Embrace
Yorkshire & Humber Infant & Children's Transport Service

NHS
Yorkshire and the Humber
Clinical Networks

The Yorkshire and Humber
Neonatal
Operational Delivery Network

Yorkshire and the Humber In-Utero Transfer Guideline

Version: 5.0

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Purpose

Embrace Infant and Children's Transport Service offers the ability to provide advice and facilitate the process for the in-utero transfer of mother and baby within Yorkshire and the Humber. The purpose of this document is to provide guidance on in-utero transfers for Yorkshire and the Humber.

Intended Audience

Embrace, maternity and neonatal clinical staff in Yorkshire and the Humber.

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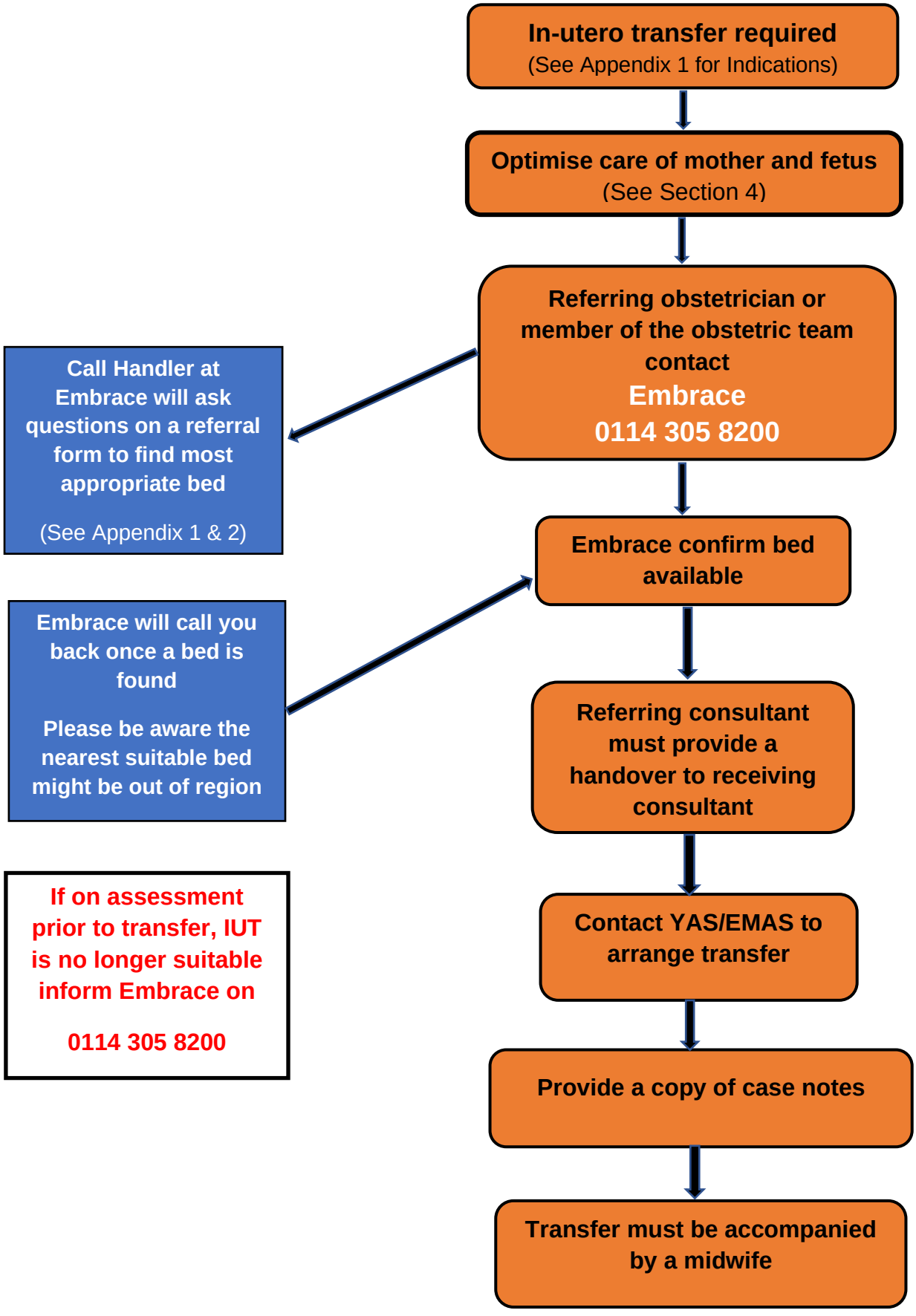
Yorkshire & the Humber In-Utero Transfers Flowchart



1. Statement of intent

In-utero transfer maybe necessary to optimise the mother and baby outcome and it is generally accepted that in-utero transfer has advantages for the fetus/neonate over ex-utero transfer. The purpose of this guideline is to help provide enhanced care to ensure that mother and baby receive the right care in the right place at the right time.

2. Aim of the guideline

This guideline supports appropriate in-utero transfers within Yorkshire and the Humber network and aims to:

- define the indications for in-utero transfer.
- optimise care of mother and fetus.
- ensure the correct process for transfer is followed by referral to Embrace Transport, providing key information to enable the most appropriate maternal bed and co-located neonatal cot to be located.
- ensure that maternity staff arrange an ambulance and transfer of the mother once a bed is confirmed.

The appropriate use and interpretation of this guideline in providing clinical care remains the responsibility of the individual clinician. It is acknowledged that clinical circumstances may dictate that an in-utero transfer is not appropriate. These cases will be reviewed as part of the off-pathway process.

3. IUT for the extreme preterm infant: Background and Key Updates from the 2021 Guidelines

3.1. Rationale for the updated guidelines

This guideline (v5.0) is an updated version of the 2021 Y&H In-Utero Transfer Guideline (v4.0).

It is recognised that there is a need to facilitate the implementation of the IUT pathway with greater success and consistency as, despite having a standardised approach to IUT, the Y&H Network are consistently and significantly below the national target of greater than 85% of babies under 27 weeks born in the right location for their gestation.

This updated guideline has been produced following consultation with key stakeholders with the purpose of restoring and maintaining the rate of successful IUTs to greater than 85%.

The overarching change to the guideline is the addition of a Universal Maternity Acceptance Guideline (UMAG) for in-utero transfers in the Y&H Network (when a neonatal cot is available) unless the unit is in escalation or there are significant safety concerns. This guidance currently applies to <27 week singleton and <28 week multiple pregnancies.

This is accompanied by an improved audit and oversight process as described in Section 11 and Appendix 3.

3.2. Key updates

- Collective Responsibility

There is an expectation that a maternity unit will accept an appropriate IUT for <27 week singleton and <28 week multiple requests from within their network.

- Maternity OPEL level

Y&H maternity units to utilise the OPEL Maternity Framework (OPELMF) to inform their decisions thereby providing a standardised approach. (see section 4.1)

- Senior MDT discussion and authorisation must precede any acceptance or decline of an IUT request

All IUT requests must be discussed and authorised by the senior midwife and consultant obstetrician on duty as a minimum. Where appropriate the senior neonatologist must be involved in the discussion. These discussions may be held virtually/by phone where the most senior clinician is not physically present in the unit.

- Oversight of unsuccessful requests

The IUT checklist proforma (appendix 3) has been amended to collect IUT requests where acceptance has not been achieved.

- Data Capture and Analysis

A Y&H review proforma has been introduced for the consistent review of IUT cases and outcome data at provider and system level. This will allow learning to be shared and analysis conducted of system and regional level IUT data trends. The effectiveness of this process is reliant on the availability of high-quality data capable of reflecting the timeframe, decisions, and individuals relevant to each IUT request. As such it is essential that the IUT proforma (appendix 3) is completed.

4. OPEL Maternity Framework

Trusts to utilise the OPELMF as a decision tool

4.1. Escalation Triggers see appendix 4

5. Indications for an in-utero transfer

Indication for transfer broadly include:

- Neonatal gestational thresholds (Preterm Labour) (see **Appendix 1**)
- Antenatal diagnosis requiring specialist postnatal care e.g. cardiac
- Infants between 27-32 weeks who have had PPROM from prior to 22/40 and evidence of on-going oligohydramnios

- Specialist maternal care
- Bed/cot capacity or staffing
- Other – any pregnant woman may need to be transferred. It is not possible to provide an exhaustive list.

For a pregnant woman to be suitable for transfer, the staff at the referring hospital need to balance the risks of the transfer against the potential benefits. Compromising the maternal health or a significant risk of delivery enroute would be an absolute contraindication to transfer and consideration should then be given to delivery on site and postnatal ex-utero transfer.

The feasibility of the transfer realistically depends on the time taken to arrange and execute travel. As some transfers can take longer to arrange and the transfer time itself can be lengthy, the in-utero transfer may become impracticable. If this is the case, please keep the Embrace cot bureau informed.

6. Management of an In-utero Transfer (see Flowchart page 4)

Preparation

- It is essential that both referring and receiving consultants are fully aware of the transfer. All cases should be discussed with a consultant prior to arranging transfer. Where possible consultant to consultant handover will occur from the referring unit to the receiving unit. It is recognised that there are circumstances (e.g. out of hours) where the resident obstetrician will have all the relevant information to hand compared to the non-resident consultant. It is accepted that the resident obstetrician can then discuss the transfer with the receiving unit provided they have first discussed it with their own consultant.
- If any problems are perceived with the transfer, there should be a consultant to consultant discussion.
- Embrace Transport Service are charged with finding the most appropriate maternal bed and co-located neonatal cot with an aim for this to be as close to the mother's home address as possible, but it could be out of area. The Embrace Call Handlers are non-medical staff and therefore to arrange the most appropriate referrals they need to be provided with all the necessary information (see **Appendix 2**).
- The parents/woman must consent to the transfer.

The Transfer

- Ensure optimisation strategies have been implemented (see section 5).
- Women being transferred should be escorted by a midwife but there is no requirement for medical staff either obstetric or paediatric. If there is sufficient concern for a doctor to be required for transfer, then the condition of mother or fetus is such that delivery should occur locally and a postnatal ex-utero transfer arranged.

- The number of qualified staff required to escort women with a multiple pregnancy should be individualised depending on the clinical situation.
- It is recommended that a basic neonatal resuscitation kit is taken on the transfer.
- The referring unit is responsible for the safe, efficient and rapid transfer. In particular if the transfer has taken time to arrange a reassessment of the case, including a repeat vaginal examination if appropriate, should occur prior to transfer.
- The receiving unit obstetric team, neonatal unit, and delivery suite coordinator should be informed of the indication for transfer and be fully aware of the clinical history.
- A set of case notes should be sent with the woman along with information about treatment and plans made during the admission. Where electronic records are used, local arrangements should be followed to ensure case notes are shared.
- Appropriate follow up should be arranged. When delivery has occurred, it is still important to inform the referring hospital and again a clear plan needs to be made with regard to required follow up.
- If the unborn baby is subject to a child protection plan or if there is Children's Social Care involvement, the receiving hospital needs to be made aware of this. The relevant Social Worker should be informed that the woman will be moving out of area for a temporary period.

7. Transfer for Preterm labour

The diagnosis of genuine preterm labour (PTL) can be difficult. Ideally the diagnosis will be made based on the findings of regular uterine contractions and a change in the cervix. Waiting for the latter might mean that the opportunity to arrange a transfer is missed. As more hospitals within the region introduce predictive test screening, our ability to become more selective will improve. Negative predictive value of these tests is around 99%, however, positive prediction is modest (<20%). The use of quantitative fibronectin and the use of the QUiPP App (https://quipp.org) is the most sensitive and improves the sensitivity of the test. A risk of greater than 5% of giving birth within the next 7 days may be used as a threshold for further care and transfer. A transvaginal ultrasound scan of the cervix may also be considered. A cervical length of less than 15mm and uterine contractions is suggestive of preterm labour.

Antenatal Steroids and Magnesium Sulphate

- Women in PTL (or threatened PTL) between 22+0 and 33+6 weeks of gestation should be offered betamethasone 12mg by intramuscular injection, two doses, 12 hours apart. Steroids can be considered in women 34+0 to 35+6. If this is unavailable, then dexamethasone is a suitable alternative (same dosage/administration).
- The administration of Magnesium Sulphate for neonatal neuroprotection should be offered in gestations at 30 weeks or less (and can be considered up to 33+6 weeks). In meta-analysis use of magnesium sulphate reduces the likelihood of cerebral palsy from 10 to 7% in babies born at less than 30 weeks. It is likely that

benefit is conferred even after the loading dose has been given so administration to mothers should be considered even if delivery appears imminent.

- Administer 4g IV loading dose Magnesium Sulphate, then 1g/hour IV maintenance dose (loading dose alone may still be beneficial if gives birth before maintenance dose commenced). Continue for 24 hours or until birth (whichever comes first). Monitor maternal reflexes, maternal observations and urine output as per local guidelines for Magnesium Sulphate. If transfer is necessary, the Magnesium Sulphate loading dose should be given prior to transport. Continue the maintenance dose until ambulance arrives, but do not administer during transfer. Assess on arrival at tertiary unit for recommencement of maintenance dose. (PReCePT 2018).
- Consideration should be given to the use of tocolytics for the transfer even with Preterm Pre-labour Rupture of Membranes (PPROM), although the women should be advised that their use might only be for the duration of transfer. PPROM – the median latency between rupture of the membranes occurring between 25 and 31 weeks and delivery is 10 days. Indication for transfer will not therefore necessarily be because of PPROM per se but because of evidence of uterine activity or signs of chorioamnionitis.
- Cases where predictive tests and cervical length not indicated. It is recognised that some women are transferred for indications where these tests are not indicated such as pre-eclampsia or severe fetal growth restriction with abnormal fetal dopplers. In these cases, a decision to transfer will be made between the referring and accepting obstetric team at consultant level.
- If a woman is felt to be too unstable to transfer, then this decision should be reconsidered at intervals of no longer than 6 hours and if the clinical situation changes to permit transfer this should be facilitated as soon as possible. There may be times when discussions are required between referring and receiving obstetric and neonatal teams prior to transfer. Embrace can facilitate these discussions using multidisciplinary call conferencing facilities with digital recording.

8. Transfer for a maternal indication

The maternal condition must be such that it is safe for the women to be transferred. The ambulance crew and midwife cannot be expected to deal with women with unstable blood pressure or with a significant ante partum haemorrhage. The women must therefore be in a stable condition prior to transfer.

There may be occasions where the woman needs to stay at the current hospital due to certain maternal conditions (e.g. severe liver or renal disease) and therefore require specialist multi-disciplinary team care. This should be discussed with the neonatal team as it may mean that a preterm baby will need to be transferred ex-utero for maternal safety.

9. Transfer for specialist paediatric services

In this situation assuming there are no maternal issues the only major concern is ensuring that delivery does not occur en route. It would be far more sensible, for example, to deliver a baby with a known cardiac defect in the local hospital and then stabilise the baby pretransfer than for delivery to occur en route.

If the transfer has taken time to arrange a reassessment of the transfer for specialist paediatric services needs to be undertaken.

10. Transfer back to the original referring unit in cases where delivery does not occur and continuing care is required

As a general rule, 48 hours after transfer, if delivery is not imminent and there are no active problems that would contraindicate a journey, transfer back to the original unit for expectant management (whether as in or outpatient) should be considered and facilitated.

It is advised that this discussion occurs between the on-call consultants for each unit as the transfer back will usually be within normal working hours. The receiving doctor will then ensure that communication occurs to their relevant colleagues within the unit and confirm follow up for the patient.

The consultant referring the patient back to their original unit will provide a clear written discharge plan. This should also be copied to the patient's own consultant so that they are aware of the management plan for continuing care.

11. Audit and oversight

<u>The need for accurate and consistent data capture of the IUT pathway</u>

Consistent and timely analysis is vital in supporting a culture of ownership and continuous improvement. The review of IUT acceptance and declines must be undertaken so that learning can be shared, and analysis conducted of system and network level IUT data trends

References

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NICE (2015) *Preterm Birth and Labour CG25*

Oxford AHSN (2016) *Place of Birth of Extremely Preterm Babies in the Thames Valley Network Area – an update;* http://www.oxfordahsn.org/wp-content/uploads/2015/05/FINAL-Place-of-Birth-A-Year-On-July-2016.pdf

PReCePT (2018) http://www.ahsnnetwork.com/about-academic-health-science-networks/national-programmes-priorities/precept/precept-resources/

QUiPP App Toolkit For women in threatened preterm labour version 2 (2020) https://www.bapm.org/pages/187-quipp-app-toolkit

Travers Colm P, Clark Reese H, Spitzer Alan R, Das Abhik, Garite Thomas J, Carlo Waldemar A et al. *Exposure to any antenatal corticosteroids and outcomes in preterm infants by gestational age: prospective cohort study* BMJ 2017; 356 :j1039

London Maternity Clinical Network and London Neonatal Operational Delivery Network (2018) **Pan-London guideline for in utero transfer.** NHSE London

Appendix 1

Transfer Thresholds for In-Utero and Postnatal Babies

Known major abnormality, any gestational age

- Leeds General Infirmary
- Sheffield, Jessop Wing

Level 3 'Tertiary' centres (Neonatal Intensive Care Units)

- Leeds General Infirmary
- Bradford Royal Infirmary
- Hull Royal Infirmary
- Sheffield, Jessop Wing

In-Utero transfers:

- Between 22+0 and less than 27 weeks - singletons
- Between 22+0 and less than 28 weeks - twins
- Estimated birth weight less than 800g (any gestation)
- Between 27-32 weeks who have had PPROM from prior to 22/40 and evidence of on-going oligohydramnios
- Transfers from LNU's at 27+0 to 27+6 (singletons) and 28+0 to 28+6 (twins) for capacity reasons should ideally be to a NICU to minimise the risk of further postnatal transfer.

Postnatal Babies

- Less than 27 weeks - singletons
- Less than 28 weeks - twins
- Birth weight less than 800g (any gestation)
- Any baby needing more than 48hrs of ventilation to be discussed
- Any baby requiring complex intensive care with symptoms of multi organ failure

Level 2 (Local Neonatal Unit)

- Calderdale
- Pinderfields
- York
- Barnsley
- Scunthorpe
- Grimsby
- Doncaster
- Chesterfield
- Rotherham

In-Utero transfers:

- 27 weeks and over - singletons
- 28 weeks and over - twins
- Estimated birth weight must be more than 800g

Postnatal Babies

- 27 weeks and over corrected gestational age - singletons
- 28 weeks and over corrected gestational age - twins
- Current weight must be more than 800g

Level 1 (Special Care Unit)

- Airedale
- Harrogate
- Scarborough
- St James
- Bassetlaw

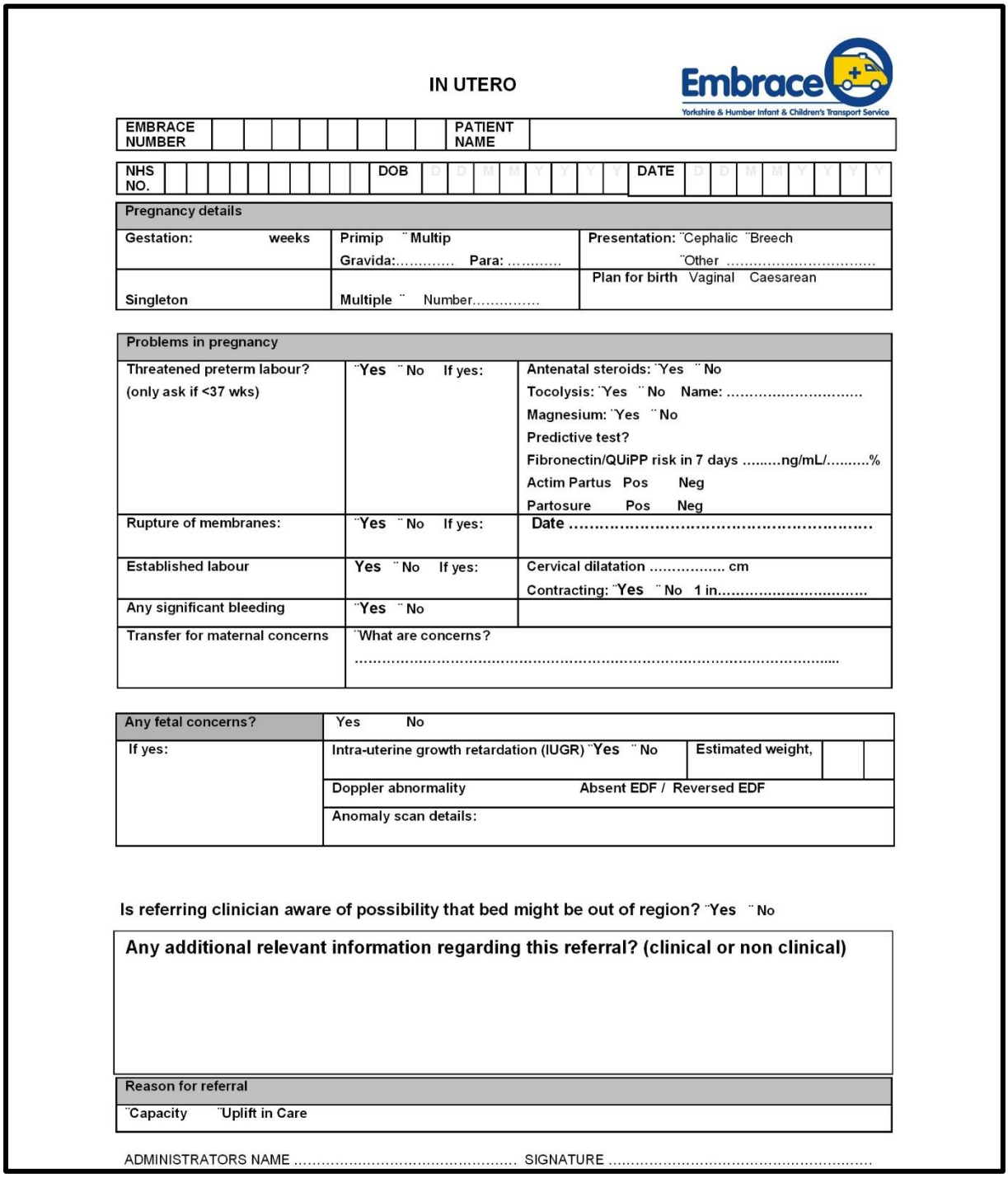
No In-Utero transfers to a level 1 centre

St James, Leeds will need to be with discussion with the team

Postnatal Babies:

Full feeds and classified as special care
32 weeks and over corrected gestational age
Can discuss babies more than 30 weeks corrected gestational age if consultants are in agreement

Appendix 2



IN UTERO

Embrace
Yorkshire & Humber Infant & Children's Transport Service

EMBRACE NUMBER		PATIENT NAME	
NHS NO.		DOB	D D M M Y Y Y Y
DATE	D D M M Y Y Y Y		

Pregnancy details		
Gestation: weeks	Primip ¨ Multip Gravida:..... Para:	Presentation: ¨Cephalic ¨Breech ¨Other .....
Singleton	Multiple ¨ Number.....	Plan for birth Vaginal Caesarean

Problems in pregnancy		
Threatened preterm labour? (only ask if <37 wks)	¨Yes ¨ No If yes:	Antenatal steroids: ¨Yes ¨ No Tocolysis: ¨Yes ¨ No Name: ..... Magnesium: ¨Yes ¨ No Predictive test? Fibronectin/QUiPP risk in 7 days .....ng/mL/.....% Actim Partus Pos Neg Partosure Pos Neg
Rupture of membranes:	¨Yes ¨ No If yes:	Date .....
Established labour	Yes ¨ No If yes:	Cervical dilatation ..... cm Contracting: ¨Yes ¨ No 1 in.....
Any significant bleeding	¨Yes ¨ No	
Transfer for maternal concerns	¨What are concerns?	

Any fetal concerns?	Yes No		
If yes:	Intra-uterine growth retardation (IUGR) ¨Yes ¨ No	Estimated weight,	
	Doppler abnormality Absent EDF / Reversed EDF		
	Anomaly scan details:		

Is referring clinician aware of possibility that bed might be out of region? ¨Yes ¨ No

Any additional relevant information regarding this referral? (clinical or non clinical)

Reason for referral
¨Capacity ¨Uplift in Care

ADMINISTRATORS NAME ..... SIGNATURE .....

Appendix 3. CHECKLIST & AUDIT PROFORMA: In-utero Transfers

To be completed for ALL In-utero Transfers

SECTION 1 - Demographics

NHS number		Gestation at transfer	
Maternal Age		Ethnicity	
Gravida		Para	
Patient part of continuity of care team?		YES □	NO □

SECTION 2 – Indication for transfer (please tick all that apply)

Gestation	
Estimated fetal weight <800g (any gestation)	
Antenatal diagnosis requiring specialist postnatal care	
Specialist maternal care	
Neonatal cot capacity or staffing	
Maternal bed capacity or staffing	
Other (please specify)	

SECTION 3 - Preparation – preterm labour

Fetal Fibronectin performed (if appropriate) *Result if used: ……..*	YES □	NO □
QUiPP App used *Risk of delivery within 7 days: ……*	YES □	NO □
Transvaginal scan *Result if performed: ……*	YES □	NO □
Antenatal steroids given *Number of doses:* 1 □ 2 □ *Date & time of administration:* 1: …… 2: …….	YES □	NO □
Magnesium Sulphate administered *Date & time of loading dose: ……*	YES □	NO □

Tocolytics administered	YES □	NO □
Consent obtained for transfer	YES □	NO □

SECTION 4 - Communication

IUT parent leaflet provided and discussed		YES □	NO □
Consultant to consultant handover (or resident obstetrician if out of hours)		YES □	NO □
Date & Time Embrace contacted			
Bed confirmed by Embrace		YES □ Time:	NO □
Location of bed			
Location of any maternity bed declines (please list)			
Date and time YAS/EMAS contacted to arrange transfer			
Case notes copied/shared		YES □	NO □
Date and time of transfer			
Referring unit aware of any Social Care involvement	YES □	NO □	N/A □
Social care informed of transfer	YES □	NO □	N/A □
Embrace contacted if transfer no longer required		YES □	NO □

SECTION 5 - Transfer back to the original referring unit if not delivered (for completion prior to transfer back)

Consultant to consultant handover	YES □	NO □
≥48 hours since in utero transfer from referring unit	YES □	NO □
Clear written discharge plan provided with management plan for follow up care	YES □	NO □
Date and time of transfer		

Appendix 4 Escalation triggers

	Patient flow		Activity					
OPEL STATUS	A/N & P/N Ward beds	Delivery suite beds	Triage Breaches	Unable to give 1:1 care in established Labour	Birth-rate plus activity and dependency score for Delivery Suite	Delivery suite coordinators not supernumerary	Delays in elective work for non - medical reason	Neonatal Services
Black Four	0 beds	0 beds	0 beds	Unable to give 1-1 care to woman in established labour	Birth-rate plus rating RED	Not supernumerary	Unable to transfer to another Trust	Demand exceeds available resource.
Red Three	Not enough beds for delivery suite to transfer or elective activity	Upper limits of bed capacity, no potential bed capacity within 2 hours	Women not seen in red category immediately	Unable to give 1:1 care to woman in established labour	Birth-rate plus rating RED	Temporarily providing direct care to antenatal/postnatal women whilst extra support for delivery suite is provided	Delays in elective activity for >24hours	Very limited ability to maintain patient flow in line with ODN pathways
Amber Two	Enough beds for delivery suite to transfer to ward but not elective activity	High activity with high bed occupancy but beds remain avail able	Women not assessed within 15 minutes in orange category	Moving staff to be able to give 1:1 care	Birth-rate plus rating AMBER	Delivery suite coordinators supernumerary	Delays in elective activity for > 4 hours	Neonatal service is experiencing difficulty in meeting anticipated demand with available resources
Green One	No delays in admission or transfers	Bed capacity available for delivery suite activity	All women seen with appropriate timescales in line with unit guidance	1:1 care given to all women	Birth-rate plus rating GREEN	Delivery suite coordinators supernumerary	No delays in elective work	ODN unit open to admissions in line with unit designation