Pan-London guideline for in utero transfer (IUT)

Amendment History			
Date	Version	Author/ Contributor	Amendment Details
21.01.21	1	Nina Khazaezadeh, Kate Brintworth, Susie Crowe, Katie Nichol, Sarah Espenhahn, Olivia Houlihan	New policy
08.08.22 23.11.2022 25.11.2023 18.01.23	2	Alan Hay, Head of EBS & Frequent Caller Team, LAS. Manju Chandiramani, Consultant Obstetrician. Nandarin Ratnavel, Consultant Neonatologist. Jenii Jadodzinski, Lead Nurse, London ODN. Susanne Sweeny, Network Director, London ODN. Rachel Lundy, Specialised Commissioning, NSHEI. Dr Louise Webster, Consultant Obstetrician	Strengthen the expectation that perinatal centres should operate an "open door" policy to pregnant women and people booked at Trusts with a Level 1 or 2 NICU within the same network and that Maternity units co-located with a Level 3 NICU who are reporting OPELMF Level 1 status should operate universal acceptance. Provide clear guidence on how IUT request documentation and communication should occur when there is disruption to the "standard" methods of pre-term birth assessment
  23.11.2022 25.11.2023	2	Directors and Heads of midwifery ICSs Peter Dinicola, Maternity Tactical Commander, LAS, Amanda Mansfield, Consultant Midwife, LAS, Stacey Robinson, Practice Lead Midwife LAS	Provide guidance for multi-site Trusts which include a Level 3 NICU specifying that they are not obligated to involve EBS in transfers between their Trust sites. Changes to the structure of the IUT pathway to indicate conducting all three stages of escalation within the requesting hospital's LMNS/ICS before proceeding outside. Introduce specific guidance on prioritisation for very premature babies - (22/23 weeks gestation) to ensure that EBS and the surge hubs are aware that babies closer to 27/40 should be prioritised in cases of conflicting demands and finite capacity.

Owner:	NHSEI – Regional Maternity Team
Date of approval:	03.05.2023
Date of next review:	03.06.2024

Contents

1. Purpose

This guidance seeks to establish an effective and sustainable Pan-London approach for managing the in-utero transfer (IUT) of babies at <27 weeks gestation (<28 in the case of multiple pregnancy) or those with an EFW of <800g.

IUTs are required when a pregnant woman or person is anticipated to deliver a baby at this early gestation thus requiring expertise and facilities not available at their local unit. Occasionally they may also be required where the local unit lacks the capacity to provide appropriate care. Ex-utero transfers (postnatal transfers) that occur immediately after birth are associated with increased neonatal morbidity and mortality and some of these represent missed opportunities for IUTs.

Neonatal services are organised across three levels of care according to expertise and staffing levels, so that not all neonatal units (NNUs) are commissioned to care for all babies. Details on categories and levels of neonatal care are provided in appendices A and B. Designations of London NNUs are provided in appendix C.

The guideline has been produced by the Pan-London IUT working party which includes representation from the Regional Maternity team, the London Neonatal Operational Delivery Network, the London Maternity Clinical Network and the Emergency Bed Service (EBS) at the London Ambulance Service (LAS).

This guidance aims to achieve the following:

- Establish Pan-London standards for providers, networks, and systems regarding participation in and awareness of the IUT pathway.
- To inform local network, system and trust clinical guidelines for IUT in order to prioritise timely and safe IUT in line with national targets.
- Set clear expectations regarding how decisions made by clinicians throughout the pathway are identified and recorded throughout the pathway
- Outline the pathway of escalation if an offer of IUT has not been achieved within a reasonable timeframe.
- Promote communication between senior members of the obstetric team prior to transfer to ensure an appropriate SBAR handover and enable appropriate ongoing management, and to facilitate a safe discharge back to the referring hospital site if undelivered following a period of admission to allow for safe ongoing care.

- Support the establishment of process for the regular audit and review of IUT cases in order to share learning and constantly improve the quality of the service.

The stages of escalation outlined in this guideline mirror those of the Operational Pressures Escalation Levels Maternity Framework (OPELMF) which provides a consistent approach for defining capacity issues and excess pressure on maternity services across London. This policy should be considered alongside other relevant policies/guidance, such as:

- Operational Pressures Escalation Levels Maternity Framework for London and escalation policy for London
- London Neonatal Operational Delivery Network Policies available at London Neonatal Operational Delivery Network (londonneonatalnetwork.org.uk)

2. Background and Key Updates from the 2019 Guidelines

2.1 Rationale for the Updated Guidelines

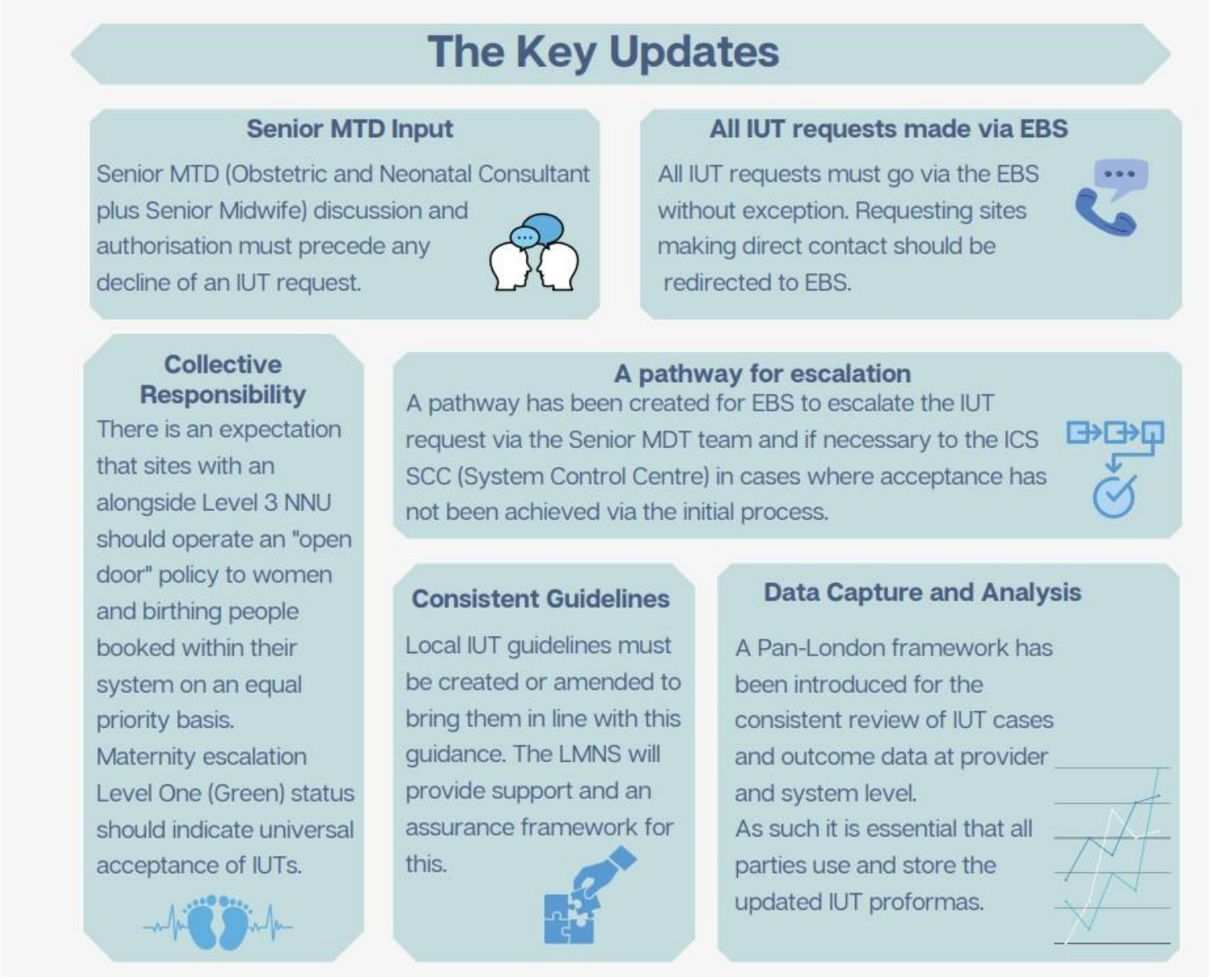
This guideline is an updated version of the 2018 Pan-London guideline for in utero transfer written by the London Maternity Clinical Network and Neonatal ODN.

The 2018 IUT guidelines were implemented via a regional pilot scheme in September 2020 with the aim of increasing the rate of successful and appropriate IUTs and reducing the burden on clinician time. Amongst the major innovations of the 2019 guidelines was to place the Emergency Beds Service (EBS) at the centre of the pathway for negotiating IUTs with the responsibility for co-ordinating all requests. The introduction of proformas to be used by all parties to ensure a consistent standard of data collection were also made alongside the expectation of a 60-minute window for the Perinatal Centre to respond to an IUT request. Following the launch of the pilot the MTD implementation team commenced oversight and outreach work to promote successful implementation alongside monitoring exception reporting of births <27/40 born outside the correct neonatal unit for their gestation.

Despite the pilot scheme representing significant improvement both in terms of outcomes and efficiency to what had existed previously, Pan-London IUT rates consistently continue not meet national targets. Whilst it is recognised that the pandemic presented unique staffing and acuity challenges, the potential clearly exists to explore how the pathway can be implemented with greater levels of success and consistency. This updated version of the 2018 Pan-London guideline has been created in response to a programme of

stakeholder outreach and Quality Improvement work undertaken by the implementation team in the second half of 2021 with the purpose of restoring and maintaining the rate of successful IUTs to >85%.

2.2 The Key Updates



2.3 Rationale for Updates

Senior MTD discussion and authorisation must precede any decline of an IUT request

- IUT requests should be escalated to the Neonatal Consultant in the NNU and the Obstetric Consultant and Senior Midwife on-call/ Delivery Suite Matron when the request is reviewed in Delivery Suite.
- This remains the case out-of-hours or where the senior clinician is not physically present in the unit.
- EBS will make a record of the name and contact details of the senior clinicians authorising the decline and may use these to contact the clinician directly if escalation is required later (see section 3.5 on Amber status, OPELMF Level Two).
- Being able to visualise a clear pathway of clinical decision making is vital if the success of the IUT request is reviewed later to establish any learning from it.
- Senior clinicians must handover details of any IUT requests issues, received, authorised or declined at shift handover to the clinician taking over care.

All IUT requests made via EBS

- The requesting hospital site should contact EBS directly via telephone.
- Requests for IUTs made via any other formats must not be made and tertiary hospital sites receiving direct requests must decline them and advise the caller to contact EBS.
- EBS gathers neonatal cot availability twice daily by phoning every neonatal unit in London, Kent, Surrey and Sussex and thus are in a position to determine the prioritisation of calls to potential receiving hospital sites.
- Requests made for IUT which bypass the EBS impact upon its ability to maintain an accurate overview, negatively impact the effective functioning of the system and undermine the ability of Trusts and systems to undertake reviews and analysis of outcomes.

  24/7 EBS telephone number 020 3162 7542

Collective Responsibility

- In line with the expectation set out in the 2022 BAPM Quality Standards for the Provision of Neonatal Care, hospital sites with an alongside Level Three NNU should operate an "open door"

policy to pregnant women and people booked within the system in it sits. As such all those booked within the wider system should be considered as holding equal priority for accessing care.

- There should be recognition that unless delivery is likely to occur imminently after transfer, there will not necessarily need to be a physically vacant neonatal cot to accept the IUT so long as there is the expectation that one will become available in the near future.
- There should be recognition by the receiving maternity unit that:

I. Capacity on both Antenatal ward and Delivery Suite should be considered, as many pregnant women and people will be able to be managed on the antenatal ward after transfer and will not immediately require a Delivery Suite bed.

II. The immediate acuity of Delivery Suite may not impact on the ability to accept the referral, as the transfer is likely to take two or more hours to complete.

III. In reporting Green status, OPELMF Level One Trusts are acknowledging that the capacity is such that maternity services can maintain patient flow and meet anticipated demand within available resources (hyperlink to be inserted once updated guideline approved). As such there is an expectation that IUT requests within the system should be accepted.

A pathway for escalation

- A pathway has been created for EBS to escalate the IUT request where acceptance is not readily achieved within the LMNS/ICS system.
- Escalation at Amber status, OPELMF Level Two involves facilitating an MDT discussion between key personnel at the requesting hospital site and a tertiary hospital site with the LMNS/ICS system.
- If Amber status, OPELMF Level Two is unsuccessful then further escalation can occur at Red status, OPELMF Level Three. This involves Silver and Gold command within the requesting hospital site escalating the unmet IUT request to the ICS SCC. The ICS SCC will then facilitate an MDT discussion between key personnel at the requesting hospital site and all tertiary hospital sites within the LMNS/ICS system.
- In discussion with the requesting hospital site, EBS will provide direction on the order in which tertiary hospital sites will be approached. This decision will be guided by cot status, Maternity escalation status and the principle of the responsibility held by an LMNS/ICS system for the pregnant women and people booked within it. The same conversations will guide whether to progress to OPELMF Level Three within the ICS/LMNS system or to approach tertiary hospital sites outside the LMNS/ICS system.

Consistent Guidelines

- Local IUT guidelines must be created or amended to bring them in line with this updated guidance.
- The LMNS will provide support and an assurance framework for this.
- Please see the accompanying Trust and LMNS toolkits for Implementation of the pan London IUT guidance for more detail.

Data Capture and Analysis

- A pan-London framework has been introduced for the consistent review of IUT cases and outcome data at provider and system level. This includes the reporting of failed IUT requests as serious incidents (SIs).
- This will allow learning to be shared and analysis conducted of system and regional level IUT data trends.
- The effectiveness of this process is totally 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 record proformas contained within Appendix F are completed in full by EBS and clinicians involved at each stage of the IUT pathway.

2.4 Future Development

Future consideration may be made to extending the remit of this guidance to cover IUT requests >27/40 gestation. This may involve cases where there are significant strains on capacity, for babies with an EFW of <800g, or those >800g where a congenital abnormality needing specialist place of birth has been detected (e.g. surgical/cardiac diagnoses) or where there is a high likelihood of neonatal complications identified by FMU needing specialist involvement for the new-born.

3.0 Arranging in utero transfer

3.1 When is in utero transfer indicated?

IUT is indicated when there is a high risk of spontaneous or iatrogenic birth in a unit without facility or capacity to provide care as per national service specification (see appendices B and C).

Where possible, a pregnant women or person who are suspected to be in preterm labour, the risk of premature birth should be assessed with, at least, primarily a quantitative fetal fibronectin and/or cervical length measurements before a decision to transfer is made. If the risk of delivery within the subsequent week is less than 5%, clinicians may feel it appropriate not to transfer the pregnant women or person, after taking into account the clinical situation and the distance to available tertiary neonatal facilities (see appendix D). Where supply chain or other challenges exist to accessing these assessment methods, hospital sites should develop alternative pathways based on engagement with system, regional and national preterm birth workstreams and guidance.

Precise thresholds for intervention will depend on the clinical setting, but it is recommended that a risk of delivery of less than 5% in the next week may justify withholding antenatal steroid administration, admission or in utero transfer.

3.2 Which patients are not suitable for in utero transfer?

The following patients are not normally considered suitable for in utero transfer:

- Pregnancy <22 weeks for fetal reasons. The BAPM framework 'Perinatal Management of Extreme Preterm Birth before 27 weeks of gestation' states that "neonatal stabilisation may be considered for babies born from 22+0 weeks of gestation following assessment of risk and MDT discussion with parents. It is not appropriate to attempt to resuscitate babies born before 22+0 weeks of gestation." Transfer of a pregnant women or person from 22 weeks' gestation should only occur after they have been appropriately counselled regarding likely outcomes and they elect to pursue survival-focused care. If after discussion at the referring unit, a pregnant women or person or the parents do not wish to pursue active resuscitation, comfort care at the local unit would be appropriate. Where competing IUT requests exist simultaneously it would be appropriate for prioritisation to be made to cases >23/40. EBS should clearly inform the requesting hospital of this scenario when it occurs.
- Potentially lethal fetal condition where active intervention of the fetus was not being considered even if live born. (In cases of fetal abnormalities it is useful to discuss these cases with fetal medicine specialists.)
- Active labour where the cervix is more than three centimetres dilated.

- Maternal condition which may require intervention during transfer (antepartum haemorrhage or uncontrolled hypertension).
- Known maternal or fetal compromise requiring immediate delivery, including abnormal Cardiotocography (CTG).

These exclusion criteria have been adapted from the BAPM 2008 document, 'Management of acute in utero transfers'.

3.3 Process undertaken by the requesting hospital site

Prior to contacting EBS the requesting hospital site should:

- Ensure the request has been authorised by the Obstetric Consultant on-call following discussion with Consultant on-call for the NNU.
- Discuss the IUT with the pregnant women or person and support them in exploring their concerns, wishes and any questions they might have. This conversation should be conducted by the most senior Obstetric and NNU staff available and the pregnant women or person's consent gained and documented prior to any IUT request being made. The distress and inconvenience of IUT needs to be recognised and its clinical indication explained to the pregnant women or person, including the lack of local facilities for higher levels of neonatal care and implications for neonatal outcome. Possible transfer of the baby (or babies) back to their original hospital site, or one nearer home, after completion of intensive and/or high dependency neonatal care should also be explained.
- The appropriate IUT request proforma (see Appendix F) has been completed.

3.4. IUT requests within a multi-site Trust containing a tertiary unit

Where a tertiary hospital site exists within a multi-site Trust then IUT requests can be managed internally without the involvement of EBS. Consideration must be given however to ensuring a robust process is in place for managing these transfers. Where capacity is such that the transfer cannot be managed internally within an appropriate timeframe then an IUT request should be submitted via EBS.

Providers must ensure internal audit and investigation is in place and supported by adequate data collection to provide confidence that the process of internal transfers is functioning effectively. The investigation of all deliveries <27/40 occurring outside a tertiary hospital site will support this process.

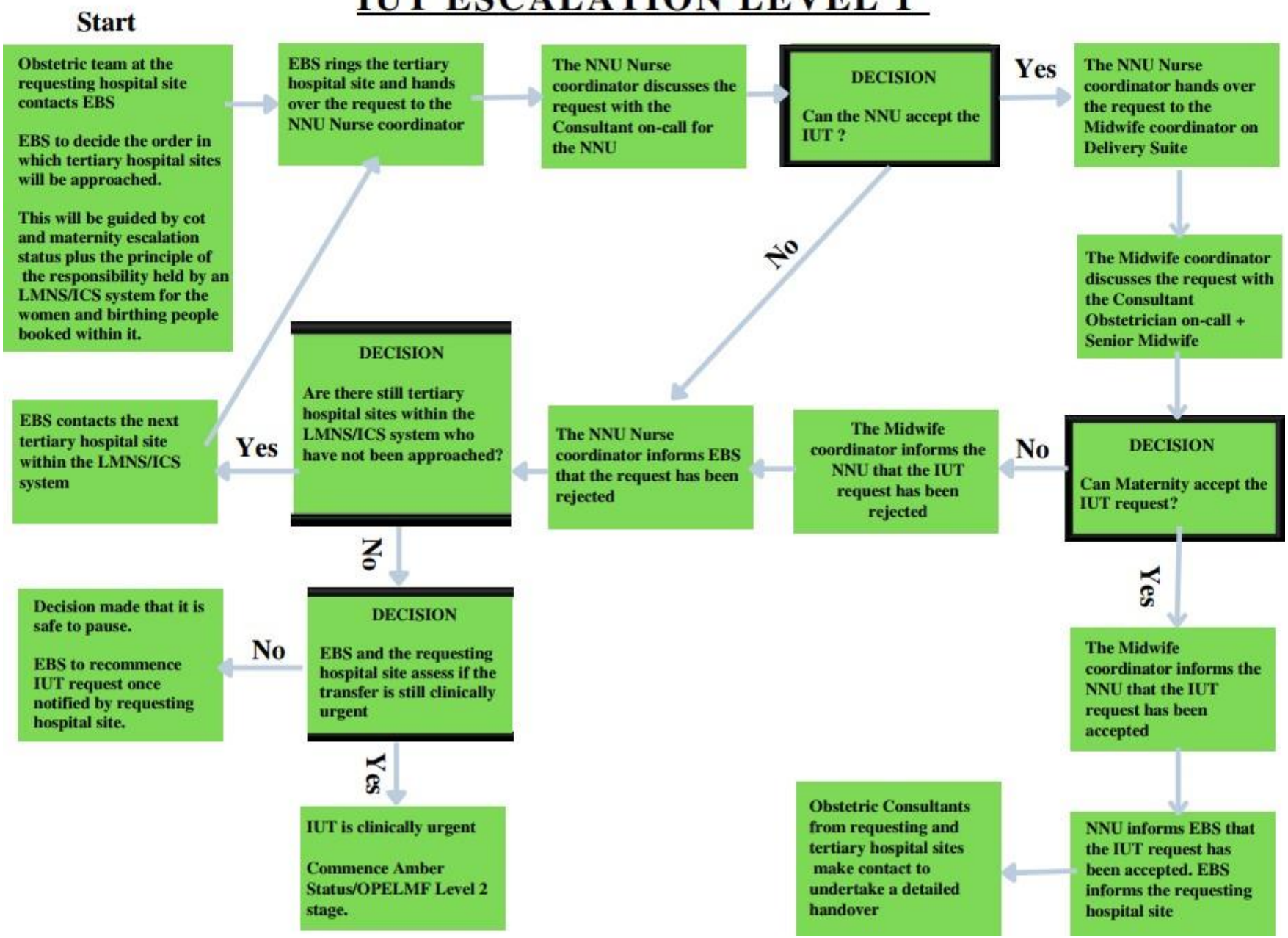
3.5. The Pathway for negotiating an IUT via EBS in OPELMF Level One

The pathway for requesting an IUT in OPELMF Level One (green) status is as follows:

- The EBS call handler will call the NNU at the tertiary hospital site and ask to speak to the Nurse coordinator. A handover of the IUT request will take place. From the moment this call is made EBS should receive a response within one hour with a final decision. As such the time and date of the phone call will be noted by both parties.
- The NNU Nurse coordinator should discuss the request with the most senior Neonatologist available. Any decision for the NNU to refuse the IUT request must involve discussion with the Consultant Neonatologist on-call regardless of if they are physically present on the unit at the time.
- If the request is declined by the NNU then the Nurse coordinator will return the call to EBS and provide them with the name and contact details of the Neonatal Consultant who authorised the decline. The Delivery Suite Midwife coordinator should be informed by the NNU of the rejected request for their awareness.
- If the IUT request can be accepted by the NNU, then the Nurse coordinator should handover the request to the Midwife coordinator in Delivery Suite.
- The Midwife coordinator in Delivery Suite should discuss the IUT request with the most senior Obstetric and Midwifery colleagues available. Any decision for Delivery Suite to reject the IUT request must involve discussion with the Consultant Obstetrician on-call and Senior Midwife on-call regardless of if they are physically present on the unit at the time.
- The information provided on the EBS proforma is sufficient for an acceptance in principle. Rarely (such as in cases of extreme prematurity or complex maternal presentation) the Consultant Obstetrician may wish to consider a direct conversation with their counterpart at the requesting unit prior to making their decision in principle. Documentation contained on the proformas within Appendix F of this Guideline will provide the contact details to facilitate this conversation in this instance. The utmost importance of providing a response to EBS within the 60 minute timeframe remains so this conversation should be prioritised by all parties if it is felt to be necessary.
- The Midwife coordinator in Delivery Suite should then contact the Nurse coordinator for the NNU and communicate their decision. The proforma should also be returned to the NNU.

- The Nurse coordinator for the NNU will then return the call to EBS and let them know if the request is accepted or declined. The name and contact number of the Consultants who authorised the acceptance or decline will be provided to EBS at this point.
- Prior to the IUT taking place, the most senior members of the Obstetric team at both hospital sites should make direct contact to undertake a SBAR handover of all relevant clinical details.
- A review by senior members of the Obstetric and Neonatal team within 12 hours of arrival at the tertiary centre is expected to ensure a robust ongoing management plan is made to optimise maternal and neonatal outcome.
- Once they have received their response, EBS should contact the requesting hospital site to update them. EBS can take this opportunity to assure the requesting hospital site that work is ongoing to secure the IUT. They can clarify if the request is still clinically urgent or if a pause in active calls to secure the IUT could be indicated. If this is the case then EBS will await and update from the requesting hospital about when to resume calls. Alternatively if the request is still considered to be clinically urgent then and if OPELMF Level One has been exhausted at all tertiary hospital sites within the LMNS/ICS system then EBS can inform the requesting hospital of the move to OPELMF Level Two.

IUT ESCALATION LEVEL 1

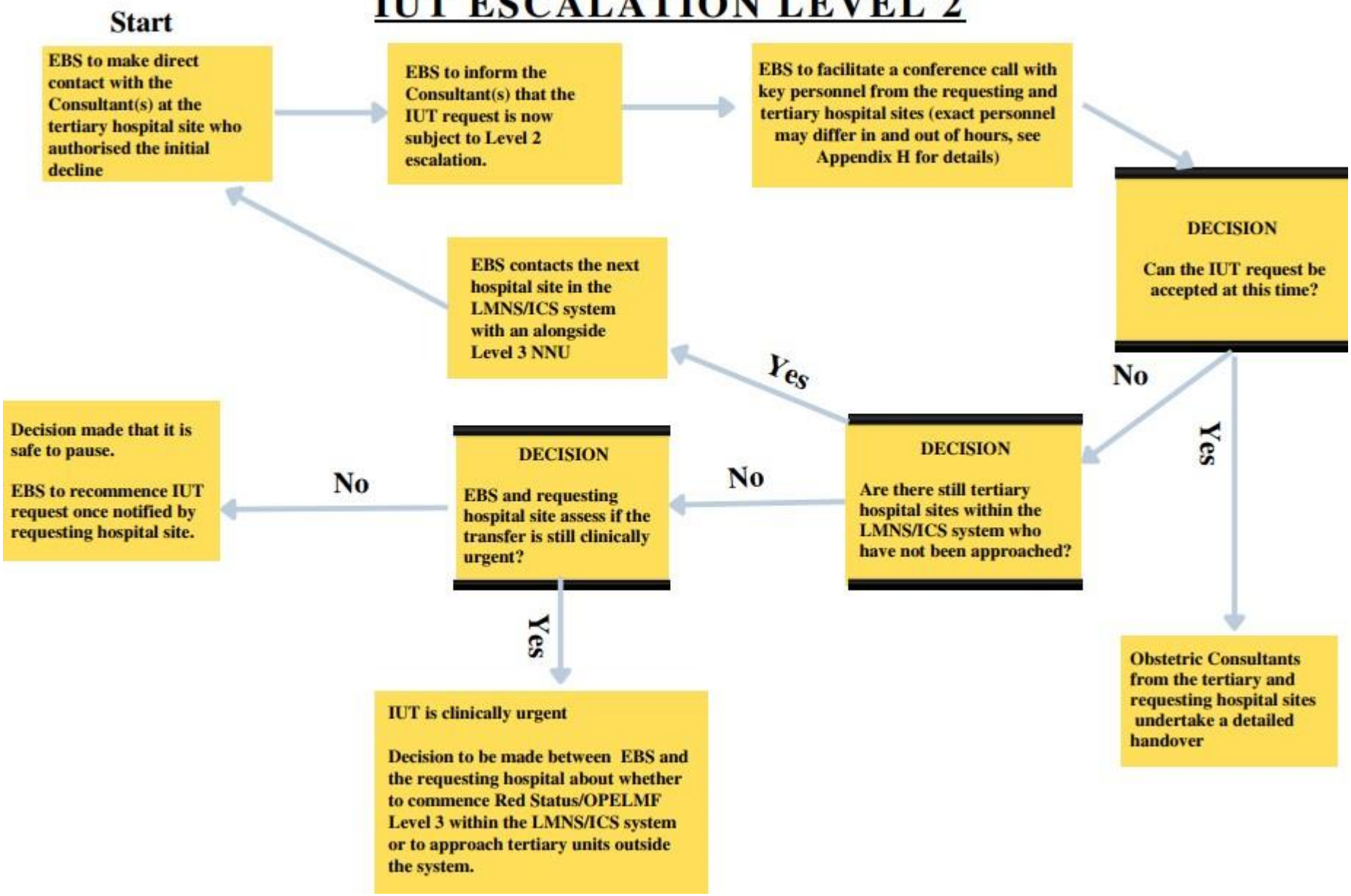


3.6 Amber status, OPELMF Level Two

The pathway for requesting an IUT in OPELMF Level Two (amber) status is as follows:

- EBS should make direct contact with the Consultant on-call who authorised the initial decline at the tertiary hospital contacted during OPELMF Level 1. This may be the Obstetric or Neonatal Consultant. Where handover has occurred since the initial decline the refusal and the rationale supporting it should have been handed over to the new Consultant on-call.
- The EBS call handler should inform the Consultant(s) that OPELMF Level Two has now been reached due to refusal from the other tertiary hospital sites within the ICS/LMNS system.
- EBS should facilitate a conference call with individual personnel from within the requesting and tertiary hospital sites. The exact personnel who should be involved will differ in and out of hours and is outlined in Appendix G. Within this call the requesting site will have the opportunity to provide a more detailed handover and a conversation based on the principle of shared ownership of the situation can occur. This conference call should occur as soon as possible and be prioritised above all non-emergency care.
- As a result of this conversation an offer of IUT acceptance may be made. The Obstetric Consultants from the requesting and tertiary sites should remain on the call to undertake a full handover of care.
- If OPELMF Level Two escalation is unsuccessful with first tertiary hospital site within the ICS/LMNS system then the process can be repeated at any additional tertiary hospital sites within the ICS/LMNS system (if applicable.)
- If OPELMF Level Two has been unsuccessful across the ICS/LMNS system then EBS should clarify with the requesting hospital if the request is still clinically urgent or if a pause in active calls to secure the IUT could be indicated. If this is the case then EBS will await and update from the requesting hospital about when to resume calls.
- If it is felt that the request is clinically urgent then EBS and the requesting hospital site can decide whether it is appropriate to progress through to OPELMF Level 3 (red) IUT escalation within the ICS/LMNS system or whether to approach hospital sites with an alongside Level 3 NNU outside the system. This decision will be guided by cot status, Maternity escalation status and the principle of the responsibility held by an LMNS/ICS system for the pregnant women and people booked within it.

IUT ESCALATION LEVEL 2

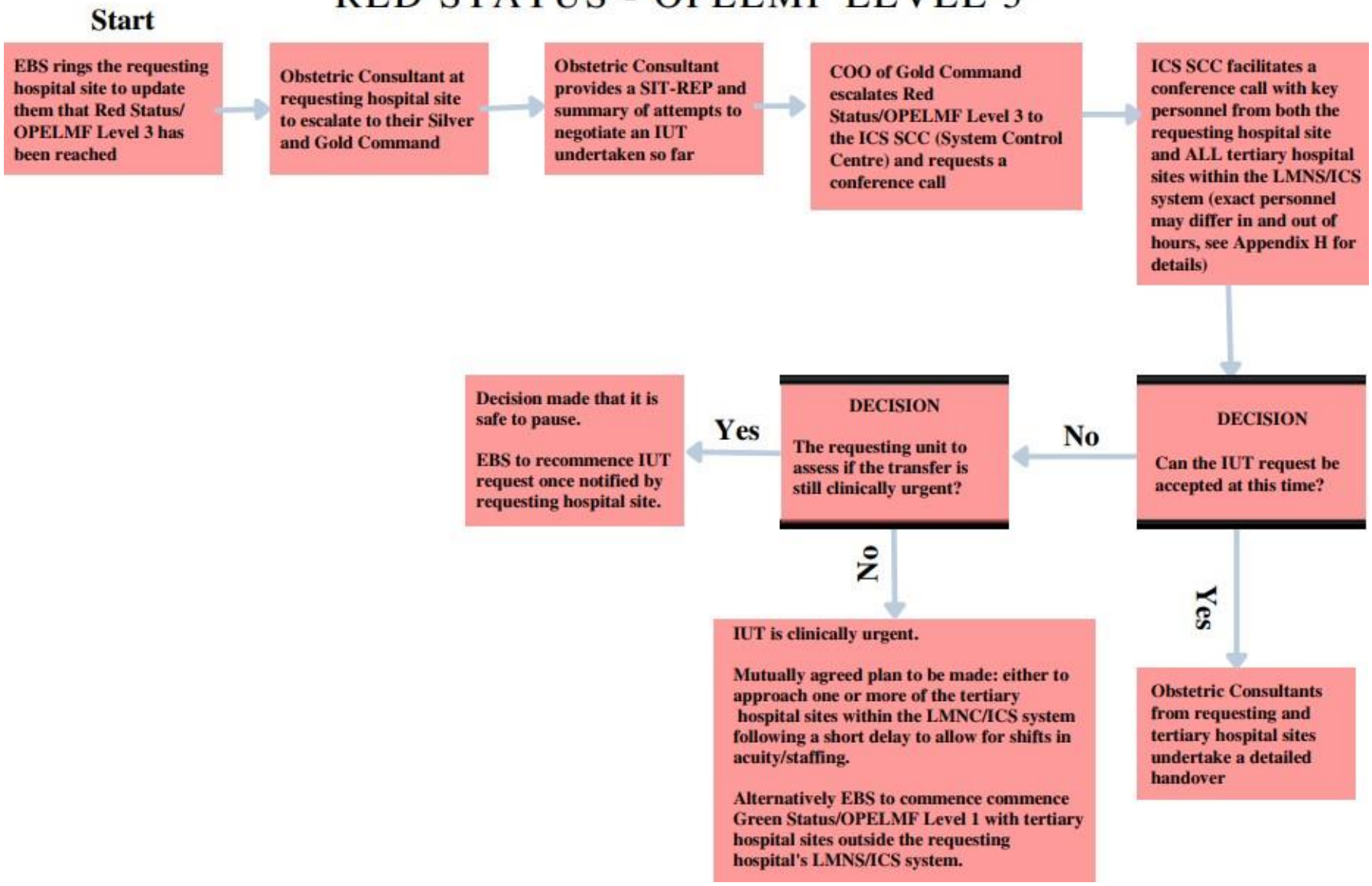


3.7 Red status, OPELMF Level Three

The pathway for requesting an IUT in OPELMF Level Three (red) status is as follows:

- At this stage the Consultant Obstetrician and Consultant on-call for the NNU, Delivery Suite Matron or Midwifery Manager on-call (if out of hours) at the requesting hospital site should escalate the situation to their General Manager/ Site Manager/Silver on-call and Gold on-call Manager.
- A SITREP summarising the IUT request and actions completed during OPELMF Level One and Two should be shared and the next steps considered collectively.
- The Chief Operating Officer (COO)/Gold command or equivalent can contact the ICS SCC informing them of the change to Level Three, Red status for the IUT pathway and requesting that they convene a conference call/virtual safety huddle including all tertiary hospital sites within the ICS/LMNS system.
- The exact personnel who should be involved in this a conference call/virtual safety huddle will differ in and out of hours and is outlined in Appendix G. This conference call should occur as soon as possible and be prioritised above all non-emergency care.
- As a result of this conversation an offer of IUT acceptance may be made. If this occurs then Red status, OPELMF Level Three is stepped down. The Obstetric Consultants from the requesting and tertiary hospital sites should remain on the call to undertake their handover of care.
- If Red status, OPELMF Level Three is unsuccessful then a mutually plan should be agreed about the most appropriate next steps. This could include approaching the one or more of the tertiary hospital sites following a short mutually agreed delay to allow for shifts in acuity/staffing. Alternatively, the decision may be made to cast the net more widely and pursue the request using the OPELMF Level One pathway outside the ICS/LMNS system.

RED STATUS - OPELMF LEVEL 3



3.8 Acceptance of Transfer

When a successful offer is received EBS should contact the referring hospital site and inform them. EBS should make a note of the time and date of this call for audit purposes. The referring hospital site should then arrange to contact the Obstetric Consultant at the receiving unit to provide a full handover. This handover should include a holistic assessment of the pregnant women or person's SBAR including any relevant safeguarding information.

3.9 Ambulance Transfer

London Ambulance Service (LAS) telephone number for hospital transfer: 020 3162 7542.

Once IUT has been accepted by the receiving neonatal and maternity unit, the referring unit should organise the transfer through LAS. Requests to LAS for a hospital transfer must be made by staff able to give appropriate clinical information and answer clinical questions asked by LAS.

Requests for an inter-facility transfer (IFT) will be prioritised in line with the National Framework for Inter-facility Transfers, available on the NHS England website https://www.england.nhs.uk/publication/inter-facility-transfers-framework/. It is expected that the majority of these calls will receive an urgent response (Category 3). The target is to respond at least nine out of 10 times within 120 minutes

Provision of an escort from the referring maternity team for the transfer will be made on a case by case basis. This should be decided by the senior maternity staff on duty at the referring hospital, bearing in mind that LAS cannot guarantee the presence of a paramedic team for transfer.

Both the requesting and receiving units should place photocopies of all completed IUT proformas within the pregnant women or person's clinical notes. This should be done prior to transfer if the pregnant women or person has been successfully transferred. Hard copies will be retained in the referring hospital's clinical notes.

EBS should maintain details of when the pregnant women or person successfully arrives at the destination hospital and record why this doesn't occur for whatever reason (i.e. Maternal decline or change in clinical picture).

3.10 Communication between Obstetric teams

Communication between senior members of the Obstetric team prior to transfer to ensure an appropriate SBAR handover and appropriate ongoing management is imperative to ensuring good outcomes for these extremely preterm babies. It is expected that a review by senior members of the Obstetric team will occur within 12 hours of arrival at the tertiary centre to ensure a robust ongoing management plan is made. After a period of admission, if the pregnant women or person remains undelivered, it is expected that a clear discharge summary is written and a handover is made to the Consultant on-call at the requesting hospital site, informing them of the events during admission, and appropriate local follow-up is in place.

3.11 Transfer back to local units

Where delivery has not occurred following successful IUT and the pregnancy progresses beyond 28/40 then every effort should be made to transfer the pregnant women or person back to her local booked hospital as soon as is practical in order to support ongoing capacity in Level 3 units.

4.0 Audit and Oversight

4.1 The need for accurate and consistent data capture of the IUT pathway

Consistent and timely analysis is vital in supporting a culture of ownership and continuous improvement. The final 2022 Ockenden Report highlighted the need for continuous audit and review of cases in which delivery <27/40 occurs outside a labour ward with a co-located NICU. The report also mandated a further obligation for providers to report cases within which neonatal care falls outside the agreed pathway with local commissioners. As such all cases of failed IUT (defined as incidents of pregnant women and people delivering outside a tertiary hospital <27/40) must be reported as serious incidents (SIs) by the hospital in which they deliver. Roundtable review of these cases the will be overseen at LMNS/ICS level to ensure thorough comprehension of the contributory issues.

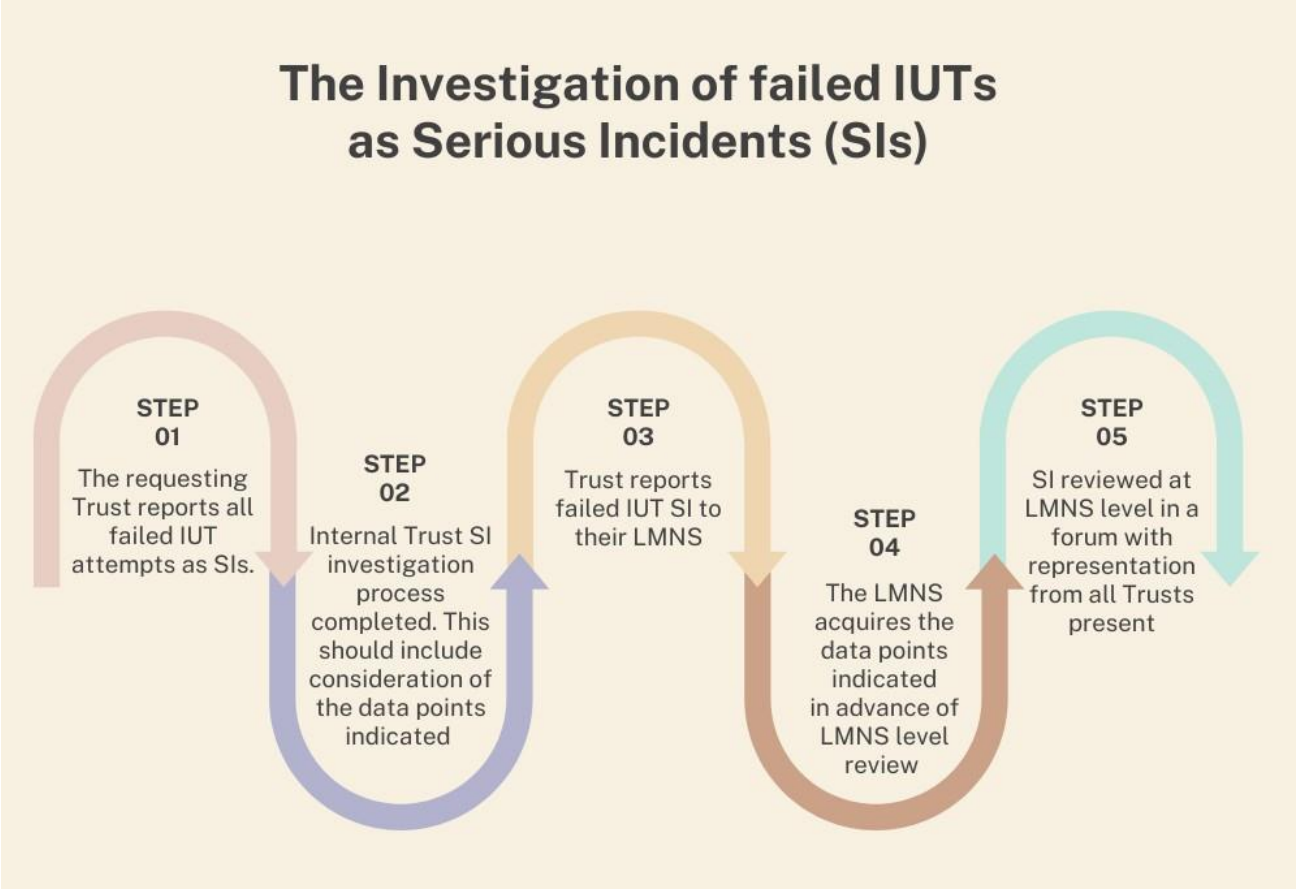
The effectiveness of audit, investigation and oversight is totally reliant on the availability of high-quality data capable of reflecting the timeframe, decisions, and individuals relevant to each IUT request. The IUT record proformas contained within Appendix F must be completed in full by EBS staff. Alongside the

subsequent records for the newborn in question completed on Badgernet this will provide the data required.

Trusts are required to:

- Ensure their internal IUT management Guideline or SOP for the management of IUT is amended or created to reflect this pan London guidance.
- Put into place measures to ensure that the IUT proformas contained in Appendix F are circulated to and completed by all those involved in the IUT pathway.
- Ensure the secure storage of these proformas to enable them to be accessible for review.
- Agree and implement an internal process for documentation relating to the management of IUT requests to enable this to be accessible for audit and review.
- Actively engage with the LMNS/ICS to share progress against the implementation of the IUT guidelines, participate in LMNS/ICS level analysis of IUT trend data and individual cases and quality improvement activity.

The accompanying toolkits for LMNS + Trust implementation of the pan London IUT guidance provides more detail on the processes to be followed by Trusts to fulfil their audit and oversight responsibilities.


The Investigation of failed IUTs as Serious Incidents (SIs)
STEP 01
The requesting Trust reports all failed IUT attempts as SIs.
STEP 02
Internal Trust SI investigation process completed. This should include consideration of the data points indicated
STEP 03
Trust reports failed IUT SI to their LMNS
STEP 04
The LMNS acquires the data points indicated in advance of LMNS level review
STEP 05
SI reviewed at LMNS level in a forum with representation from all Trusts present

5.0 Abbreviations

EBS	Emergency Bed Service
LAS	London Ambulance Service
LMS	Local Maternity System
LMNS	Local Maternity and Neonatal Systems
LNU	Local Neonatal Unit
NICU	Neonatal Intensive Care Unit
NNU	Neonatal Unit
ODN	Operational Delivery Network
SCU	Special Care Unit
SBAR	Situation, Background, Assessment, Recommendation (Handover)
MDT	Multi-Disciplinary Team
SCCs	System Control Centres
OPELMF	The Operational Pressures Escalation Levels Maternity Framework
SI	Serious Incident
COO	Chief Operating Officer

6.0 Appendices

Appendix A: Categories of neonatal care Neonatal activity is linked to the following categories of care:

Based on the Neonatal Clinical Care Service Specificationi

Intensive Care	Specialised care for the smallest and most seriously ill babies who require constant care and, often mechanical ventilation to keep them alive. Babies with severe respiratory disease and those who also require surgery will need this level of care too
High Dependency Care	Care provided to babies who need continuous monitoring. For babies needing non-invasive breathing support, including receiving continuous positive airway pressure (CPAP). Babies receiving parenteral nutrition (intravenous feeding) also need this level of care.
Special Care	The least intensive level of neonatal care and the most common. For babies who need continuous monitoring of their breathing or heart rate, additional oxygen, tube feeding, phototherapy (to treat neonatal jaundice) and convalescence from other care.
Transitional Care	Babies who have special care needs but are able to be managed alongside the mother, who is the main carer; the mother is supported by neonatal staff alongside the midwifery team. In some services, transitional care occurs in the post-natal ward and, in others, in a discreet area or transitional care unit with staffing from both neonatal and midwifery teams.

Appendix B: Levels of neonatal care

The Neonatal Critical Care service specification recognises three levels of neonatal unit, stratified by the level of neonatal care that they are commissioned and staffed to provide

(https://www.england.nhs.uk/commissioning/wpcontent/uploads/sites/12/2015/01/e08-serv-spec-neonatal-critical.pdf).

Level 1 Special Care Unit (SCU)	Commissioned and staffed to provide care for babies of births after 31+6 weeks gestational age provided the anticipated birth weight is above 1,000g (some ODNs have approved care pathway where babies born between 30+0 and 31+6 weeks gestational age receive initial care in Special Care Unit (SCU) provided the anticipated birth weight is above 1,000g and intensive care is not required. Some SCUs will only provide care for babies >33+6 weeks gestation). Not commissioned and therefore not be expected to provide: ▪ Care after birth for babies less than 30+0 weeks gestation (except where IUT to a NICU was unsuccessful, and then only for initial stabilisation prior to transfer) ▪ Care after birth for babies with a birth weight below 1000g (except where IUT to a NICU was unsuccessful, and then only for initial stabilisation prior to transfer). ▪ Intensive care for any baby apart from initial stabilisation prior to transfer to a NICU.
Level 2 Local Neonatal Unit (LNU)	Commissioned and staffed to provide care for babies of singleton births after 26+6 weeks gestational age and multiple births after 27+6 weeks gestational age providing the anticipated birth weight is above 800g. Not commissioned and therefore not be expected to provide: ▪ Care after birth for babies less than 27+0 weeks of gestation (except where IUT to a NICU was unsuccessful, and then only for initial stabilisation prior to transfer) ▪ Care after birth for babies with a birth weight below 800g (except where IUT to a NICU was unsuccessful, and then only for initial stabilisation prior to transfer) ▪ Neonatal intensive care for any baby for greater than 48 hours, or complex intensive care for any baby apart from initial stabilisation and prior to transfer to a NICU

Level 3 Neonatal Intensive Care (NICU)	Commissioned and staffed to provide care for all babies from birth, in line with national guidelines and professional standards, at all gestations after 22+6 weeks. All level 3 NICU service will also provide lower level neonatal support across their maternity catchment area.

Appendix C: Designation of London neonatal units

Level 3: Neonatal intensive care units (NICUs)

Chelsea and Westminster	Chelsea and Westminster Hospitals NHS Foundation Trust	NICU 020 3315 7883 Labour ward 020 3315 7855	North West London ODN and LMS
Homerton Hospital	Homerton University Hospital NHS Foundation Trust	NICU 020 8510 7364 / 7361 /7906 Labour ward 020 8510 7351 / 7352	North Central and East London ODN East London LMS
King's College Hospital	King's College Hospital NHS Foundation Trust	NICU 020 3299 3553 Labour ward 020 3299 4700	South London ODN South East London LMS
Queen Charlotte's and Chelsea Hospital	Imperial College Healthcare NHS Trust	NICU 020 3313 3174 Labour ward 020 3313 4240	North West London ODN and LMS
The Royal London Hospital	Barts Health NHS Trust	NICU 020 3594 0524 / 0511 Labour ward 020 3594 2367 /2369	North Central and East London ODN East London LMS
St George's Hospital	St George's University Hospitals NHS Foundation Trust	NICU 020 8725 1936 Labour ward 020 8725 1921	South London ODN and South West London LMS
Evelina London Children's Hospital	Guy's and St Thomas' NHS Foundation Trust	NICU 020 7188 4045 Labour ward 020 7188 2233 /2973	South London ODN and South East London LMS
University College Hospital	University College London Hospitals NHS Foundation Trust	NICU 020 3447 6233 Labour ward 020 7447 6203 /6204	North Central and East London ODN and North Central London LMS

Level 2: Local neonatal units (LNUs)

Barnet Hospital	Royal Free London NHS Foundation Trust	LNU 020 8216 5160 / 5161 Labour ward 020 8216 5180	North Central and East London ODN and North Central London LMS
Croydon University Hospital	Croydon Health Services NHS Trust	LNU 020 8401 3191 Labour ward 020 8401 3179 / 3180	South London ODN and South West London LMS
Hillingdon Hospital	The Hillingdon Hospitals NHS Foundation Trust	LNU 01895 279 447 /109 Labour ward 01895 279 441	North West London ODN and LMS
Kingston Hospital	Kingston Hospital NHS Foundation Trust	LNU 020 8546 2421 / 2420 Labour ward 020 8934 3117 / 3118 /2422	South London ODN and South West London LMS
Lewisham Hospital	Lewisham and Greenwich NHS Trust	LNU 020 333 3140 / 3139 Labour ward 020 8333 3026	South London ODN and South East London LMS
Newham Hospital	Barts Health NHS Trust	LNU 020 7363 8700 / 8138 Labour ward 020 7363 8737 / 8738	North Central and East London ODN and East London LMS
North Middlesex Hospital	North Middlesex University Hospital NHS Trust	LNU 020 8887 2643 / 2966 Labour ward 020 8887 2500	North Central and East London ODN and North Central London LMS
Northwick Park Hospital	London North West Healthcare NHS Trust	LNU 020 8869 2900 / 2902 Labour ward 020 8869 2890	North West London ODN and LMS

Queen Elizabeth Hospital	Lewisham and Greenwich NHS Trust	LNU 020 8836 4530 / 4394 Labour ward 020 8836 4522	South London ODN and South East London LMS
Queen's Hospital	Barking, Havering and Redbridge University Hospitals NHS Trust	LNU 01708 435 115 Labour ward 01708 435 371	North Central and East London ODN and East London LMS
St Helier Hospital	Epsom and St Helier University Hospitals NHS Trust	LNU 020 8296 2885 Labour ward 020 8296 2479	South London ODN and South West London LMS
St Mary's Hospital	Imperial College Healthcare NHS Trust	LNU 020 3312 6294 Labour ward 020 3312 1722	North West London ODN and LMS
Whipps Cross Hospital	Barts Health NHS Trust	LNU 020 8535 6513 Labour ward 020 8535 6573	North Central and East London ODN and East London LMS
Whittington Hospital	Whittington Health NHS Trust	LNU 020 7288 5530 Labour ward 020 7288 5502	North Central and East London ODN and East London LMS

Level 1: Special care units (SCUs)

Epsom Hospital	Epsom and St Helier University Hospitals NHS Trust	SBU 01372 735 279 Labour ward 01372 735 208	South West London ODN and LMS
Princess Royal University Hospital	King's College Hospital NHS Foundation Trust	SBU 01689 864 956 / 957 Labour ward 01689 864 811	South London ODN and South East London LMS

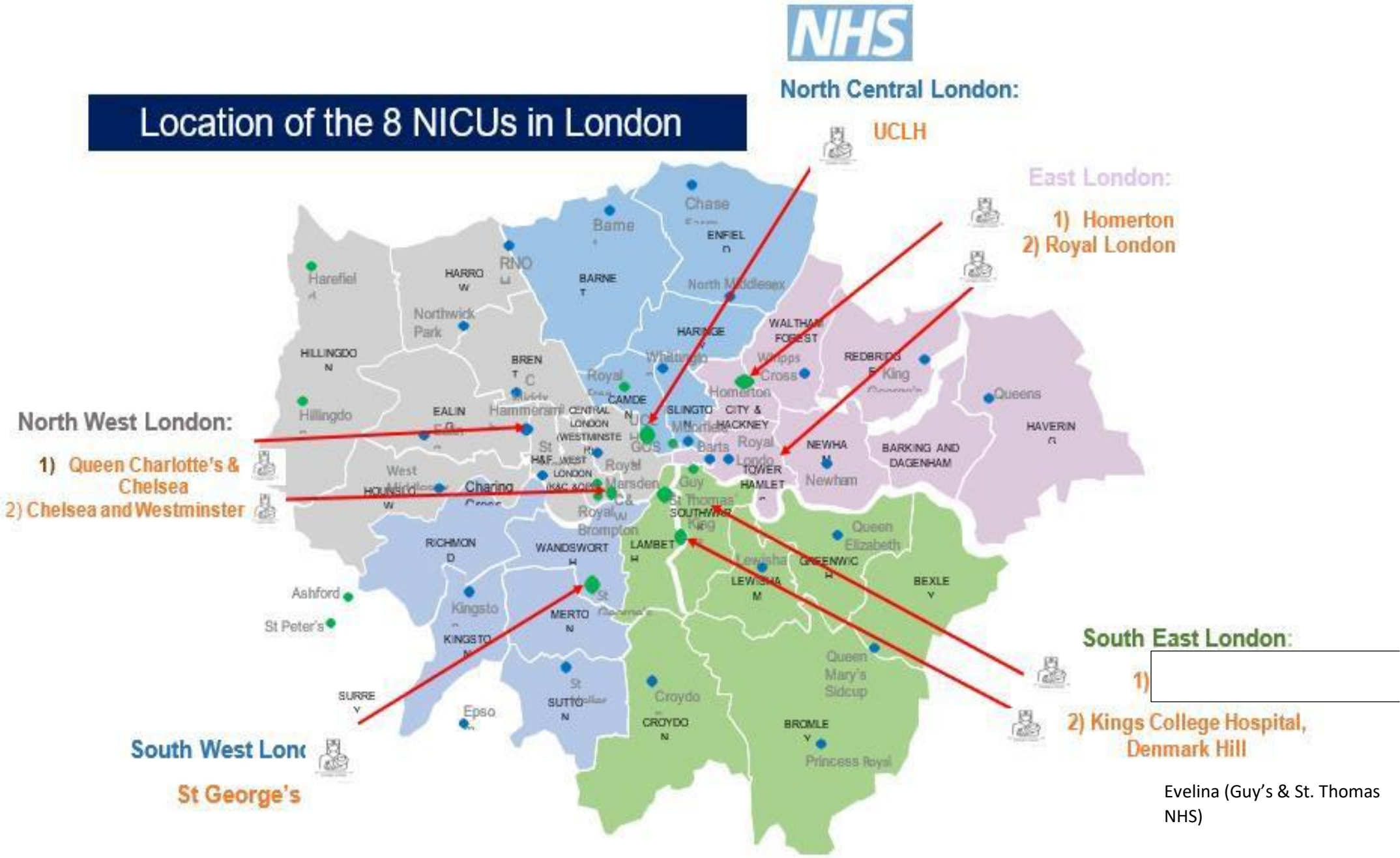
Royal Free Hospital	Royal Free London NHS Foundation Trust	SBU 020 7830 2733 Labour ward 020 7830 2721	North Central and East London ODN

			and North Central LMS
West Middlesex Hospital	Chelsea and Westminster Hospitals NHS Foundation Trust	SCU 020 8321 5944 / 5945 Labour ward 020 8321 5946 / 5947	North West London ODN and LMS

Acute hospitals in London with no obstetric unit or neonatal service

Central Middlesex Hospital	London North West Healthcare NHS Trust	
Charing Cross Hospital	Imperial College Healthcare NHS Trust	
Chase Farm Hospital	Royal Free London NHS Foundation Trust	Antenatal service only
Ealing Hospital	London North West Healthcare NHS Trust	Antenatal service only
Guy's Hospital	Guy's and St Thomas' NHS Foundation Trust	
King George's Hospital	Barking, Havering and Redbridge University Hospitals NHS Trust	Antenatal service only
St Bartholomew's Hospital	Barts Health NHS Trust	

Appendix D: Location of the 8 NICUs in London



Evelina (Guy's & St. Thomas NHS)

Appendix E: Predictive testing: quantitative fetal fibronectin and the QUIPP App

Predictive testing in pregnant women and people with threatened preterm labour: A best practice toolkit

The aim of the toolkit is to optimise the understanding and uptake of fetal fibronectin (fFN) testing in pregnant women and people with threatened preterm labour (TPTL) in London. The toolkit presents the principles underlying the use of predictive testing rather than an exhaustive guideline. The Maternity Clinical Network recommends that all maternity units develop preterm labour clinical guidelines in line with these principles.

Current management of threatened preterm labour

Birth before 34 completed weeks of pregnancy is a significant cause of perinatal mortality and morbidity in the UK.

Current interventions that would be considered in a pregnant women or person at high risk of imminent delivery of a premature baby include admission to hospital for monitoring, administration of steroids or tocolytic drugs to the pregnant women or person and possible transfer to a specialist unit with appropriate staffing and expertise to most successfully care for a baby born at the extremes of viability.

NICE guidance on preterm labour and birth recommends treating all pregnant women and people in TPTL prior to 30 weeks. This means most pregnant women and people in TPTL are likely to be treated. However, most women or pregnant people presenting with symptoms of TPTL (contractions without cervical change) will not deliver within seven days and more than 50% will eventually deliver at term.

Treating all women or pregnant people in TPTL prior to 30 weeks results in:

- Unnecessary admission to maternity services.
- Unnecessary exposure of the baby to steroids.
- Unnecessary transfer to other units with the required level of neonatal care.

All of these incur risk or inconvenience to the woman or pregnant person and baby, as well as considerable financial costs to the NHS. Predictive testing could therefore help to reduce inappropriate intervention in pregnant women and people with TPTL.

Quantitative fetal fibronectin is the gold standard to predict imminent delivery in women or pregnant people in threatened preterm labour

The recent UK-wide QUIDS meta-analysis and prospective cohort study (2021) showed that a prognostic model that included quantitative fetal fibronectin and clinical risk factors showed excellent performance in the prediction of spontaneous preterm birth within 7 days of test. It is cost-effective and can be used to inform a decision support tool to help guide management decisions for pregnant women and people with threatened preterm labour. Table 1 shows these results. There is no evidence that an alternative model based on a different test of preterm birth would be superior to a model using quantitative fetal fibronectin.

The QUiPP app

The QUiPP app is a clinical decision-making tool which can be used to calculate birth prediction for pregnant women and people with symptoms of threatened preterm labour as well as asymptomatic high-risk pregnant women and

people.

The application has been designed for health, allied health and health research professionals who look after pregnant women and people to calculate individualised percentage risks scores of delivery within pre-specified clinically relevant timeframes. It is designed to be used with women or pregnant people as an educational tool and to arrive at shared decisions regarding the management of their pregnancy.

It relies on a relevant clinical history having been taken regarding the pregnant women or person's risk factors for preterm birth and her current symptoms. It relies on existing point-of-care testing: quantitative fetal fibronectin (fFN) sampling of the cervico-vaginal fluid and/or transvaginal ultrasound cervical length measurements. The app enables clinicians to make clinical decisions based on numerous factors. For most episodes of TPTL, risk of delivery within seven days will be less than 1%. Precise thresholds for intervention will depend on the clinical setting, but it is recommended that a risk of delivery of delivery of less than 5% in the next week may justify withholding antenatal steroid administration, admission or in utero transfer. The QUiPP App Toolkit is available at: https://www.bapm.org/pages/187-quipp-app-toolkit.

Best practice

Quantitative fFN and transvaginal ultrasound cervical length alone or in combination are the most useful predictive tests for the management of TPTL, particularly when combined with other risk factors and in conjunction with use of the QUiPP app. Intervention is only likely to be justified where the risks of delivery within seven days is greater than 5%. Decisions will be tailored to individual circumstances, but any interventions for lower risk pregnant women and people require discussion with the Obstetric Consultant on-call and Neonatal colleagues. Acting appropriately results in a number of potential benefits:

Pathway efficiencies resulting from:

- Reduction in hospital admissions.
- Reduction in in utero transfer rate (ambulance journeys).
- Reduction in planning and administrative time for arranging an in utero transfer.
- Reduction in drug use, such as antenatal steroids.

Improved maternal experience by:

- Avoiding unnecessary hospital admission
- Avoiding ambulance transfer to an unfamiliar maternity unit.
- Providing reassurance that preterm delivery is not imminent.

Increased capacity by:

- Reducing the number of beds occupied by unnecessary admission and transfer.

Principles for the use of predictive testing in London

1. All providers will have access to transvaginal ultrasound cervical length and quantitative fFN.

2. Quantitative fFN and/or transvaginal ultrasound cervical length are recommended in the management of pregnant women and people with threatened preterm labour with intact membranes between 22 and 35 weeks' gestation.

3. A fibronectin swab will be used to sample cervico-vaginal fluid in the posterior fornix in a pregnant women or person with intact membranes and cervical dilatation < 3cms. The swab should be taken prior to digital examination.

4. Recent sexual intercourse (within 48 hours) may falsely elevate quantitative fFN, but a low test result may still be relied upon.

5. All providers will have access to QUiPP app.

6. If the QUiPP app indicates risks the risk of delivery within seven days is less than 5%, steroids, admission and transfer may be withheld.

7. Providers will have local guidelines for the use of predictive testing. In light of the recent QUIDS Study results, all providers should use quantitative fFN.

8. Predictive tests should be used as indicated by the manufacturer.

9. In utero transfer because of perceived risk of preterm labour (in pregnant women and people with intact membranes) should not occur without prior predictive testing and ideally combined with the use of QUiPP app.

Importance of education

The benefits associated with predictive tests and the QUiPP app will not be realised if clinicians do not perform and interpret results correctly. Implementation is more extensive than purchasing swabs and point of care testing equipment. It is therefore essential that all units have up-to-date preterm labour clinical guidelines which include information on risk assessment and detailed protocols on the use of predictive tests. It is felt nationally that high functioning units' annual use of predictive tests equates to 10% of their annual birth rate.

Auditable standards for threatened preterm labour

The Maternity Clinical Network encourages providers to carry out regular clinical audit on TPTL. Auditable standards include:

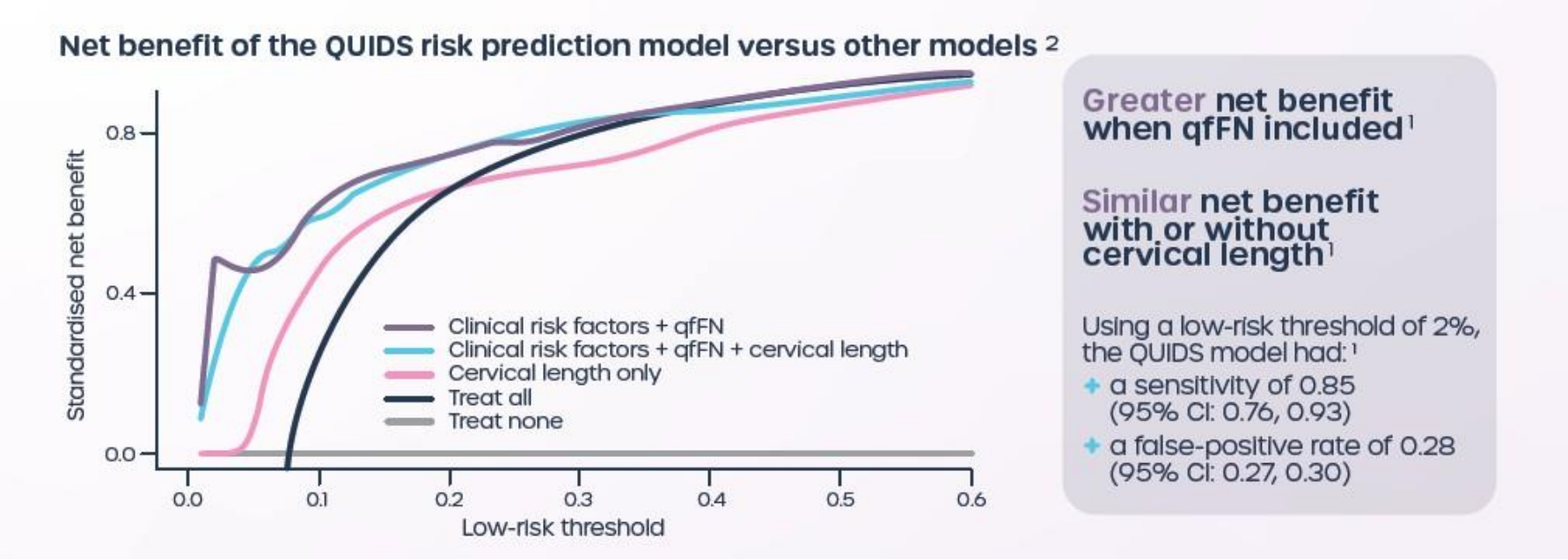
1. The number of pregnant women and people presenting with TPTL who had a fFN test, alone or combined with QUiPP app tool, undertaken on arrival.

2. The number of pregnant women and people transferred to the hospital in TPTL who had a predictive test, alone or combined with QUiPP app tool, undertaken on arrival.

3. The number of pregnant women and people with TPTL producing a negative predictive test result (and QUiPP app risk of delivery that did not meet the thresholds) who went on to receive steroids, tocolysis, were admitted to hospital and/or were transferred to another unit.

4. The number of pregnant women and people with TPTL and a positive predictive test result and QUiPP app risk of delivery that did meet the

Figure 1: The QUIDS meta-analysis and prospective cohort study demonstrating a prognostic model, including quantitative fetal fibronectin to predict preterm labour.



1. Stock SJ, Horne M, Bruijn M, White H, Boyd KA, Heggie R, Wotherspoon L, Aucott L, Morris RK, Dorling J, Jackson L, Chandiramani M, David AL, Khalil A, Shennan A, van Baaren GJ, Hodgetts-Morton V, Lavender T, Schuit E, Harper-Clarke S, Mol BW, Riley RD, Norman JE, Norrie J. Development and validation of a risk prediction model of preterm birth for women with preterm labour symptoms (the QUIDS study): A prospective cohort study and individual participant data meta-analysis. PLoS Med. 2021 Jul 6; 18(7):e1003686. doi: 10.1371/journal.pmed.1003686. PMID: 34228732; PMCID: PMC8259998.
2. Stock SJ, Horne M, Bruijn M, White H, Heggie R, Wotherspoon L, Boyd K, Aucott L, Morris RK, Dorling J, Jackson L, Chandiramani M, David A, Khalil A, Shennan A, Baaren GV, Hodgetts- Morton V, Lavender T, Schuit E, Harper-Clarke S, Mol B, Riley RD, Norman J, Norrie J. A prognostic model, including quantitative fetal fibronectin, to predict preterm labour: the QUIDS meta-analysis and prospective cohort study. Health Technol Assess. 2021 Sep; 25(52):1-168. doi: 10.3310/hta25520. PMID: 34498576.

Where tests provide continuous variables, combining them with other risk factors in a predictive algorithm like QUiPP allows more tailored and accurate risk prediction than a single thresh

Appendix F: Sample in utero transfer record proformas

Requesting Hospital IUT request proforma

Patient details:

Name:

NHS number:

Date of birth:

Gestation: _____ + _____weeks

Number of fetuses:

Was Predictive testing performed?

	Tick	
Yes		**If yes, please see table below.**
No		**If no please state reason:**

Threatened preterm labour predictive test performed:

	Tick	Value
QUIPP app		**% risk in 7 days** _____
Other		

Steroids administered: YES / NO	**Magnesium Sulphate: YES / NO**
Ruptured membranes: YES / NO	**Cervical dilatation: YES / NO If yes, _____cms**

Name of Maternity Service Making Request:

Date of Initial Call to EBS:

Time of Initial Call to EBS:

Details of Consultant Obstetrician authorising transfer:

NAME:

MOBILE:

BLEEP:

Indication for IUT

Bed required in:
Labour Ward / Antenatal Ward

Tertiary Hospital IUT request proforma

Patient details:

Name:

NHS number:

Date of birth:

Gestation: _____ + _____weeks

Number of fetuses:

Indication for IUT

Bed required in:
Labour Ward / Antenatal Ward

Was Predictive testing performed?

	Tick	
Yes		**If yes, please see table below.**
No		**If no please state reason:**

Threatened preterm labour predictive test performed:

	Tick	Value
QUIPP app		**% risk in 7 days** _____
Other		

Name of Maternity Service Making Request:

Date of Initial Call from EBS:
Time of Initial Call from EBS:
Date of final reply to EBS:
Time of final reply to EBS:
Response within one hour: Y/N

- **IUT accepted by Neonatal department: Y/N**
- **Details of Consultant Neonatologist authorising decision:**

- **NAME:**
- **MOBILE:**
- **BLEEP:**

- **IUT accepted by Obstetric department: Y/N**
- **Details of Consultant Obstetrician authorising decision:**

- **NAME:**
- **MOBILE:**
- **BLEEP:**

- **Details of Senior Midwife authorising decision:**
- **NAME:**
- **MOBILE:**
- **BLEEP:**

Steroids administered: YES / NO	**Magnesium Sulphate: YES / NO**
Ruptured membranes: YES / NO	**Cervical dilatation: YES / NO If yes, _____cms**

Offer of IUT made? Y/N

Reason for rejection: – select as many as apply (Staffing/ Cot or Bed Capacity/ Complexity of existing cases/ Other):

_____

Maternity Unit OPELMF status at time of decision (green, amber, red, black):

_____

Appendix G: Key Personnel at each stag

Stage	Key Personnel Required on call	
	In hours	Out of hours
Initial Request	EBS Representative Potential Receiving Unit: Senior NICU Nurse	EBS Representative Potential Receiving Unit: Senior NICU Nurse
Primary Escalation	EBS Representative Requesting Unit: Neonatal/Paediatric Consultant on-call Obstetric Consultants on-call Delivery Suite Matron Site Manager Potential Receiving Unit: Neonatal Consultant on-call Obstetric Consultants on-call Delivery Suite Matron Site Manager	EBS Representative Requesting Unit: Neonatal/ Paediatric Consultant on-call Obstetric Consultant on-call Site Manager on-call Senior Midwife on-call Potential Receiving Unit: Neonatal Consultant on-call Obstetric Consultant on-call Site Manager on-call Senior Midwife on-call
Surge Hub Escalation	Surge Hub Representative Requesting Unit: Neonatal/ Paediatric Consultant on-call Obstetric Consultants on-call Delivery Suite Matron Head of Midwifery Site Manager Potential Receiving Unit: Neonatal Consultant on-call Obstetric Consultants on-call Delivery Suite Matron Head of Midwifery Site Manager	Surge Hub Representative Requesting Unit Neonatal/ Paediatric Consultant on-call Obstetric Consultants on-call Site Manager on-call Senior Midwife on-call Potential Receiving Unit Neonatal Consultant on-call Obstetric Consultants on-call Site Manager on-call Senior Midwife on-call