East Midlands
Neonatal Operational Delivery Network

NETWORK STANDARD OPERATING PROCEDURE

Procedure:	**Drive Through Contrast for Babies and Infants with Bilious Vomiting**
Version:	**01**
Date:	**February 2024**
Review Date:	**February 2027**
Approval:	**EMNODN Clinical Governance Group**
Authors:	**Dr J Preece, Dr A Currie, Dr D Sham**
Consultation:	**EMNODN Surgical Units and CenTre Transport**
Distribution:	**Neonatal Units within EMNODN**
Risk Managed:	

This document is a standard operating procedure. Its interpretation and application remains the responsibility of the individual clinician, particularly in view of its applicability across the different Trusts in the East Midlands Neonatal Operational Delivery Network. Please also consult any local policy/guideline document where appropriate and if in doubt contact a senior colleague.

This service is dependent on CenTre being able to provide staff and an ambulance for a drive-through rather than transfer to a neonatal unit. At busy times, other work may need to take priority and CenTre may need to change an agreed drive-through to a simple transfer. The responsibility for this decision remains with CenTre who will have an overview of their capacity and other demands on the transport service at any given point.

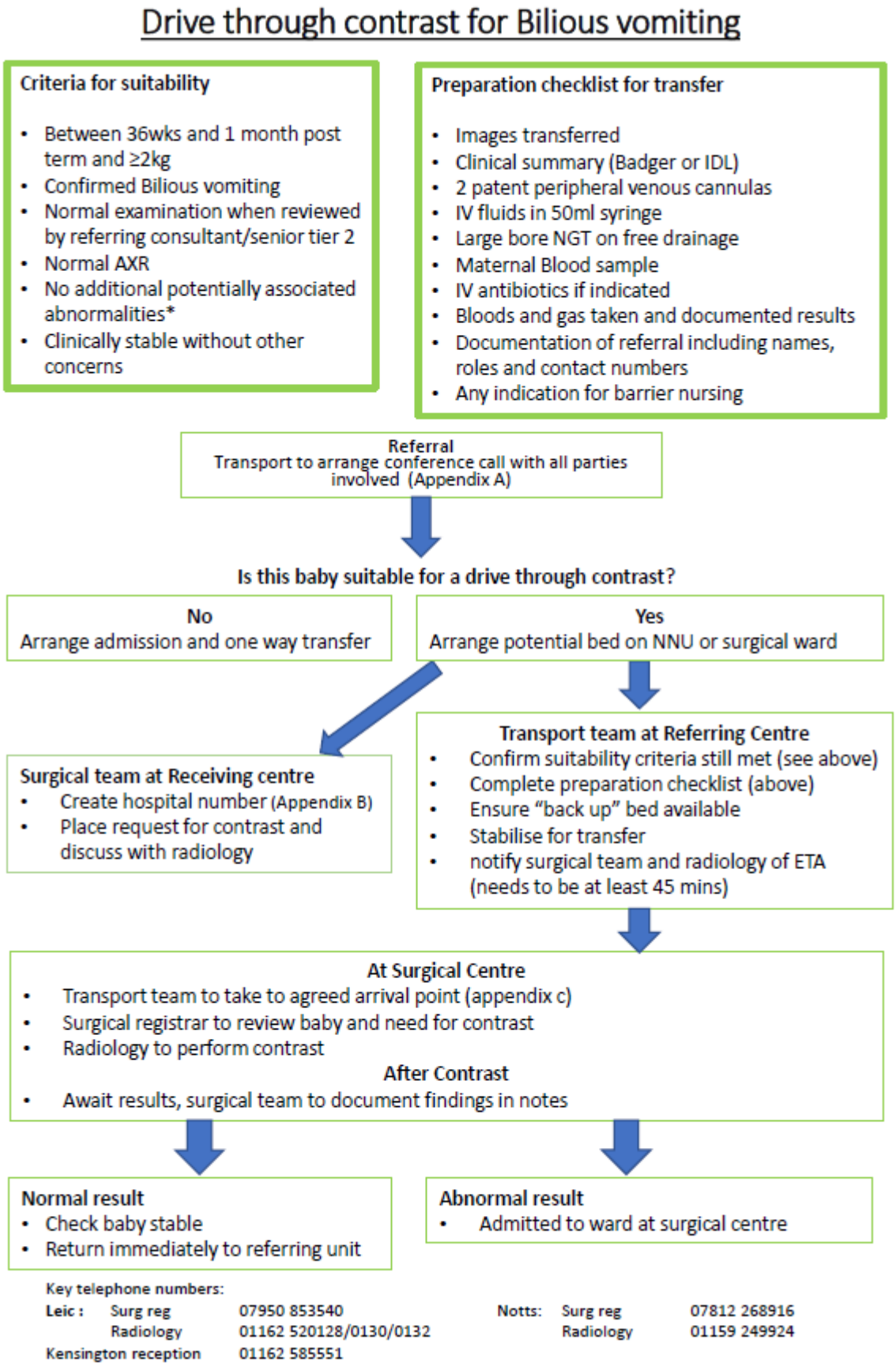
REVIEW AND AMENDMENT LOG

Version	Type of Change	Date	Description of Change
1	-	Feb 2023	New procedure

Contents

Summary 4
1. Criteria for Suitability 5
2. Checklist 5
3. Drive-Through Contrast Process 6
3.1 Referral 6
3.2 Transport Team 6
3.3 Receiving Centre 6
3.4 Responsibilities – Important Requirements 7
Appendix A 8
Appendix B 10
Appendix C 12
Appendix D 13

Summary



* if baby has abnormalities that are likely to be unrelated to the bilious vomiting, then suitability for drive through contrast should be discussed by the referring and receiving teams clinicians.

1. Criteria for Suitability

- Babies between 36 weeks gestation and 1 month post term and with a birth weight ≥ 2kg
- Confirmed bilious vomiting
- Reviewed by referring consultant or senior tier 2 (ST 4 or above) and xrays reviewed by receiving surgical consultant or senior tier 2.
- Where a referring consultant is unable to personally review a patient before referral, they should be fully involved in the decision to refer. Ideally a review should then take place at the earliest opportunity before transfer.
- Recent AXR shows no abnormalities
- No other potentially associated congenital abnormalities – if baby has abnormalities that are likely to be unrelated, then suitability for drive through contrast should be discussed by the referring and receiving clinicians.
- Normal abdominal examination at referral and before transfer by the CenTre Retrieval team
- Otherwise stable infant with no respiratory, cardiovascular or other abdominal concerns.

2. Checklist

See Appendix C.

This must be prepared by the Referral unit when contacting Transport team. Contrast for bilious vomiting is considered a time critical procedure and therefore completion of the checklist is essential as the transport team mobilises for retrieval.

- Parents are aware of referral, potential need for transfer and are contactable
- Imaging from Referral unit transferred to radiology department at Receiving unit
- Infant has two patent peripheral venous cannulas
- IV fluids on 50ml syringe
- Large bore NGT on free drainage
- Maternal blood sample for Group and Save labelled with 4 patient identifiers available to go with baby
- IV antibiotics given if indicated
- Blood tests, including blood gas analysis, taken and results available
- Documentation of referral to surgical registrar or consultant including names and grade and details of person acting as point of contact at the receiving centre
- Confirmation of “back up” cot or bed should baby be required to stay,
- Review microbiology for baby and mother for multi-resistant organisms
- Contact details for parents including names, telephone numbers and ensure they are aware of the reasons for transfer.
- For all patients the discharge summary should include NHS number, name, DOB, phone number, place of birth, GP and next of Kin

3. Drive-Through Contrast Process

All calls should use CenTre Call Handling Service (currently run by 365 Call Handling) to make referral

Telephone: 0300 300 0038

3.1 Referral

- Referring Unit requests a surgical referral for a baby with bilious vomiting (Appendix A)
- Call handler arranges conference call involving:
  - Transport Team
  - Paediatric Surgical Registrar for relevant Neonatal Surgical centre (see Appendix A)
  - Neonatal consultant on-call for receiving centre if newborn baby
  - Consultant or tier 2 doctor/ANNP from referring unit
  - Transport consultant
- Discussion with Surgical team as to whether a drive-through contrast study is appropriate.
  - If YES continue with this pathway;
  - if NO then arrange one-way transfer to a surgical unit for admission to a neonatal or paediatric bed
- Transport service to confirm a team is available for a drive through rather than simple transfer
- The following should be confirmed
  - Referring unit will keep cot available for return journey
  - Surgical site neonatal unit or paediatric ward has a cot available should baby need to stay

3.2 Transport Team

- Transport Team to ideally be mobilised within 1 hour of taking initial referral. If this is not possible, prioritisation of transport teams should be made by the transport Consultant and the decision documented. A datix report should be submitted at the appropriate time.
- Surgical registrar to contact the onsite Radiology registrar to inform them of referral and estimated time of arrival at the receiving centre.
- CenTre transport team to assess infant on arrival at referring unit.
- Confirm that the criteria for Drive Through are still being met and that a checklist is complete.
- Stabilise as required and make ready for transfer.
- Once stabilisation complete and ready to leave the referring unit, the transport team contacts receiving Paediatric Surgical Registrar or other point of contact to inform them of expected transit time and arrival time at Surgical centre.
- Transport team to call surgical and radiology teams 45 minutes before ETA to allow Radiographer and Radiologist to be called in and for rooms to be prepped and warmed.

3.3 Receiving Centre

- Receiving Trust arranges local Patient Hospital number as per local processes – (Appendix B)
- Transport team take infant to Radiology department to meet paediatric surgical registrar and radiologist – (Appendix C)

- Paediatric surgical registrar to undertake a clinical review prior to contrast to confirm it is indicated and safe
- Contrast study performed. Transport team remains with baby
- Paediatric surgical registrar/consultant and Radiologist review images and document findings plus agreed clinical next steps. Radiology consultant to be asked to review images if Radiology registrar has any doubt about findings.
- Immediately after the contrast is done, surgical unit will discuss findings and actions with referring and receiving ward/teams. This is to ensure that if the bed is not required, it is released and parents are aware of the decision.
- If the contrast study is normal - Transport team to contact referring unit to inform them they are bringing infant back to referring unit.
- If the contrast study is abnormal, in most cases the infant will be admitted to the neonatal unit or neonatal/paediatric surgical unit prior to surgery to facilitate nursing handover and transfer from the transport incubator.
- When it is necessary to transfer a baby to theatre immediately, the surgical team remains the responsible clinical team until post-operative handover to neonatal teams.
- The decision for the timing of surgery is the responsibility of the surgical team at receiving unit.
- Babies going direct to the operating theatre need a review by the anaesthetist as soon as possible to ensure all preoperative assessment is in place. If the transport team is unable to wait for this review, the baby should be taken to the allocated ward.
- Transport team hands over care to receiving surgical and/or medical teams which must include appropriate nursing support before the transport team depart.

3.4 Responsibilities – Important Requirements

- Referring unit MUST keep cot available for a minimum of 12 hours on assumption infant will be returned if Contrast is normal
- CenTre acute transport team are responsible for transferring infant and to stay with infant during contrast study
- Surgical team are responsible for requesting imaging, acquiring a hospital number and informing radiology
- Transport team is responsible for handover either to theatre teams or the receiving ward team.

Appendix A

1. Contacting Appropriate Surgical Centre

There are two Neonatal Surgical Centres in the East Midlands: Queen's Medical Centre (QMC) and Leicester Royal Infirmary (LRI).

- LRI is the referral pathway for:
    - Leicester General Hospital, Burton, Northampton, Kettering,
    - West Midlands Neonatal Centres – Coventry, Nuneaton and Warwick
- QMC is the referral pathway for:
    - Nottingham City Hospital, Mansfield, Derby, Lincoln, Boston

2. Process for Referral Conference Call:

All initial calls come through call handling to CenTre. Conference call to be set up with parties listed above. A baby will be referred to the appropriate centre according to referral pathways above.

Leicester: Contact Paediatric Surgical registrar for LRI.

Nottingham: Contact Paediatric Surgical registrar for QMC.

3. Contacting Radiology

Leicester

- In hours 9-5 pm - "heads up" call to Radiology at referral.
- Out of hours - 45-minute warning of referral (may be after transport team have set off to referring centre)
- Out of hours the radiology registrar on call is the point of contact and can be contacted on 01162 520128/0130/0132 (or if dialling internally 10128/ 10130/ 10132).

Nottingham

- All times – heads up call to Radiology when referral is accepted and 45 minutes before the transport team are due to arrive at QMC. The second call is to allow the room to be set up or for instructions about going to the holding area.
- Weekdays in hours 9-5 pm
    - Contact paediatric radiologist on 01159 249924 (internal extension 87121). This extension is usually manned by the radiology registrar on call.
    - If there is no answer from extension 87121, ring the reception desk on 01159 709244 and ask for the paediatric radiographer.
- Weekends and bank holidays 8 am to 4.30 pm

- Fridays 5pm-6.30pm
  - Radiology registrar is the first point of contact on 01159 249924 (internal extension 80445/80447) or via switchboard.
- Out of the hours listed above
  - Refer to Nottingham Surgical and Neonatal Services for an inpatient cot and discussion for appropriate timing of the contrast. Nottingham services are moving towards provision of a 24-hour service for drive through contrast - details of the process for contact will be added to this SOP when the service is available.

Appendix B – Creating a Patient Hospital Number

Leicester:

- Paediatric surgical registrar to ensure a hospital number is created as soon as the referral is accepted using patient centre (S number). General identifiers will include NHS number, name, DOB, phone number, place of birth, GP and next of Kin (information should be on Badger for neonatal patients).
- The S number will be created by the receptionist in Kensington building. Call on 0116 258 5551 with the details as above. If assistance is needed with the S number, reception in ED can be telephoned and asked to assist.
- Paediatric ED can assist with creating UHL Hospital Number for infant but this should be done at the point of referral before submitting the request for the contrast.
- Once radiologist has confirmed the contrast study can be done, surgical team to create a request on ICE.

The information required to create an S number in UHL is:

Baby's information

DATE OF BIRTH	
SURMANE	
FORENAME	
GENDER	
FULL ADDRESS	
TELEPHONE NO	
GP	
NHS number	

Next of kin details

TITLE	
SURNAME	
FORENAME	
RELATIONSHIP	

Additional information if available

ANY ALLERGIES	
ALERTS	
SPOKEN LANGUAGE	
INTERPRETER NEEDED?	
ETHNIC ORIGIN	
RELIGION	

Nottingham

- Using the referral find the patient on the Summary Care Record (usually the NHS number is needed) then transfer the data to Medway in order to create a K number.
- Surgical team to create a request on CRIS once the referral is accepted and the radiologist has confirmed the investigation can be done. The patient should be listed as an outpatient, which then generates a hospital number (K number).

Appendix C

Taking infant to Radiology

- Radiology and surgical teams should already be aware of the patient before their arrival including their expected arrival time
- Ensure that out of hours the on-call radiographer has been informed and is on their way when appropriate.
- Surgical team should be present to clinically review the patient as soon as the transport team arrive and remain present for the contrast study.

Leicester:

- Transport team to ring radiology on 01162 520128 / 0130 / 0132 (or if dialing internally 10128 / 10130 / 10132) to check the team are present and the room is open. ED also to be called to let them know the transport team will be coming through on route to radiology. Team enter LRI via Paediatric ED at Leicester Royal Infirmary (ie: Paediatric Single Front door)
- Go via main entrance in Balmoral wing towards the lifts and across to Radiology or left to ED.
- Transport team take baby to radiology department in Windsor building, level 1, where radiology and paediatric surgical teams will be waiting.
- If the radiology team are delayed elsewhere and cannot open the room in Windsor building, then the transport team will be directed to the holding area in Balmoral xray (halfway between ED and children's xray room 9). There is wall mounted O2 and suction if required.
- The holding bay can only be used for a maximum of 20 minutes. If the delay is anticipated to be longer the transport team will divert to the Neonatal Unit and to hand over the care of baby. The baby will return to NNU after contrast and transport back to the referring centre arranged as soon as it is possible for CenTre to do this (may be the next shift).

Nottingham:

- Transport team to ring radiology on 01159 249924 (internal extension 87121) to check the team are present and the room is open
- Transport team go to QMC Nottingham to access radiology on B floor
- Consultant radiologist and radiographer set up room ready for procedure
- Transport team to bring baby to B floor Radiology department
- If radiology team are delayed – transport team to divert to the NNU in QMC as a holding area until radiology able to be set up. As for Leicester, if after 20 minutes the radiology team is unavailable; care of the baby will be handed over to the neonatal team to release the transport team to leave. This will require transfer to the neonatal bed or transport incubator and a new request for transfer back to the referring centre made after the contrast.
- If radiology staff are delayed out of hours (including Saturday and Sunday daytime), the transport team should not try to access radiology to wait as the department will be locked.

Appendix D – Checklist for Drive Through Contrast

Date of Referral: …….

Attach Patient Sticker

Checklist item	Sign when Complete
Parents are aware of referral, potential need for transfer and are contactable	
Imaging from Referral unit transferred to radiology department at Receiving unit	
Infant has two patent peripheral venous cannulas	
IV fluids on 50ml syringe	
Large bore NGT on free drainage	
Maternal blood sample for Group and Save labelled with 4 patient identifiers available to go with baby	
IV antibiotics given if indicated	
Blood tests, including blood gas analysis, taken and results available	
Documentation of referral to surgical registrar or consultant including names and grade and details of person acting as point of contact at the receiving centre	
Confirmation of “back up” cot or bed should baby be required to stay	
Review microbiology for baby and mother for multi-resistant organisms	
Contact details for parents including names, telephone numbers.	
For neonatal patients the Badger Discharge summary should include NHS number, name, DOB, phone number, place of birth, GP and next of Kin	