Title:	NWNODN Postnatal Surgical Referral Pathway for Acute & Elective Surgery
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DATE	VERSION	AUTHOR	NOTES
May 2024	1.1	Surgical SIG	Minor changes to highlight bilious vomiting escalation
Nov 2025	1.2	S.SIG	Appendix added outlining Perioperative Care of Extremely Preterm Babies & link to BAPM document

Contents

NWNODN Surgical Referral Pathway for Acute and Elective Neonatal Surgery

1 Introduction

This guidance relates to the transfer of babies within the North West Neonatal Operational Delivery Network (NWNODN) for the management of neonatal surgical or other specialist surgical conditions.

The guidance should be followed in conjunction with the Antenatal Management pathway, so that where possible all babies with significant congenital abnormalities or needing surgical intervention are delivered at a surgical centre.

Four pathways are described in this guideline:

1. Pathway for seeking advice
2. Acute surgical referrals
3. Elective surgical referral pathway.
4. Outpatient Transfers

For babies <28 weeks priorities outlined in the Perioperative Care of Extremely Preterm Babies should be considered. See appendix 4.

2. Purpose

The purpose of this guideline is to ensure that all neonates are treated in the appropriate location to safely undergo the necessary ongoing treatment plan.

3. Pathway for seeking advice

In some circumstances it may be unclear if a formal surgical review is required for a neonate. Examples of such cases include: neonates with early signs of NEC or non-specific signs such as abdominal distension or increased aspirates in the otherwise well baby. In such circumstances, advice should be sought directly from the consultant neonatologist at the appropriate surgical centre.

- Cheshire & Mersey; North Wales; IOM - LWH on-call consultant (telephone 0151 702 4193 (NICU) or via Switch 0151 708 9988 333
- Greater Manchester; Lancashire & South Cumbria - SMH on-call consultant (telephone 1061 701 7480.) **“Neonatal Consultant On Call” bleep 333)**

(For more complex cases see Section 4 below)

The outcome of this advice may include direction to a specific surgical consultant for further advice or decision that a formal surgical referral is required. Such advice will be formally

recorded by the LWH/SMH teams in line with the NWNODN Advice Guidline **GL-ODN-14-Advice-Guideline.pdf (neonatalnetwork.co.uk)** . If referral is required then the pathway below should be followed.

4. Acute surgical referrals

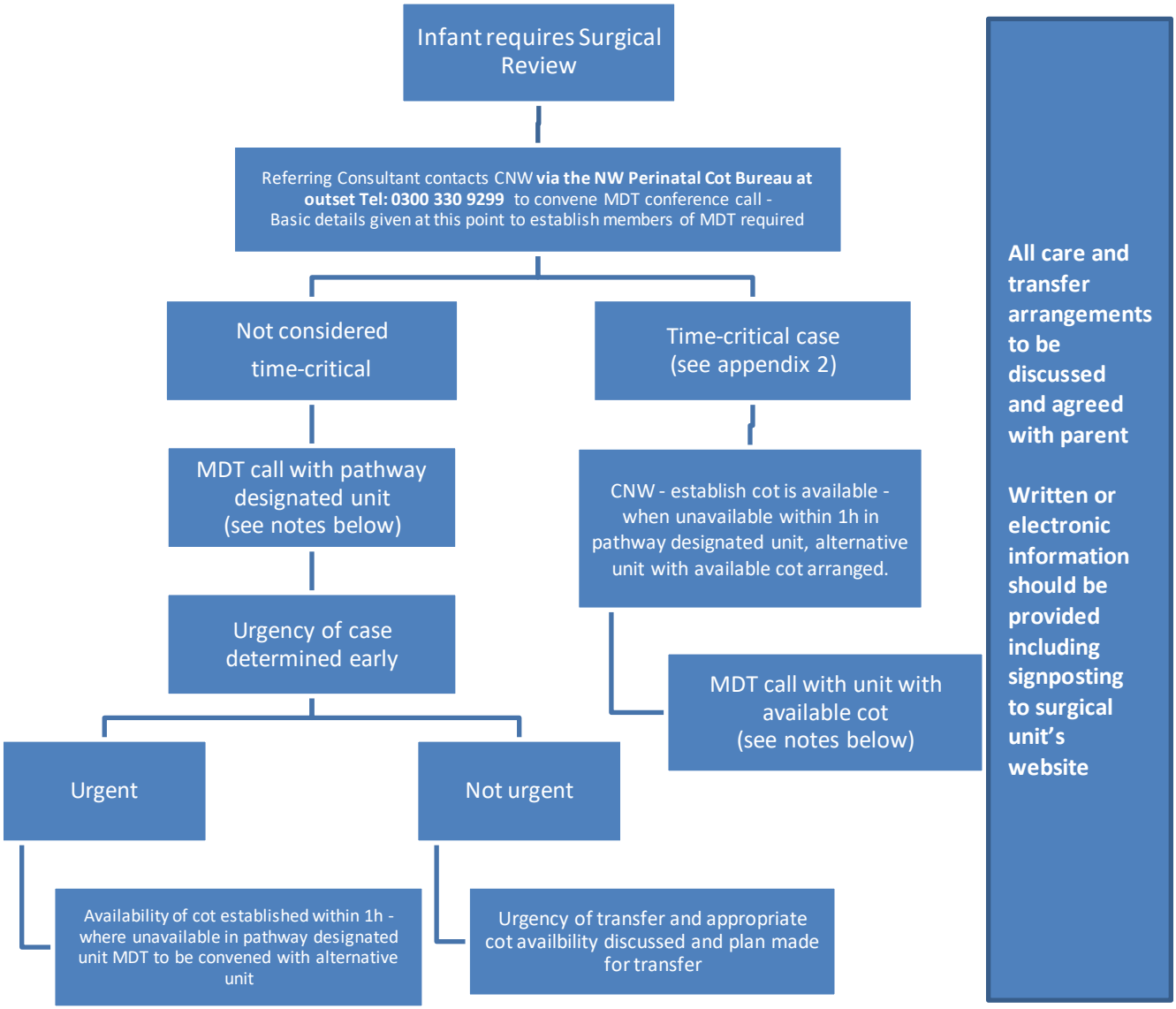
An acute surgical referral should be made for any neonate that requires surgical review +/- management as an emergency or within the next 24 hours. Examples of such situations are given in Appendix 1 (not exclusive). The urgency of such referral will be determined at the time of the referral and/or during conference call. The exception to this pathway is referral for elective surgery (see 5).

Pathway designated default neonatal surgical units are as follows:

- Cheshire & Mersey; North Wales, IOM and Staffordshire* - Liverpool Neonatal Partnership - Alder Hey Children's Hospital (AHCH) & Liverpool Women's Hospital (LWH)

- Greater Manchester; Lancashire & South Cumbria - The Manchester Centre for Neonatal Surgery - St Mary's Hospital (SMH) & Royal Manchester Children's Hospital (RMCH).

All referrals should follow the pathway below and principles outlined in Appendix 2.
* Referrals for patients residing Staffordshire are managed by the KIDS NTS team (0300 200 1100) and are not within the remit of Connect NW for uplift or repatriation transfer.



Notes for MDT Meeting

- **Conference calling** is an integral part of referral/advice process. It should not however, cause delay to the clinical care of infant or be unduly onerous for the referring team. This will be greatly expedited by the provision of a dedicated contact number.

  The call will normally include a member of the surgical team, nursing & medical staff at the referring and receiving units, bed manager (if applicable), transport team and other specialist staff as required. On occasions when a senior team member is not available to participate in the call, a deputy from the speciality/service can be nominated. Where a baby clearly requires an urgent or time critical transfer, as per national guidance, and a cot is expected to be available within the ODN, the transport team is not required to delay departure until the conference call is completed.

  The decision to undertake transfer should take into account the level of support available at the local unit – eg it may be appropriate to continue conservative management for NEC within the local NICU but a lower threshold for transfer would be appropriate within an LNU. Cases

with a clear surgical condition should only be transferred to a designated neonatal surgical centre.

Complex cases requiring consultant surgeon availability

By default, the surgical registrar will be approached in the first instance to participate in conference calling to ensure good levels of training and experience. However, for inexperienced tier 2 surgical staff, there should be a low threshold for requesting the support of their surgical consultant. Where limitation of treatment is considered, the patient has multiple complex issues or there is disagreement within the MDT about the need for transfer the consultant surgeon should be available to participate.

Timescales

Where there is an urgent indication for transfer for surgical intervention, the decision to accept and cot availability should be confirmed within 1 hour, or rarely by exception within 2 hours. If by the end of this period, a cot is not confirmed then Connect NW will approach the other surgical centre in the NWNODN. Whilst it is recognised that capacity is sometimes constrained, a Time Critical transfer should not be delayed whilst arrangements are being made to create a bed or organise a repatriation. In circumstances where neither surgical centre can accept in a suitable time frame decisions about referral outside the NWNODN will be made on a case-by-case basis. Discussion with PICU should be considered to facilitate care closer to home where this is appropriate.


All out of network transfers should be notified to the NWNODN via an incident form

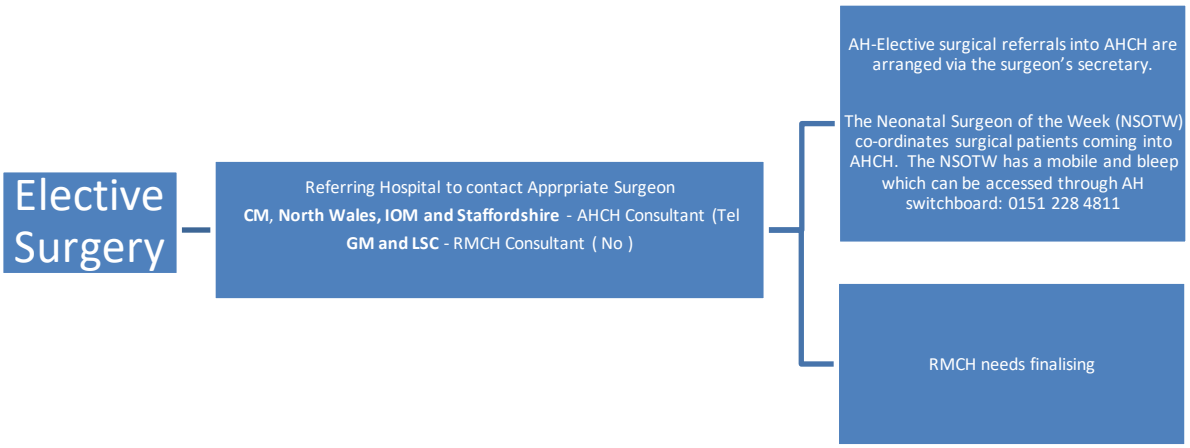
Radiology

Advice calls solely for the purpose of radiological interpretation will not be accepted, the pathway for this should involve review by the local hospital consultant Neonatologist or Paediatrician and / or local radiologist. However, specialist imaging for neonates (eg contrast studies, abdominal ultrasound) should not be requested to be undertaken in the local hospital as a prerequisite for formal referral.

5 Elective Surgery

In certain circumstances newborn infants require surgical input that is not urgent and can be planned (elective). Most commonly this is for inguinal hernia repair, stoma closure or removal of a tunnelled central venous catheter (often referred to as a 'Hickman' or 'Broviac'), but other situations may also apply. In general terms, these should be discussed directly with the hot week surgical consultant at the designated pathway unit, unless the baby is already known to another consultant. CNW should then be contacted to arrange transfer.

The hot week consultant can be contact via the appropriate switchboard 8-18 Mon-Fri



- A named Consultant Surgeon will be allocated to each patient.
- Planned elective surgery should always be scheduled on a planned list.
- Elective cases should be referred well in advance directly to the surgical team, using the standard NWNODN Elective Surgical Referral Form *(p11).* A further assessment should be performed around 1 week prior to the provisional admission date to ensure that the child remains suitable for admission.
- The surgical team must be informed of any baby who is likely to be discharged home prior to surgery.
- All discharge planning should be undertaken by the referring neonatal unit prior to transfer for surgery, to allow for direct discharge home from the surgical centre if deemed appropriate.
- Babies with complex needs will be transferred back to referring NNU prior to discharge and a bed kept available for them.
- In circumstances where surgery is cancelled a conversation should take place between the referring Consultant Neonatologist and the Consultant Surgeon to develop a plan of care, which may include discharge home prior to surgery, if deemed clinically appropriate.
- Delays or cancellations in elective surgery will be reported as NWNODN Exception.

6 . Connect North West Outpatient Appointment Guideline

Connect North West (Connect NW) will undertake outpatient appointments for neonates who are current inpatients on the neonatal units in Cheshire and Mersey, Greater Manchester, Lancashire and South Cumbria.
Appointments that are to take place in the outpatient department will be considered for babies who require a short assessment time and no secondary procedure is likely to be needed. Day case transfers or short-term admission to neonatal units or paediatric wards may be required where babies are, or could become, clinically unstable because of the procedure.

Long (> 1 hour) or multiple appointments and/or where there is the possibility that the result may require further intervention such as surgery, will also require admission.

Classification of outpatient appointments routinely undertaken by Connect NW are listed in Appendices A, B and C. The list is not exhaustive and is intended to provide guidance on how best to safely manage appointments. The Transport Team have ultimate responsibility for assessing if the infant is suitable for transfer and where the appointment should take place. Further discussion and advice regarding individual transfers can be sought from the transport ANNP's, Lead Nurse and Transport Consultant.

Purpose

Roles and Responsibilities

Connect NW Lead Consultant and Lead Nurse have delegated responsibility for:

- Ensuring that guidelines are implemented according to the agreed process.
- Ensuring that the effectiveness of the guideline is monitored
- Reviewing current risk assessments, control measures, procedures and training within the neonatal service to ensure that deficiencies are identified and reported on and that recommendations and action plans are developed and monitored according to the Clinical Effectiveness strategy.
- All Connect NW staff are accountable to the Lead Nurse for implementing, monitoring and evaluating compliance with the guideline.
- Staff and members of the neonatal team are accountable to the appropriate clinical lead to ensure that they comply with the guideline

Criteria

Criteria	Rationale
• Inpatient neonates requiring review/procedures in the outpatient setting **(Appendix A**), in the neonatal unit (**Appendix B)** and those requiring admission to a neonatal/paediatric unit as a daycase (Appendix C).	• To ensure the infant is transferred to an appropriate location to safely undergo the necessary review/procedure. • To facilitate the safe transfer of the infant.

1. Detail of Guideline

Clinical Action	Rationale
• Requests for outpatient transfers must be submitted through Connect NW Cot Bureau at least 24 hrs prior to the appointment date.	• To assist Connect NW with the logistics and organisation of the transfer.

• It is the responsibility of the referring Unit to ensure appointments are not booked **prior** to 10:00am.	• Due to shift limitations, journey times and ambulance availability, it is not possible for Connect NW Transport Team to arrive at appointments prior to 10:00am
• A detailed history and overview of the infant's clinical condition will be discussed with Connect NW Transport Team prior to transfer	• To assess the suitability of the neonate attending the outpatient appointment. • To ensure patient safety. • To determine if a cot on the neonatal unit/paediatric ward will be required
• Appointments for infants requiring any form of respiratory support other than low flow nasal cannula, will not take place in the outpatient department and will require a cot for short term admission (See **Appendices A and C**)	• To minimise risk and potential deterioration of the infant's condition during the appointment/procedure. • To ensure access to, and availability of specialist medical equipment/personnel.
• Care of infants during appointments expected to last less than 60 minutes will be managed by Connect NW and infants will be repatriated back to the referral unit (See **Appendices A and B)**	• To facilitate timely transfers. • To minimise potential risk for infants. • To optimise efficiency of the transport service.
• Appointments expected to last more than 60 minutes will be managed as a day case. **(See Appendices B and C)**	• To minimise risk for the infant and manage care in an appropriate setting.
• Care of infants during daycase appointments will be managed by the receiving department staff, following handover by Connect NW Transport Team (**See Appendix C)**	• To manage the infants care in an appropriate setting. • To ensure the availability of the transport team for Network emergency uplift transfers. • To maintain maximum efficiency of the transport service and facilitate cot availability throughout the Network.
• It is the referring unit's responsibility to ensure that parents are informed that while every effort will be made to attend the appointment, uplift transfer requests will take priority.	• To facilitate effective communication between referring unit, staff and parents. • To minimise parental distress and ensure parents are fully informed prior to transfer

7. Appendix

Appendix 1: Examples of when an acute surgical referral should be made*

Antenatally detected congenital malformation requiring urgent treatment (refer to plan made by fetal medicine team and surgeons if available). These patients should be delivered in a maternity unit co-located with a neonatal surgical centre. Cases with minor congenital abnormalities not anticipated to need urgent intervention may be delivered locally.

Postnatally diagnosed congenital malformations

- Oesophageal atresia +/- trachea-oesophageal fistula
- Congenital diaphragmatic hernia
- Anorectal malformations
- Suspected Hirschsprung's disease
- Abdominal wall defects e.g. gastroschisis and exomphalos
- Sacrococcygeal Teratoma
- Gross abdominal distension and / or bowel obstruction including duodenal, jejunoileal and colonic atresia; meconium ileus etc. malrotation+/- volvulus
- Bowel perforation associated with Necrotising Enterocolitis or spontaneous intestinal perforation
- Bilious vomits/ large bilious aspirates that could indicate malrotation+/- volvulus or other cause of bowel obstruction.
- Other visceral injury/perforation e.g. oesophageal or gastric
- Severe NEC unresponsive to medical management
- Testicular Torsion
- Incarcerated inguinal hernia
- Emergency requirement for surgical central venous access

*This is not an exhaustive list and if there is any doubt about whether a referral is required then this should be discussed as described above.

Appendix 2: Acute Transfers

- There are two centres within the NWNODN that are designated to provide neonatal surgical care:
    - **Liverpool Neonatal Partnership - Alder Hey Children's Hospital (AHCH) Liverpool Women's Hospital (LWH)**
    - **The Manchester Centre for Neonatal Surgery - St Mary's Hospital (SMH), Royal Manchester Childrens Hospital.**

- Care for surgical patients (pre or post operatively) should only be undertaken within these centres.

- Referrals from Local Neonatal Units (LNUS) for the conservative management of Necrotising Enterocolitis (NEC) should only be transferred to a neonatal surgical Centre

- **X-ray advice:** Surgeons will not provide reporting/interpretation of x-rays. Surgical colleagues may wish to review x-rays when they are offering clinical advice, but this is not to be confused with radiology reporting.

- Attempts will be made at all times to keep an infant's care within the NWNODN. On the rare occasions when no surgical cot is available within the NWNODN, the Transport Consultant or deputy and the designated centres surgical Consultant must be informed of the situation, before surgical centres outside of the network are contacted. Only once they are both aware and no cot is available will cot bureau contact surgical centres outside of the NWNODN.

- All out of network transfers will be reported as an 'Exception' through the NWNODN governing processes.

- When patients are transferred outside of the NWNODN for surgical care due to a lack of capacity within the ODN a direct conversation will take place between the referring neonatal unit, surgical team providing interim surgical advice and the receiving unit.

- For time-critical transfers* where a cot is not found within one hour of the initial referral call to cot bureau, a second conference call will be arranged to review progress being made (see above pathway).

  ***Surgical Time-critical transfers are defined as**:
  - Confirmed intestinal perforation
  - Ventilated oesophageal atresia/TOF
  - Gastroschisis

- **Bile stained vomiting or aspirates**: Whilst bile stained vomiting or aspirates are not defined nationally as time critical transfers, if there are clinical features of an acute abdomen and/or physiological instability +/- radiological concerns (hence there is a significant risk the baby may have a volvulus), this will be expedited at the earliest opportunity. Such instances should also be accompanied by early surgical review with contrast examination as appropriate.

- **Park and ride transfers** will not be undertaken by Connect North West. An appropriately staffed bed must be available to admit the patient into on arrival at the receiving hospital. A bed must also be available following the surgical procedure/review.

- **Governance:** Auditing of the surgical pathway will continue, and exception reports will be generated when deviations from the pathway occur, for example transfer out of the network due to lack of capacity. Network surgical data will be reviewed quarterly as part of the NWNODN Surgical SIG data collection processes.

- **Parents/families:** it is the responsibility of all healthcare professionals to keep parents/families informed and updated on their infant's care.

Appendix 3: Referral for Elective Surgical Procedure Form

Surgical Booking Team **Specialist Surgical Nurse**

Referring unit			
Contact number			
Name / Designation of Referrer			
Patient Name ***Block Capitals***			
NHS Number	_ _ _ _ _ _ _ _ _ _	**Planned date of discharge**	
DOB		**Time of birth**	
Gestation		**Corrected Gestation**	
Birth Weight		**Current Weight**	
Infection status		**Mode of delivery**	
Bed type Required Please Circle	**ITU**	**HDU**	**SC**
Diagnosis/ Advice required			
Previous Surgical procedure			
Respiratory Status			
Mothers Name		**Tel:**	
Home address			
GP Name		**Tel:**	

Appendix 4: Perioperative Care of Extremely Preterm Babies

[Framework: Perioperative care of extremely premature babies at <28 weeks gestation | British Association of Perinatal Medicine]