally stated on the conference call. This automatically triggers

the following cascade of events depending on whether it is a metro or regional retrieval location.

See **Neonate with Bilious Vomiting QRG Flowchart**

Bile aspirates can be a sign of ileus or intestinal obstruction and needs to be discussed and reviewed with either the consultant or senior registrar to exclude Malrotation/Volvulus.

- ***Infants <32 weeks corrected gestational age***

  With isolated bile aspirates, continue enteral feeds if the aspirates are clearing or not worsening. If aspirates are "persistent" and/or "worsening" over 12 to 24 hours, **STOP** feeds for 12 to 24 hours The decision whether the feeds could be **continued but not upgraded** will be at the discretion of the attending neonatologist. Bilious aspirates in preterm infants <32 weeks corrected gestational age (with or without NEC) and systemic signs such as abdominal distension or vomiting, unexplained metabolic acidosis or deterioration should also be considered for ruling out malrotation, volvulus or gut obstruction

- ***Infants >32 weeks corrected gestational age***

  With bilious aspirates, medical review should be sought and discussed with senior medical staff. Consideration should be given to performing an upper GI contrast study to rule out malrotation. This is especially important in infants with other concerning signs such as abdominal distension, clinically unstable (abnormal observations, abnormal gas), and/or those who have previously been tolerating feeds well. Other causes of bilious aspirate such as NEC and sepsis should also be considered.

Procedure

The NETS WA consultant should direct the responding NETSWA team to leave the call conference to start making arrangements to leave the NETS WA base urgently. The NETS WA consultant can continue to support the referring team on the call-conference system for management and should strongly consider adding the 3B and surgical consultant into the call for information.

Metro retrievals

- The NETS WA team (NETS WA SR, nurse, ATO +/- Consultant) should be dispatched within 15 minutes from the base after the decision.
- If the NETS WA ATO or ambulance is not available, call St Johns Ambulance and clearly state this is a P1 retrieval.

Country retrievals

- The NETS WA team to contact RFDS for a P1 retrieval and clearly emphasise the concerns. If needed, escalate the concern beyond the RFDS Medical Coordinator for urgent (P1) flight retrieval at the earliest opportunity.
- If the retrieval is being organised by the PCH NICU consultant, help can be sought from the previous on-call NETS WA consultant and/or NETS WA Director to escalate the concerns with RFDS for flight availability.
- The NETS WA team is to be dispatched as an urgent priority to reach the Jandakot base once flight time is confirmed.

Advice to be given to the referring team

- Ensure adequate airway, breathing, circulation and thermoregulation. May need respiratory support if distended abdomen.
- Start maintenance intravenous fluids as per the gestational age and day of life. To assess if further fluid resuscitation is required – Consider 10mls/kg normal saline bolus depending on the clinical condition and blood gas results. A rough guide would be clinically poor perfusion (capillary refill time >2 seconds), ongoing metabolic acidosis (BE > -4) or lactate levels >4 mmol/l on the blood gas results.
- Keep baby NBM. Gastric tube on free drainage. Document the amount of aspirate/vomit volume. Consider replacements with normal saline if significant volumes (>10ml/kg) of aspirates as per NETS WA consultant advice.
- Investigations: Blood gas with lactate, blood samples for the septic screen (blood culture, FBC, CRP). Abdominal Xray- AP and lateral
- IV antibiotics – Single agent (Tazocin) or Triple agents (benzylpenicillin, gentamicin, metronidazole)

Refer to Neonate with Bilious Vomiting QRG Flowchart

PCH Admission logistics

- Inform the on-call 3B NICU consultant, NICU coordinator and surgical consultant at PCH of the incoming urgent retrieval. The 3B nursing coordinator will manage any bed availability issues in discussion with the PCH hospital clinical manager.
- Patch in the 3B NICU consultant and surgical consultant for additional advice if worsening clinical condition of the neonate.

Related CAHS internal policies, procedures, and guidelines
Child and Adolescent Health Service | CAHS - NETS WA clinical guidelines and protocols • NETS: Surgical Conditions (health.wa.gov.au)

Child and Adolescent Health Service | CAHS - Neonatology guidelines

- Malrotation / Volvulus of the Intestines (health.wa.gov.au)

King Edward Memorial Hospital - Neonatal Medication Protocols (health.wa.gov.au)

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

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App1: Neonate Bilious Vomiting Suspected Malrotation/Volvulus QRG Flowchart