NHS Midlands Clinical Networks

NHS East Midlands Neonatal Operational Delivery Network

In utero transfer (IUT) guideline for pregnancies < 27 weeks singleton or < 28 weeks for multiple gestation

NHS England and NHS Improvement

In utero transfer (IUT) guideline for < 27 weeks singleton and < 28 weeks for multiple gestation:

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1. Introduction

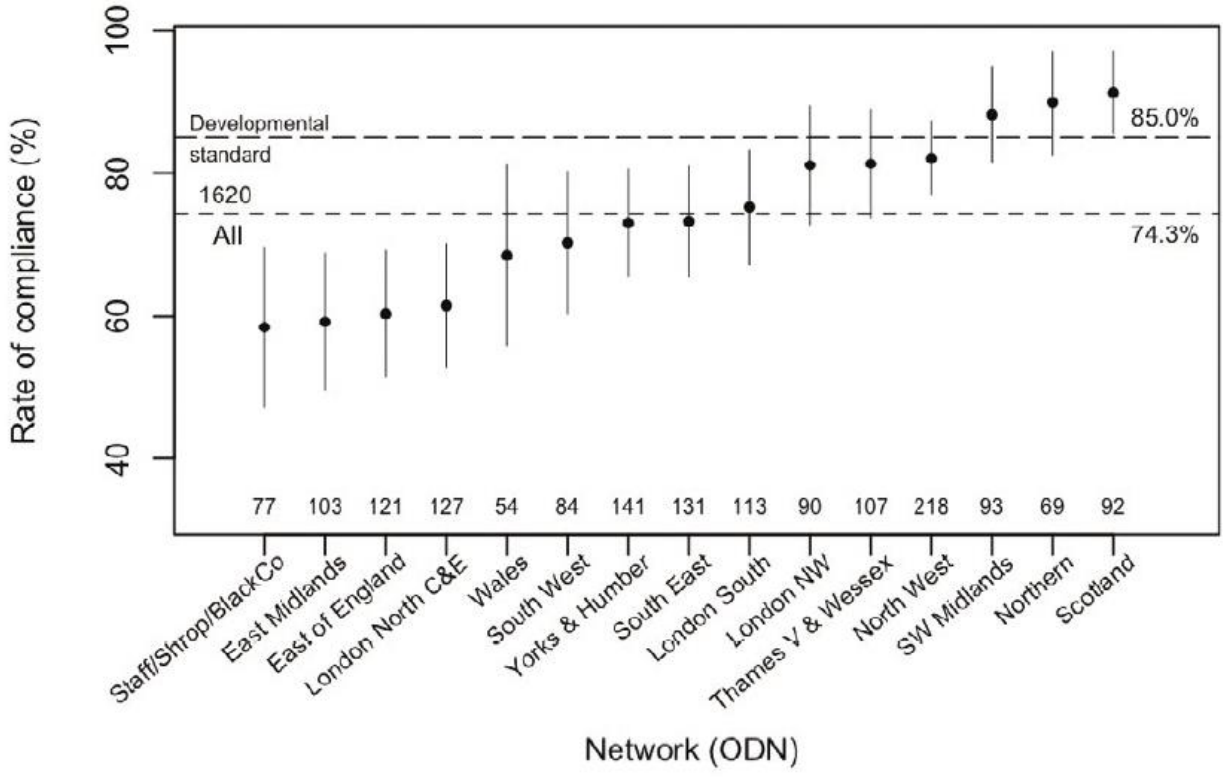
The NHS England Neonatal Critical Care service specification [E08/S/a] indicates that all women and their babies who are born < 27 weeks gestation(26+6 days and below) or birthweight < 800g and multiple pregnancies < 28 weeks (27+6 days and below) gestation should receive perinatal and early neonatal care in a maternity service with a level 3 Neonatal Intensive Care Unit (NICU) facility.

The British Association of Perinatal Medicine (BAPM) Framework 2019 has been published to assist decision making prior to and/ or at the time of birth relating to perinatal care and preterm delivery < 27 weeks gestation, or less, in the United Kingdom. In - utero transfer should be considered at the earliest opportunity when active management is planned.

Babies who are born at less than 27 weeks gestational age are at high risk of death and serious illness. National recommendations state that Neonatal Networks should aim to configure and deliver services in order to increase the proportion of babies at this gestational age being delivered in a hospital with a level 3 NICU on site. Evidence demonstrates that outcomes improve if such premature babies are cared for in a NICU from birth. Eighty-five percent (85%) of babies born at less than 27 weeks gestational age, or less than 28 weeks for multiple pregnancies should be delivered in a maternity service which is on the same site as a level 3 NICU (NNAP report 2019).

The National Neonatal Audit Programme (NNAP 2019) based on 2018 data identifies that 74.3% of babies born at less than 27 weeks' gestational age were delivered in a hospital with a NICU on site, demonstrating no notable change since 2017 when the rate was 73.9%. Three of the fifteen neonatal networks are achieving the standard of 85% which may reflect network structure as much as clinical practice. The East Midlands 2018 data demonstrates outlier status with only 60% of babies at < 27 weeks being delivered in a NICU.

Figure 1: Rates of compliance for birth in a centre with a NICU: neonatal networks (2018)



With the publication of Saving Babies Lives Care Bundle V 2 and the Neonatal Critical Care Review, there is a national drive to reduce the number of babies born at <27 weeks singleton and < 28 weeks for multiple pregnancies in centres which do not have a NICU, and thus the aim is to optimise in-utero transfer (IUT) within networks wherever possible. There is strong evidence that babies who are born in centres with NICUs have improved outcomes both in terms of mortality and morbidity. Postnatal transfer of the baby (or multiples), in addition to the newly delivered mother introduces greater risks to both mother and baby. For the babies in particular, there is an associated increase in brain injury, compared to those babies born in centres with level 3 NICUs. There is also a greater incidence of maternal/baby separation at a time when the baby could be seriously unwell and parental input is required within the clinical decision-making process.

Postnatal transfer of high-risk preterm infants is not only associated with increased risk of mortality and severe brain injury, but also maternal separation and risks of inter-hospital transfer from multiple journeys (mother and her newborns). An audit of the East Midlands network of all infants <27 weeks gestational age identified over 30 pregnancies delivering in non-NICU centres in 2018. Exploration of these revealed that in almost half, there potentially was an opportunity for IUT if a clear pathway was in place and this allowed timely transfer.

The East Midlands Preterm Group has been developed which is a joint collaborative between the East Midlands Maternity Clinical Network and the East Midlands Neonatal Operation Delivery Network. The East Midlands Preterm Birth Group has developed an In-Utero Transfer record and decision-making tool to standardise practice and improve the < 27 week singleton and < 28 weeks for multiple pregnancies pathway, see Appendix 1.

1.1 Principles to be applied:

1) Every effort will be made to accommodate requests for IUT into the level 3 hospital with a NICU. Acceptance of transfer should be the default.
2) In situations where unit capacity is stretched, Delivery suite capacity and safety must be jointly assessed by the Consultant Obstetrician and the most Senior Midwife, or the Operational Manager on site.
3) In situations where unit capacity is stretched, Neonatal unit capacity and safety must be jointly assessed by the Consultant Neonatologist and the most Senior Nurse, or the Operational Manager on site.
4) If a woman fulfilling the IUT criteria cannot be accepted, the incident should be reported on datix.

Appendix 1: East Midlands in – utero transfer record and decision-making tool

This guidance has been developed to improve survival and reduce brain injury in high-risk <27 weeks infants (singleton) and multiple pregnancies <28 weeks gestation.

It is strongly recommended that In - utero Transfer is considered at the earliest opportunity.

This form should be completed for all attempted in-utero transfers for <27 weeks singleton or <28 weeks for multiple pregnancies whether successful or unsuccessful.

Transfers should be to a Level 3 NICU = <27 weeks singleton and multiple pregnancies under <28 weeks gestation or an anticipated birthweight <800g

Please see Appendix 2 for In - utero transfer decision making tool flow chart

Please see Appendix 4 for list of East Midland Neonatal Units & Contact numbers

1.0 Which patients are unsuitable for in utero transfer?

Contraindications for IUT:

- Pregnancy < 22 weeks (if transfer is for fetal condition or threatened labour). Neonatal stabilisation may be considered for babies born from 22 weeks gestation following assessment of risk (See Appendix 2) and a multi professional discussion with parents (BAPM Framework 2019).
- Potentially lethal condition where active intervention of the fetus is not being considered even if live born. (In cases of fetal abnormalities the cases should be discussed with a fetal medicine specialist).
- Active labour where the chance of delivery in the ambulance en route is considered likely
- Maternal condition which may require intervention during transfer (for example antepartum haemorrhage or uncontrolled hypertension) or relevant to the place of delivery for maternal reasons
- Known fetal or maternal compromise requiring immediate delivery, including abnormal cardiotocography (CTG)

Patient details	
Name:	
Gestation weeks/days:	_____ weeks + _____ days
Birthweight (estimated/actual):	_____ grams
Number of live fetuses:	1 2 3
NHS Number:	
DOB:	
Named Consultant & Trust:	

Please complete if not suitable for transfer:

Not suitable for transfer
Reason why:

1.1 Threatened preterm labour predictive test performed:

Assessment:	**Yes/No:**	**Value:**
Cervical length		
Actim Partus		positive/negative
Fetal Fibronectin		positive/negative
QUIPP App		% risk in 7 days =
PartoSure		Positive/negative

1.2 Antenatal Steroids administered? Yes / No

First dose given: Date ____/____/____ Time: ____:____

If not given, please provide reason: _____

Second dose given: Date ____/____/____ Time: ____:____

If not given, please provide reason: _____

1.3 Magnesium Sulphate given? Yes / No

Time started: Date ____/____/____ Time: ____:____

1.4 Decision for in utero transfer:

All potential transfers must be authorised by the on call obstetric consultant, following discussion with the on-call consultant neonatologist/paediatrician of the referring hospital. The Risk Assessment from the BAPM Framework (2019) (Appendix 3) highlights any high risk/very-high risk category babies require discussion with the on-call neonatal/paediatric consultant at the referring hospital, and following agreement for IUT, must be discussed at consultant level for both neonatal and obstetric teams. There is three staged approach for decision making, assessment of the risk for the baby if delivery occurs, counselling parents and agreeing & communicating a management plan see Appendix 3. It is imperative that a decision is made without delay to ensure those that require transfer are transferred quickly.

1.5 Finding a neonatal cot and maternity bed

The Referring unit will contact 365 Call Handling Service (East Midlands Neonatal ODN footprint) Tel: 0300 300 0038 to obtain cot status of appropriate neonatal unit and maternal bed availability. The referring unit must state this is for < 27 week singleton or < 28 week multiple pregnancy and a NICU cot is required at Nottingham University Hospitals (NUH) or University Hospitals of Leicester (UHL) ideally following the network referral pathways. The call handlers will take brief details (Appendix 5) so please be ready with these details.

Please see refusal of transfer section if there are any difficulties in accessing a cot or maternity bed.

Unit Contacted:		
Time of contact:		
Discussed with:		

NICU accepted? **If no, why?**		
Labour ward accepted? **If no, why**		
Indication for not accepting transfer and comments		

1.6 Ambulance Service:

East Midlands Ambulance Service (EMAS) telephone number for intra-facility transfers

Tel: 0115 9675099

- Once an in- utero transfer has been accepted by the receiving neonatal and maternity unit, the referring unit should organise the transfer through EMAS.
- In- utero transfer will require EMAS Hospital category 1 priority which provides a 7-minute response. The referring unit will be asked 'Do you need our clinical help right now to deliver an immediate life-saving intervention or are you declaring an obstetric emergency? The answer should be Yes giving the reason of obstetric emergency if time critical**.**
- If the patient isn't time critical the above question should be answered NO and then the caller will be taken through a scripted algorithm, please ask for a category of call to ensure understanding of the time frames for the specific call:

➢ Category 1 – 7 mins

➢ Category 2 18-40 mins

➢ Category 3 120 – mins

➢ Category 4 – 1/2/4 Hours

Provision of an escort from the referring maternity team for the transfer will be made on a case by case basis. This decision should be made by a senior member of maternity staff on duty.

As an unplanned journey, EMAS will not guarantee that there is a paramedic on the vehicle as they are a transport platform only, if a health care professional is required to travel then the unit must send an appropriately trained member of staff.

EMAS have no responsibility to return the staff member to the unit they came from, if this is done in good faith the staff member may attend a 999 emergency as the ambulance will not be taken off the road for the return journey.

1.7 Refusal of Transfer:

A decision to refuse an appropriate transfer by a tertiary neonatal team should be made only after consultation with the neonatal consultant on duty.

A decision to refuse an appropriate transfer by a maternity unit should be made only after consultation between the senior midwife in charge of the labour ward and the obstetric consultant on duty/call.

If for any reason one tertiary centre is unable to take an IUT there should be a discussion between tertiary centres with the neonatal consultant, obstetric consultant on duty and the senior midwife in charge of the labour ward. Every effort should be made to keep a baby in network.

1.8 Maternal agreement to be transferred: Yes / No

Maternal agreement needs to be obtained prior to transfer. This should be documented in the maternal healthcare record. This should involve both written information which would include the East Midlands Neonatal Network Parent Information leaflet (Appendix 6) and verbal information by the obstetric and neonatal staff.

East Midlands Neonatal Network Parent Information leaflet given: Yes / No

Indication for Transfer:
Maternal history:

Transfer discussed and agreed with Obstetric Consultant in referring unit and receiving unit: Yes / No **If not why?** **Date and time:**
Time decision made for transfer:
Time of call made to request the ambulance:
Time the ambulance arrived & transferred:
In the case of a delay with ambulance transfer (over 4 hours) please state why?

1.9 Documentation:

The referring team must send a photocopy of the mother's obstetric notes and the mother's hand-held notes should accompany the mother at transfer. The in-utero transfer record & decision-making tool should stay in the patients records at the referring centre and a copy should also be forwarded to the nominated Preterm Birth lead at the referring centre They will be responsible for following the outcome of each case.

2.0 Safeguarding:

Where there are safeguarding issues, any transfer of care must include information about the case and details of all key professionals. (Lead Consultant, Midwife, Health Visitor, Social worker, GP and Safeguarding Lead). It should be ensured that all staff who take over the care of the woman are aware of what the issues are and who the key professionals are. All issues and contacts should be clearly documented in the handover notes.

2.1 Outcomes:

	Tick:	**Date:**	**Time:**
In- utero transfer			
Ex- utero transfer			
Pregnant woman stayed in local unit			

Date baby delivered: ____ /____ /____

Where was baby transferred to? _____

If transfer did not take place, please complete below table:

Reason:	**Please tick relevant box:**
Pregnant woman unwilling to accept	
Clinical change (e.g. maternal deterioration/improvement/advanced labour)	
No maternal bed found	
No neonatal cot found	
Unable to locate 2 or more cots for multiples	
Delivered prior to transfer taking place	
Delivered prior to transfer taking place due to ambulance delay	
Escort unavailable	
Other, please state:	

2.2 Communication with the Referring Unit:

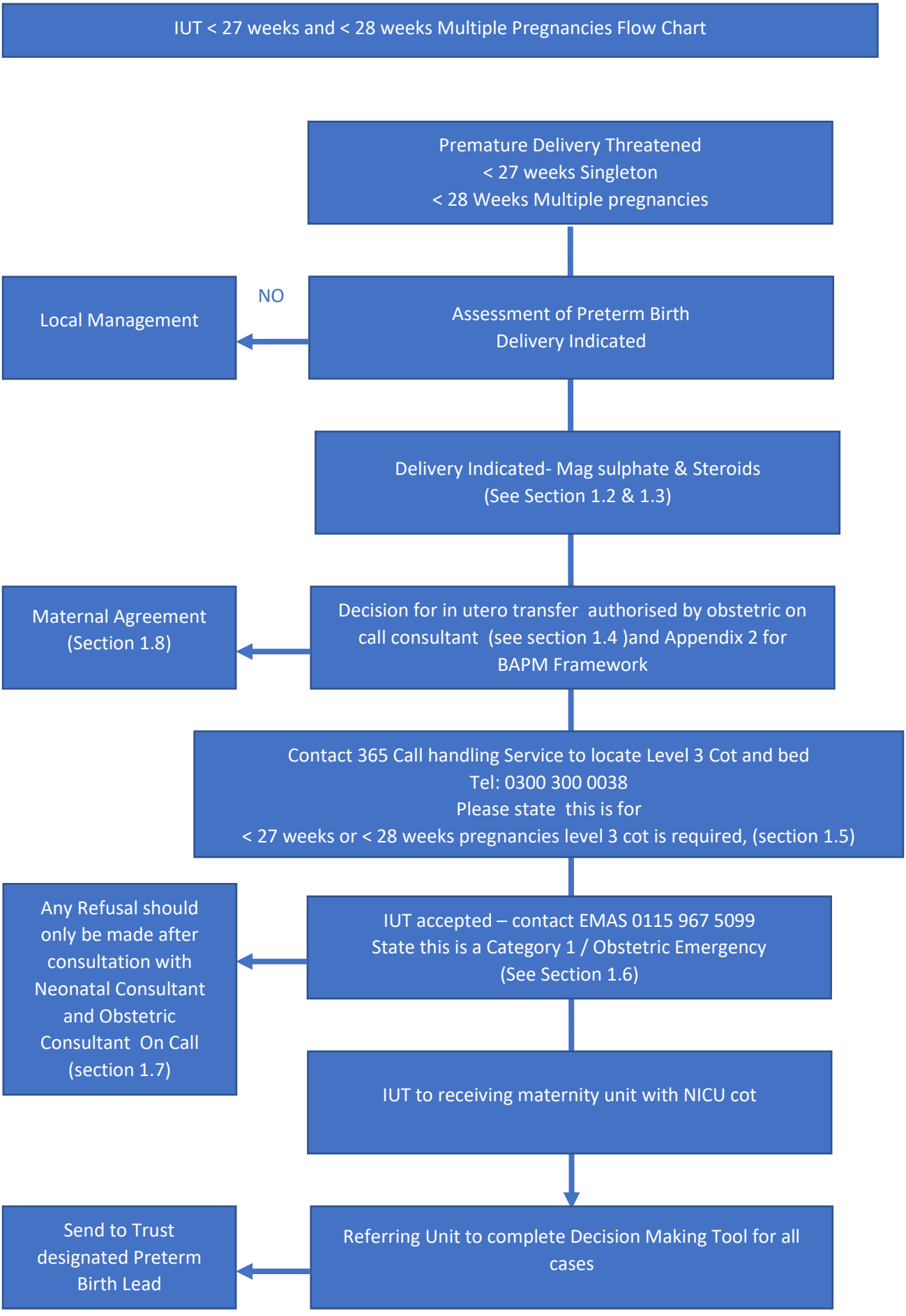
In order to ensure that the referring obstetrician is aware of the outcomes of their patient, receiving neonatal units should ensure that the referring clinician is sent a copy of the relevant discharge summary (e.g. Badger) which can then be placed in the patient's obstetric notes at the local unit. If the woman does not deliver then a discharge summary should be forwarded to the referring clinician, so the referring unit will pick up ongoing antenatal care and follow up.

In the event of a neonatal death, the neonatal unit or obstetric unit (depending upon where the death took place) should inform the referring obstetrician to ensure that local bereavement services and follow up can be made available if required.

2.3 Data Collection:

Data will be collected through CenTre and this will be downloaded on a monthly basis and sent to a nominated Preterm Birth lead at each trust. Each referring unit will also keep a record of all the in- utero transfer records and completed decision making tools. The Preterm Birth lead will be responsible for following up the outcome of each case and a review of all cases will take place on a quarterly basis with the Neonatal ODN and the Maternity Clinical Network.

Appendix 2: In - utero transfer decision making tool flow chart



Appendix 3: Risk Assessment from BAPM Framework 2019

A key ethical consideration for decisions about instituting life-sustaining treatment for an extremely preterm baby is the baby's prognosis – the risk of an acceptable (or unacceptable) outcome if active (survival focused) management is undertaken. If there is a plan to provide life-sustaining treatment for the baby, then it follows that the pregnancy and birth should be managed with the aim of optimising the baby's condition at birth and subsequently. We advise a stepwise approach to decision-making, involving three key stages:

1. Assessment of the risk for the baby if delivery occurs, incorporating both gestational age and factors affecting fetal and/or maternal health.

2. Counselling parents, and their involvement in decision-making.

3. Agreeing and communicating a management plan.

Parents should be counselled and joint decision making made about whether parents are keen to initiate active (survival focussed) treatment or comfort care.

The focus of care for extremely high-risk groups (as categorised below) should usually be comfort focussed but if the option of active care is agreed following careful and considered counselling then an IUT should be arranged to optimise place of birth in a NICU where further discussions around care at the time of birth will take place to agree a definitive plan.

BOX 1

Extremely high risk: The Working Group considered that babies with a > 90% chance of either dying or surviving with severe impairment if active care is instigated would fit into this category. For example, this would include:

- babies at 22^{+0} - 22^{+6} weeks of gestation with unfavourable risk factors
- some babies at 23^{+0} - 23^{+6} weeks of gestation with unfavourable risk factors, including severe fetal growth restriction
- (rarely) babies ≥ 24^{+0} weeks of gestation with significant unfavourable risk factors, including severe fetal growth restriction

High risk: The Working Group considered that babies with a 50-90% chance of either dying or surviving with severe impairment if active care is instituted would fit into this category. For example, this would include:

- babies at 22^{+0} - 23^{+6} weeks of gestation with favourable risk factors
- some babies ≥ 24^{+0} weeks of gestation with unfavourable risk factors and/or co-morbidities

Moderate risk: The Working Group considered that babies with a < 50% chance of either dying or surviving with severe impairment if active care is instituted would fit into this category. For example, this would include:

- most babies ≥ 24^{+0} weeks of gestation
- some babies at 23^{+0} – 23^{+6} weeks of gestation with favourable risk factors.

Please see BAPM Risk Assessment Flow Charts below (Figure 1 and 2):

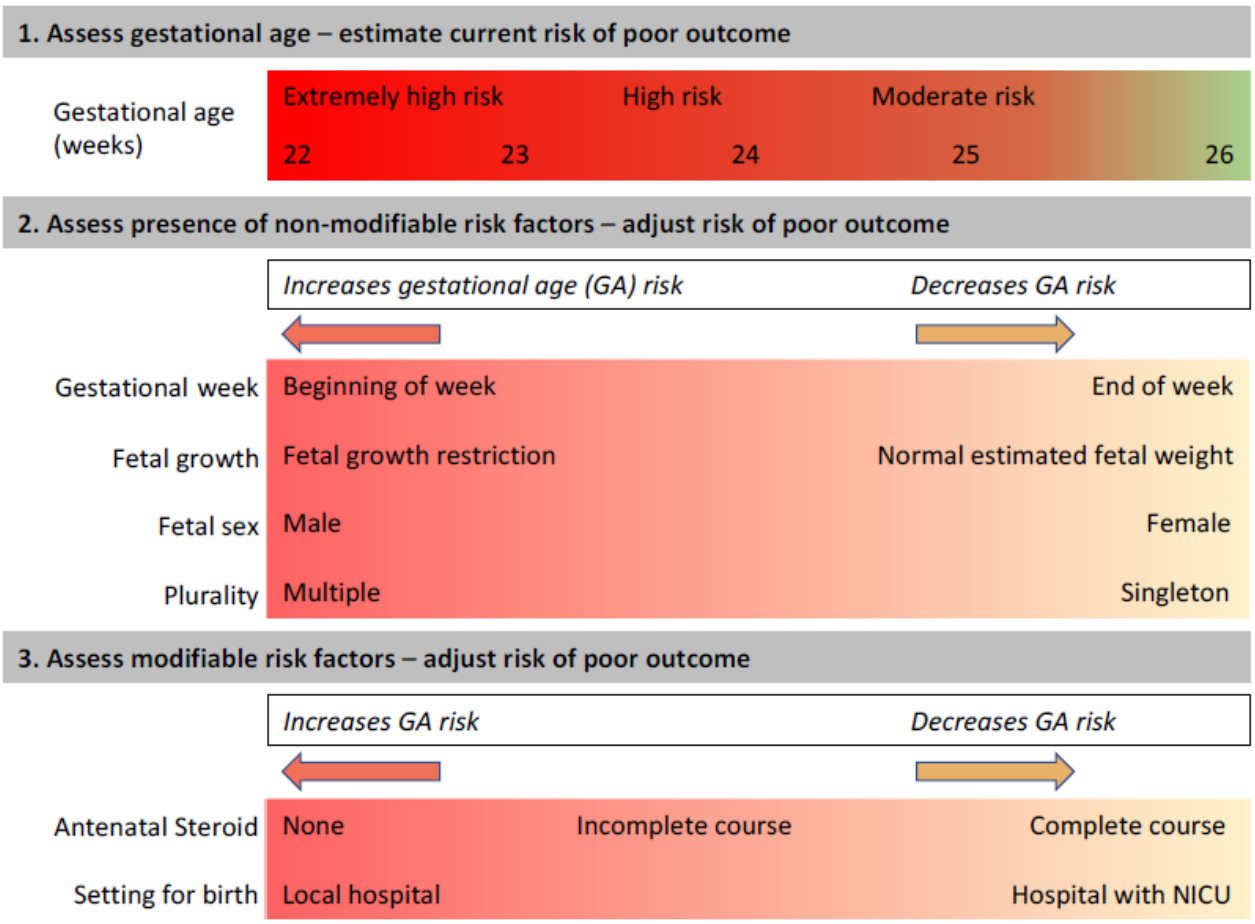


Figure 1: Proposed visual tool for refinement of risk

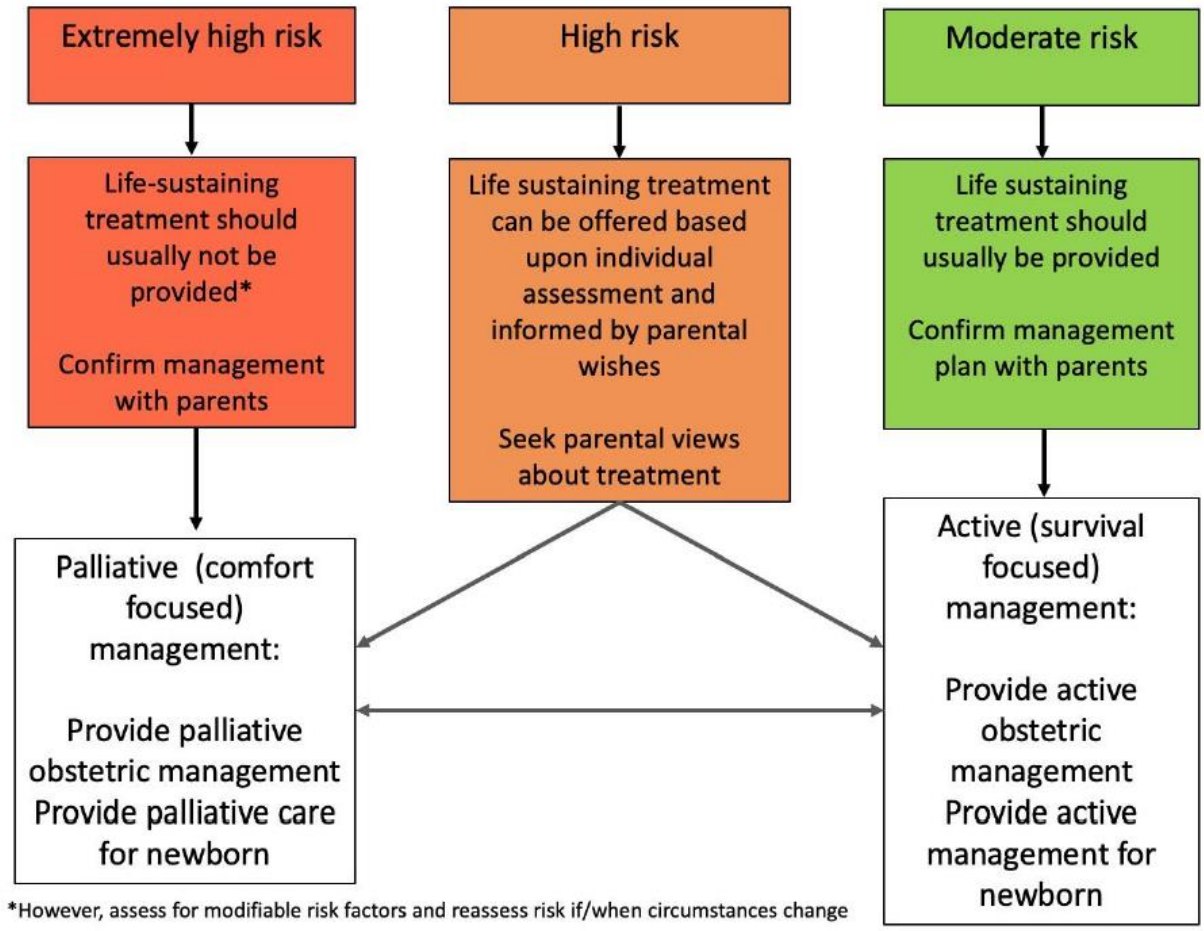


Figure 2. Decision-making around management of delivery, following risk assessment and after consultation with parents.

Taken from the BAPM Framework for Practice 2019 (https://www.bapm.org/resources/80-perinatal-management-of-extreme-preterm-birth-before-27-weeks-of-gestation-2019)

Appendix 4: List of East Midlands Neonatal Units

Level 3 (NICU):

Nottingham City Hospital
Hucknall Road
Nottingham NG5 1PB
0115 969 1169
Ext 55216 or 55215

Queen's Medical Centre
Derby Road
Nottingham NG7 2UH
0115 924 9924
Ext 64120

Leicester Royal Infirmary
Infirmary Square
Leicester LE1 5WW
0116 258 6464

Level 2 (LNU):

King's Mill Hospital
Mansfield Road
Sutton in Ashfield NG17 4JL
01623 672243

Royal Derby Hospital
Uttoxeter Road
Derby DE22 3NE
01332 785644

Lincoln County Hospital
Greetwell Road
Lincoln LN2 5QY
01522 573604

Kettering General Hospital
Rothwell Road
Kettering NN16 8UZ
01536 492882

Northampton General Hospital
Cliftonville
Northampton NN1 5BD
01604 545520
01604 545320

Level 1 (SCU):

Pilgrim Hospital (N)
Sibsey Road
Boston PE21 9QS
01205 445404

Leicester General Hospital
Gwendolen Road
Leicester LE5 4PW
0116 258 4800

Queen's Hospital
Belvedere Road
Burton on Trent DE13 0RB
01283 511511
Ext 4346 or 4347

Appendix 5: 365 Call Handling Service IUT Referral Form

IN-UTERO TRANSFER < 27 WEEK SINGLETON PREGNANCY AND < 28 WEEKS MULTIPLE PREGNANCY REFERRAL FORM – Level 3 cot required UHL or NUH

This form is intended for use for In Utero Transfers for singleton pregnancies at < 27 weeks or < 28 weeks for multiple pregnancies

Date of referral:	Click or tap to enter a date.	**Time of referral:**

Service User Details:	**Referrer Details:**
NHS Number:	Referrer Name:
First Name:	Referrer Role:
Surname:	Contact Number:
Date of Birth:	Location:
Address:	
Postcode:	

Gestation in weeks:		
Single or Multiple birth: Choose an item.	Mum's first baby: Choose an item.	How many previous pregnancies:
How many previous deliveries:	Is Mum in active labour: Choose an item.	If yes, what is the frequency of contractions?
Have Steroids commenced: Choose an item.	Has MgSO4 commenced? Choose an item.	Fibronectin result:
Reason for Transfer:		
Level 3 cot required in North or South of the region? Choose an item.		
Any known issues to Mum/Baby:		
Outcome of referral: Choose an item.		

Appendix 6: East Midlands Neonatal Network Parent Information Leaflet

⇒ *If possible you will be transferred to an appropriate hospital before your baby is born.*
⇒ *All transfers will be thoroughly discussed between the referring and receiving units.*
⇒ *Every attempt will be made to ensure that you are transferred with your baby within 24 hours, by direct transfer to a ward for on-going postnatal care. If appropriate you will be discharged and will be able to make your own travel arrangements.*
⇒ *You will be provided with a parent passport to ensure that your involvement in your baby's care continues in whichever unit you are in.*

If your baby is moved, the CenTre Neonatal Transport team of highly skilled doctors and nurses undertake these journeys with your baby.

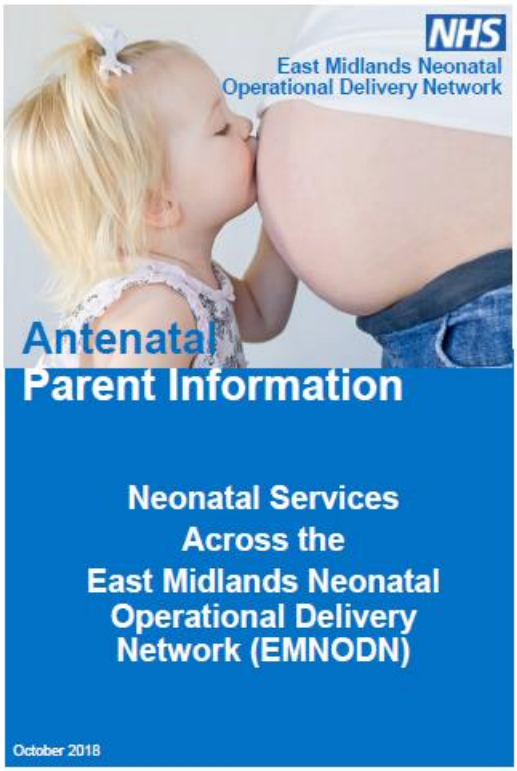
This can be a stressful time for you and it is not uncommon to feel worried about the transfer. The staff in your hospital will talk to you about the transfer before the CenTre team arrives. The transport team will introduce themselves to you and will answer any questions you might have about the transfer.

It may be possible for you to travel with your baby in the ambulance; however this will depend on lots of different factors. The transport team will talk to you about this. Due to limited space in the ambulance CenTre can only transfer one small bag of luggage and a small amount of expressed breast milk (EBM) with your baby. If you have larger items of luggage, or your baby has lots of EBM, you will be expected to make your own arrangements for this.

Further information on transfers can be found on the CenTre website; www.centreneonataltransport.nhs.uk

This information leaflet was designed and produced by the East Midlands Neonatal Operational Delivery Network.

For further information on what we do, please visit our website; www.emnodn.nhs.uk



This information is aimed at parents whose baby may receive care in a Neonatal Unit after delivery. It will:

- Give an overview of the services provided
- Explain what will happen if your baby needs to be transferred out to another hospital for continuing care.

Your baby may be identified as being at an increased risk of needing some extra care following delivery.

There are three different levels of care:

Intensive Care/Perinatal Centre
Provided for babies who have serious problems, who are very premature (those born more than three months early) and/or have an extremely low birth weight (birth weight less than 1500 grams)

High Dependency Care
Provided for babies with less serious problems but who still need a great deal of observation and support and for those who are recovering from critical illness

Special Care
Provided for babies who do not require continuous observation and/or who are stable and growing.

It is possible to arrange a visit to your local neonatal unit if you wish, please discuss this with your midwife.

The East Midlands Neonatal Operational Delivery Network (EMNODN) consists of eleven Neonatal Units

The **Leicester Neonatal Service** (Perinatal Centre) is provided in Leicester Royal Infirmary (LRI). The LRI provides all aspects of neonatal care and admits babies from across the EMNODN. When babies no longer require this high level of Intensive Care they will be transferred back to a neonatal unit which is nearer to home which provides the level of care required.

The **Nottingham Neonatal service** (Perinatal Centres) is provided in the Queen's Medical Centre and Nottingham City Hospital. The service provides all aspects of neonatal care and admits babies from across the EMNODN. When your baby no longer requires this high level of intensive care, he/she will be transferred back to a neonatal unit which is nearer to home and provides the level of care required.

The **Derby, Mansfield, Lincoln, Kettering and Northampton Neonatal Units** provide high dependency and short term Intensive Care. If your baby is likely to require long term Intensive Care or highly specialised care, for example surgery, then transfer to a Network Intensive Care/Perinatal Centre as near to home as possible will be required. Once your baby no longer requires this specialist care, he/she will be transferred back to your home unit or one closer to home.

The **Boston, Burton and Leicester (General) Neonatal Units** provide neonatal Special Care. If your baby requires a higher level of neonatal care (Intensive Care), he/she will be transferred to a Perinatal Centre or Intensive Care unit as near to home as possible. When your baby no longer requires this specialist care, he/she will be transferred back to either your home unit or one closer to home.