THAMES VALLEY & WESSEX NEONATAL OPERATIONAL DELIVERY NETWORK

Prehospital management of preterm and term neonates: a framework for practice

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	Perinatal Management of Extreme Preterm Birth before 27 weeks of gestation A Framework for Practice, BAPM October 2019 https://www.bapm.org/resources/80-perinatal-management-of-extreme-preterm-birth-before-27-weeks-of-gestation-2019 Outcomes of Births Infographic (BAPM) https://hubble-live-assets.s3.eu-west-1.amazonaws.com/bapm/file_asset/file/31/outcome-of-births-infographic-201909111005-colour.pdf BAPM Neonatal Airway Safety Standard A Framework for Practice (2024) https://www.bapm.org/resources/BAPM-Neonatal-Airway-Safety-Standard Resuscitation Council UK Newborn resuscitation and support of transition of infants at birth Guidelines (May 2021) https://www.resus.org.uk/library/2021-resuscitation-guidelines/newborn-resuscitation-and-support-transition-infants-birth
Implications of race, equality & other diversity duties for this document	This guideline must be implemented fairly and without prejudice whether on the grounds of race, gender, sexual orientation or religion.

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Prehospital management of preterm and term neonates: a framework for practice

Contents

1.0 Aim of Guideline

Framework for Practice
Collaboration between various stakeholders within the Thames Valley & Wessex Neonatal ODN, South Central Ambulance Service SCAS, South West Ambulance Service SWAST, Health Innovation Network Oxford & Thames Valley & Wessex, HEMS, SONeT (Southampton Oxford Neonatal Transport Team), Regional LMNSs and Kent Surrey and Sussex Neonatal ODN. This framework has been developed in accordance with national guidance and standards ie BAPM frameworks, Resuscitation Guidance UK (NLS Guidance and out of hospital recommendations OH NLS.

Task and finish group to support the implementation of the following:
Implement national recommendations for prehospital management of neonates born in an out of hospital setting

-
- Standardise resource materials for ambulance staff, paramedics, specialist paramedic & emergency care teams and critical care teams within ambulance services
- Develop guidance & recommendations for neonatal care for JRCALC
- Establish remote support advice lines for neonatal prehospital births to support emergency clinicians providing neonatal care
- Establish standardised neonatal care equipment lists for emergency teams
- Establish transfer pathways into hospital neonatal care in accordance with neonatal network pathways
- Standardised education & resource training package for staff for front line staff, sharing of resources to support resuscitation and stabilisation in the prehospital setting

2.0 Scope of Guidelines

The guideline applies to all neonates who are born in an out of hospital setting including home deliveries and births in an MLU within the SE and SW Region covered by Thames Valley & Wessex Neonatal ODN care pathways. This includes the following destination hospitals: This may extend to other areas covered by prehospital providers ie SWAST, SECAMB within the SE & SW Region.

Thames Valley		
Trust	Hospital	Designation
Oxford University Hospitals NHS Foundation Trust	- John Radcliffe Hospital, Oxford	NICU
Buckinghamshire Healthcare NHS Trust	- Stoke Mandeville Hospital, Aylesbury	LNU
Frimley Health NHS Foundation Trust	- Wexham Park Hospital, Slough	LNU
Milton Keynes University Hospital NHS Foundation Trust	- Milton Keynes General Hospital	LNU
Royal Berkshire NHS Foundation Trust	- Reading	LNU

Wessex		
Trust	Hospital	Designation
University Hospital Southampton NHS Foundation Trust	- Princess Anne Hospital	NICU
Portsmouth Hospitals University NHS Trust	- Queen Alexandra Hospital	NICU
Dorset County Hospital NHS Foundation Trust	- Dorset County Hospital, Dorchester	SCU
Hampshire Hospitals NHS Foundation Trust	- Basingstoke and North Hampshire Hospital	SCU (Temporary designation)

Hampshire Hospitals NHS Foundation Trust	- Royal Hampshire County Hospital, Winchester	SCU (Temporary designation)
Isle of Wight NHS Trust	- St Mary's Hospital	SCU
University Hospitals Dorset NHS Foundation Trust	- Poole Hospital	LNU
Salisbury NHS Foundation Trust	- Salisbury District Hospital	LNU
University Hospitals Sussex NHS Foundation Trust	- St Richard's Hospital, Chichester	SCU

Kent / Medway		
Trust	Hospital	Designation
East Kent Hospitals University NHS Foundation Trust	- William Harvey Hospital, Ashford	NICU
East Kent Hospitals University NHS Foundation Trust	- Queen Elizabeth The Queen Mother Hospital, Margate	SCU
Medway NHS Foundation Trust	- Medway Maritime Hospital, Gillingham	NICU
Maidstone and Tunbridge Wells NHS Trust	- Tunbridge Wells Hospital	LNU
Dartford and Gravesham NHS Trust	- Darent Valley Hospital, Dartford	SCU

Surrey		
Trust	Hospital	Designation
Ashford & St Peter's Hospitals NHS Foundation Trust	- Ashford and St Peter's Hospital	NICU
Frimley Health NHS Foundation Trust	- Frimley Park Hospital, Camberley	LNU
Surrey and Sussex Healthcare NHS Trust	- East Surrey Hospital, Redhill	LNU
Royal Surrey NHS Foundation Trust	- Royal Surrey County Hospital, Guildford	SCU

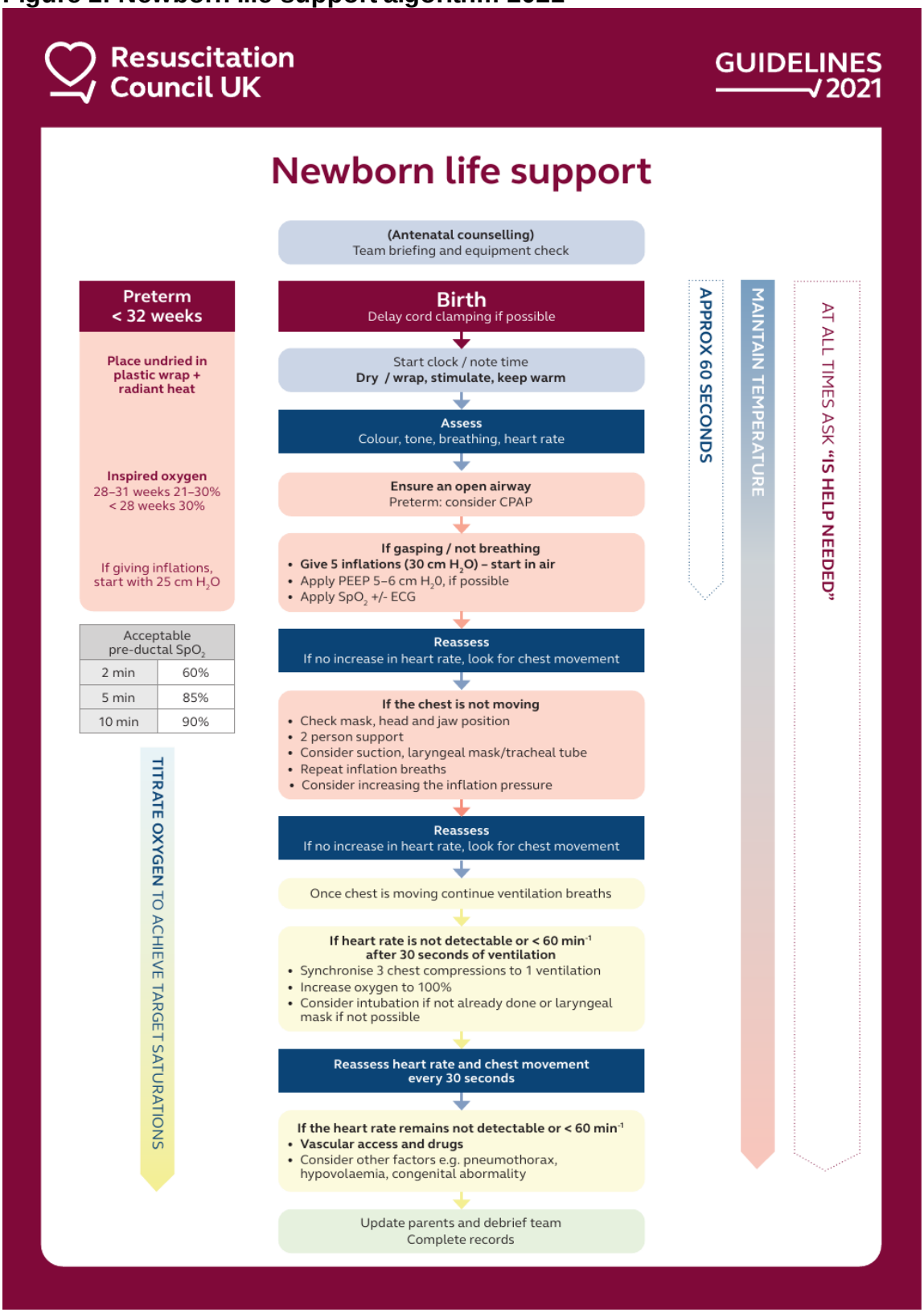
Sussex		
Trust	Hospital	Designation
University Hospitals Sussex NHS Foundation Trust	- Royal Sussex County Hospital, Brighton	NICU
University Hospitals Sussex NHS Foundation Trust	- Worthing Hospital	SCU
University Hospitals Sussex NHS Foundation Trust	- Princess Royal Hospital, Haywards Heath	SCU
East Sussex Healthcare NHS Trust	- Conquest Hospital, St. Leonard's on Sea	SCU

3.0 Definitions

TVW	Thames Valley & Wessex Neonatal ODN
SCAS	South Central Ambulance service
SWAST	South West Ambulance Service Trust
SECAMB	South East Coast Ambulance Service
HEMS	Helicopter Emergency Medical Services
SONeT	Southampton Oxford Neonatal Transport Team
KSS	Kent Surry Sussex Neonatal ODN
BAPM	British Association of Perinatal Medicine
JRCALC	Joint Royal Colleges Ambulance Liaison Committee
NLS	Newborn Life Support
NICU	Neonatal Intensive Care Unit
LNU	Local Neonatal Unit
SCU	Special Care Unit
LMNS	Local Maternity and Neonatal System
W3W	What 3 Words
OH	Out of hospital

4.0 Guideline Framework

NLS (Newborn Life Support) guideline 2021:
Figure 1: Newborn life support algorithm 2021



Extreme preterm babies <27 weeks gestation

These recommendations are based on current national guidance (Pre-hospital management of babies born extremely preterm – a framework for practice. BAPM, 2022) and should be used together to guide clinicians in the care of babies born at less than 27 weeks gestation in the pre-hospital environment.

- Initial assessment of situation:
  - Awareness of potential complications during labour and birth that might compromise outcome for either mother or baby
  - Determine the gestation of the baby
  - Request additional support if birth is imminent
  - Prepare an area for resuscitation, off the floor if possible, and open your maternity pack and newborn resuscitation equipment
  - For extreme preterm birth, a preterm mask, a food-grade (or neonatal specific) plastic bag and a heated mattress should be available
- Initial management
  - Provide effective and timely delivery of appropriate interventions in the mother and baby's best interests.
  - Comfort focussed care or attempted stabilisation of the baby based on gestational age (see figure 2: Visual Summary)
  - There may not be time to counsel families before the baby is born. The BAPM framework for practice (Perinatal Management of Extreme Preterm Birth Before 27 weeks of Gestation, 2019) may be helpful alongside the outcome of births infographic (appendix 1)

- Correct destination
  - Access the most appropriate neonatal and/or maternal expertise at the most appropriate location.
  - Prioritisation of on-site maternity and neonatal/paediatric facilities may involve bypassing a closer facility. This decision should be made in discussion between the neonatal Consultant and the treating clinicians and should not delay care provision.
  - Wherever possible, the mother and baby should be transferred to the same hospital
  - Pre-alert the hospital
- Communication
  - An extremely preterm birth will be a frightening time for both the parents and the attending professionals.
  - The language used at this highly emotional time will carry lasting memories for the parents.
  - Neonatal clinical advice can be sought from the neonatal transport Consultant (see SBAR structure, appendix 6). This can include advice on clinical care provision, location of care transfer or in situations where resuscitation is futile or unsuccessful.
- In the rare event that an advance care directive or equivalent is in place, this should be confirmed with the parents and respected. This information may be held either in paper or electronic form. A CAD (computer aided dispatch) marker may be added to a home address by the ambulance service.

Active resuscitation (survival focussed care) is not recommended before 22+0 weeks gestation. There should be a focus on comfort-based care.

Comfort-focussed (palliative) neonatal care for the baby and their family will provide families with much comfort in the days and weeks following their baby's death.

- Parents should be made aware that their baby may show signs of life after birth, including visible heartbeat, gasping and/or movement of limbs.
- The parents should be given time together with their baby, with or without other family members as per their wishes and facilitated to be actively involved in their baby's care. This should include holding the baby, either skin to skin or swaddled, depending on their preference, and other memory making.
- Remember to offer the parents an opportunity to take photographs.

- If a midwife is in attendance and the mother is stable, the family may prefer to remain at home, otherwise mother and baby should be transported together to maternity care as soon as it is safe to do so.

Survival focused care:
From 22+0 weeks' gestation, or if gestation is not known, simple interventions focussed on maintaining body temperature and supporting the airway and breathing should be undertaken. This is a time-critical emergency for the baby.

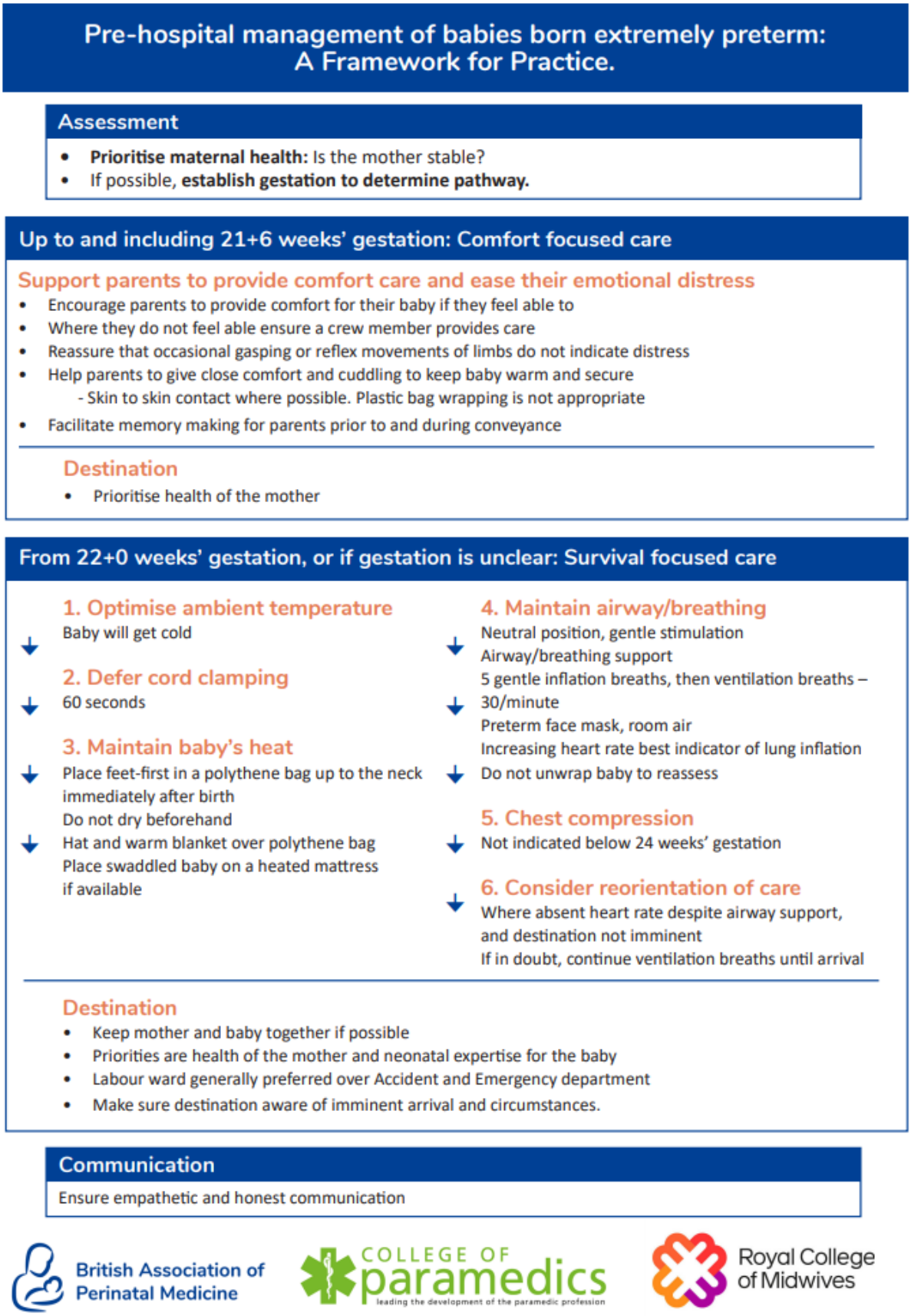
1. Thermal care:
   - Hypothermia is associated with a poor outcome
   - Deferred cord clamping is recommended. Unless there is significant maternal haemorrhage and/or the mother requires urgent medical attention, do not clamp the umbilical cord until 60 seconds have elapsed since birth. Use this time to focus on placing the baby into the polythene bag up to the neck, applying a hat and wrapping with a warm towel/blanket.
   - Do not cover the baby's face.
   - Place the swaddled baby on a heated mattress.
   - The baby should not be dried unless there is delay in locating a polythene bag. If no bag is available, dry the baby very gently and wrap in a warm towel.
   - When the baby has already been dried, a polythene bag will be of less benefit is still recommended
   - Where possible, monitor axilla temperature of the baby. Continuous monitoring may be helpful but care should be taken to ensure the probe is not resting on the heated mattress if one is used.

2. Stabilisation and resuscitation as per NLS guidance (see figure 1)
   - Maintain thermal care during resuscitation
   - Assess the baby and support respiration as per current NLS guidance
   - Guidance for neonatal airway equipment and initial respiratory support settings (BAPM 2024) can be found in appendix 2
   - Continue airway/breathing support in air (if required) until arrival at destination unless the heartbeat is persistently undetectable
   - A saturation probe on the right hand/wrist (preductal) can be helpful to guide oxygen use. Cover the saturation probe with a probe wrap (if available) or towel.

3. Transfer to definitive care
   - Optimise ambulance temperature and minimise draughts
   - Continue providing respiratory support if required
   - Ensure that the baby is secured safely for transfer with a flat service available for resuscitation ie. secured to an ambulance stretcher. If available, a vacuum mattress or other commercially available device should be used. Wherever possible, babies should not be transferred in arms.
   - Place an early pre-alert to the agreed destination
   - Refer to appendices 4 (Neonatal Care Pathway) and 5 (Transfer Care Pathway) to aid decision making and agree the most appropriate destination for the baby
   - Neonatal clinical advice can be sought from the neonatal transport Consultant (see SBAR structure, appendix 6). This can include advice on clinical care provision, location of care transfer or in situations where resuscitation is futile or unsuccessful.
4. Baby does not appear to respond to resuscitation (BAPM, 2022)
   - Where no heartbeat is detectable with a stethoscope on at least two occasions 10 minutes apart and arrival at the destination is not imminent, it is reasonable to reconsider attempts to resuscitate the baby if parents are in agreement with reorientation of care.
   - Otherwise continue with ventilation breaths at a rate of 30 breaths per minute until arrival at destination where a decision can be made by the receiving medical team on the appropriateness of continued support.

- Neonatal clinical advice can be sought from the neonatal transport Consultant (see SBAR structure, appendix 6).

Figure 2: Visual summary BAPM Framework of Practise Feb 2022



Preterm babies 27-36+6 weeks gestation

These recommendations follow the same principles as the current national guidance for babies born at earlier gestations (Pre-hospital management of babies born extremely preterm – a framework for practice. BAPM, 2022)

- Initial assessment of situation:
  - Awareness of potential complications during labour and birth that might compromise outcome for either mother or baby
  - Determine the gestation of the baby
  - Request additional support if birth is imminent
  - Prepare an area for resuscitation, off the floor if possible, and open your maternity pack and newborn resuscitation equipment. An appropriate size face mask, a food-grade (or neonatal specific) plastic bag and a heated mattress should be available
- Initial management
  - Provide effective and timely delivery of appropriate interventions in the mother and baby's best interests.
  - There may not be time to counsel families before the baby is born.
- Correct destination
  - Access the most appropriate neonatal and/or maternal expertise at the most appropriate location.
  - Prioritisation of on-site maternity and neonatal/paediatric facilities may involve bypassing a closer facility. This decision should be made in discussion between the neonatal Consultant and the treating clinicians and should not delay care provision.
  - Wherever possible, the mother and baby should be transferred to the same hospital
  - Place an early pre-alert to the agreed destination
- Communication
  - Any preterm birth will be a frightening time for both the parents and the attending professionals.
  - The language used at this highly emotional time will carry lasting memories for the parents.
  - Neonatal clinical advice can be sought from the neonatal transport Consultant (see SBAR structure, appendix 6). This can include advice on clinical care provision, location of care transfer or in situations where resuscitation is futile or unsuccessful.
- In the rare event that an advance care directive or equivalent is in place, this should be confirmed with the parents and respected. This information may be held either in paper or electronic form. A CAD (computer aided dispatch) marker may be added to a home address by the ambulance service.

Simple interventions focussed on maintaining body temperature and supporting the airway and breathing should be undertaken. This is a time-critical emergency for the baby.

1. Thermal care:
   - Hypothermia is associated with a poor outcome
   - Deferred cord clamping is recommended. Unless there is significant maternal haemorrhage and/or the mother requires urgent medical attention, do not clamp the umbilical cord until 60 seconds have elapsed since birth. For babies less than 32 weeks, use this time to focus on placing the baby into the polythene bag up to the neck, applying a hat and wrapping with a warm towel/blanket.
   - Do not cover the baby's face.
   - Place the swaddled baby on a heated mattress.
   - Babies less than 32 weeks should not be dried unless there is delay in locating a polythene bag. If no bag is available, dry the baby very gently and wrap in a warm towel.
   - When the baby has already been dried, a polythene bag will be of less benefit is still recommended
   - Where possible, monitor axilla temperature of the baby. Continuous monitoring may be helpful but care should be taken to ensure the probe is not resting on the heated mattress if one is used..

2. Stabilisation and resuscitation as per NLS guidance (see figure 1)
   - Maintain thermal care during resuscitation
   - Assess the baby and support respiration as per current NLS guidance

- Guidance for neonatal airway equipment and initial respiratory support settings (BAPM 2023 – draft framework) can be found in appendix 2
- Continue airway/breathing support in air until arrival at destination unless the heartbeat is persistently undetectable
- A saturation probe on the right hand/wrist (preductal) can be helpful to guide oxygen use. Cover the saturation probe with a probe wrap (if available) or towel.

3. Transfer to definitive care
   - Optimise ambulance temperature and minimise draughts
   - Continue providing respiratory support if required
   - Ensure that the baby is secured safely for transfer with a flat service available for resuscitation ie. secured to an ambulance stretcher. If available, a vacuum mattress or other commercially available device should be used. Wherever possible, babies should not be transferred in arms.
   - Place an early pre-alert to the agreed destination
   - Refer to appendices 4 (Neonatal Care Pathway) and 5 (Transfer Care Pathway) to aid decision making and agree the most appropriate destination for the baby
   - Neonatal clinical advice during transfer can be obtained from the neonatal transport Consultant (see SBAR structure, appendix 6). This can include advice on clinical care provision, location of care transfer or in situations where resuscitation is futile or unsuccessful.

Term babies >37 weeks gestation

These recommendations follow the principles of neonatal resuscitation as described in the Newborn Life Support (NLS) guidance (RCUK 2021)

- Initial assessment of situation:
  - Awareness of potential complications during labour and birth that might compromise outcome for either mother or baby
  - Prepare an area for resuscitation, off the floor if possible, and open your maternity pack and newborn resuscitation equipment.
- Initial management
  - Provide effective and timely delivery of appropriate interventions in the mother and baby's best interests.
  - Detailed guidance is available from the Resuscitation Council UK (Newborn resuscitation and support of transition of infants at birth Guidelines, 2021)
- Correct destination
  - Transfer may not be required, unless for maternal or baby clinical reasons
  - Prioritisation of on-site maternity and neonatal/paediatric facilities may involve bypassing a closer facility if ongoing resuscitation is required (Red Pathway, Appendices 4 and 5). This decision should be made in discussion between the neonatal Consultant and the treating clinicians and should not delay care provision. and should not delay care provision
  - Wherever possible, the mother and baby should be transferred to the same hospital
  - Pre-alert the hospital if transfer is required
- Communication
  - Neonatal clinical advice can be sought from the neonatal transport Consultant (see SBAR structure, appendix 6). This can include advice on clinical care provision, location of care transfer or in situations where resuscitation is futile or unsuccessful.
- In the rare event that an advance care directive or equivalent is in place, this should be confirmed with the parents and respected. This information may be held either in paper or electronic form. A CAD (computer aided dispatch) marker may be added to a home address by the ambulance service.

1. Thermal care:
   - Hypothermia is associated with a poor outcome
   - Deferred cord clamping is recommended. Unless there is significant maternal haemorrhage and/or the mother requires urgent medical attention, do not clamp the umbilical cord until 60 seconds have elapsed since birth
   - Dry the infant immediately after delivery.
   - Cover the head and body of the infant with a warm towel.
   - If no resuscitation is required place the infant skin-to-skin with mother and cover both with a towel. Monitor to ensure continued normothermia.
   - If the infant needs support with transition or when resuscitation is required, place the infant on a flat surface, ideally off the floor and away from draughts
   - Consider use of a thermal mattress or a polythene bag for maintenance of normothermia and during transfer

2. Stabilisation and resuscitation as per NLS guidance (see figure 1)
   - Maintain thermal care during resuscitation
   - Assess the baby and support respiration as per current NLS guidance
   - Guidance for neonatal airway equipment and initial respiratory support settings (BAPM 2023 – draft framework) can be found in appendix 2
   - Detailed guidance is available from the Resuscitation Council UK (Newborn resuscitation and support of transition of infants at birth Guidelines, 2021)
   - A saturation probe on the right hand/wrist (preductal) can be helpful to guide oxygen use. Cover the saturation probe with a probe wrap (if available) or towel.

3. Transfer to definitive care (f required)
    - Optimise ambulance temperature and minimise draughts
    - Continue providing respiratory support if required
    - Ensure that the baby is secured safely for transfer with a flat service available for resuscitation ie. secured to an ambulance stretcher. If available, a vacuum mattress or other commercially available device should be used. Wherever possible, babies should not be transferred in arms.
    - Place an early pre-alert to the agreed destination Refer to appendices 4 (Neonatal Care Pathway) and 5 (Transfer Care Pathway) to aid decision making and agree the most appropriate destination for the baby
    - Neonatal clinical advice can be sought from the neonatal transport Consultant (see SBAR structure, appendix 6). This can include advice on clinical care provision, location of care transfer or in situations where resuscitation is futile or unsuccessful.

Minimum equipment for newborn resuscitation in the pre-hospital environment:

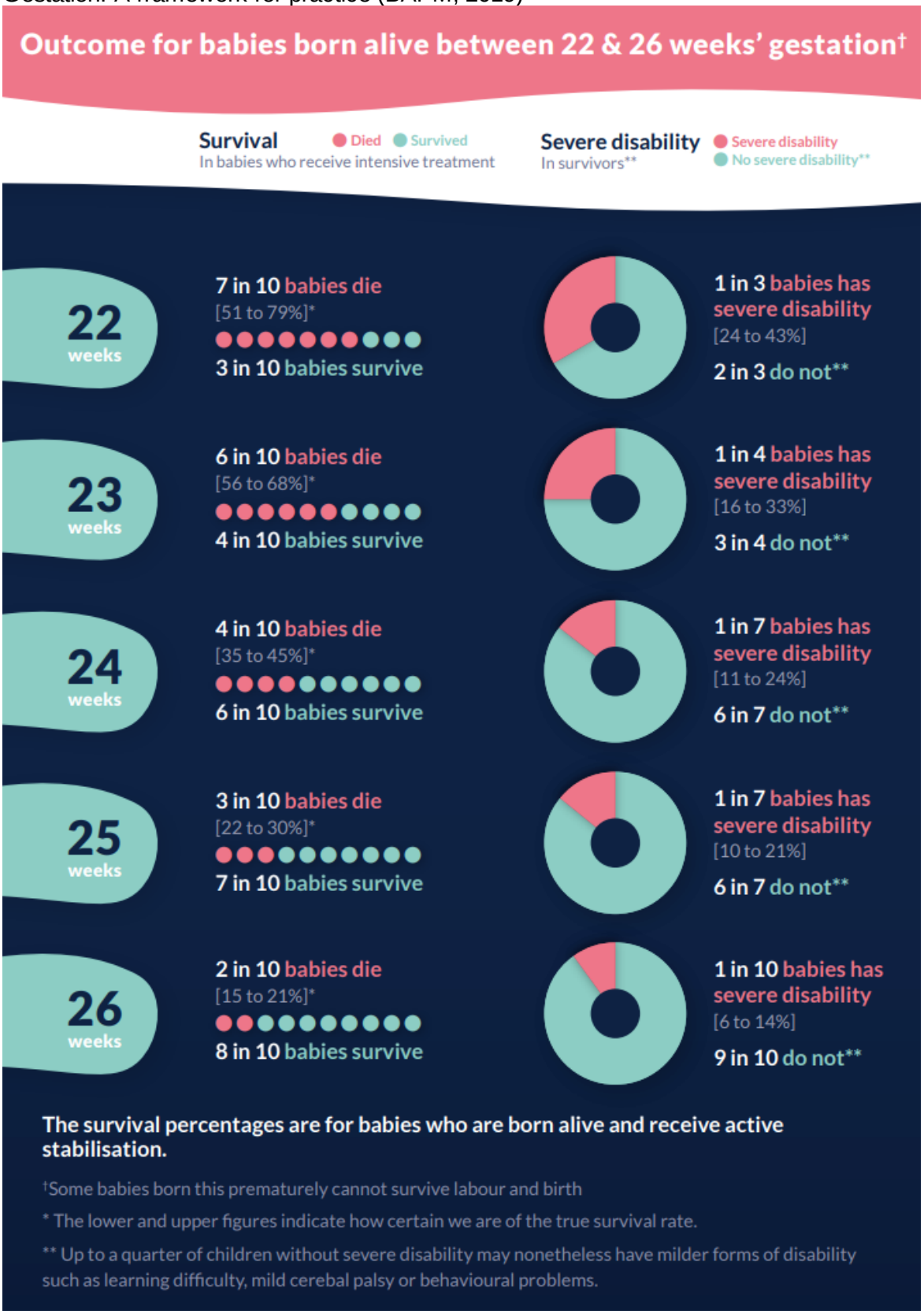
Resuscitation Council UK guidance for the minimum equipment required in the pre-hospital setting (2023) is based on the core principles of thermoregulation and airway management and can be found in appendix 3.

Thermal care	
Item	Recommended supplier (if applicable)
Towels x 4	
Hat (small and large) x 2	
Heated mattress	Transwarmer
Clear plastic bag	Neo-HeLP: Vygon Small (<1kg), medium (1-2.5kg), large (>2.5kg)
Airway management	
Item	Recommended supplier (if applicable)
Portable suction equipment – battery operated with adjustable pressure (manual acceptable)	
Paediatric yankeur catheters x 2	
i-Gel size 1	
Laryngoscope with size 1 blade	
Sachet of lubricant gel	
Breathing support	
Item	Recommended supplier (if applicable)
Self-inflating paediatric resuscitation bag (500ml volume)	
Face masks size 00, 0, 1	Fisher and Paykel
Paediatric nasal cannula	
Additional items	
Item	Recommended supplier (if applicable)
Cord clamps x 3	
Sharp scissors/umbilical cord scissors	
Gauze	
Clinical waste bag x 2	
Stethoscope	
Gloves	
Patient ID band x 2	
Axilla thermometer	
Copy of NLS algorithm	
Oxygen cylinder	
Saturation monitor with paediatric probe	Massimo/Nellcor

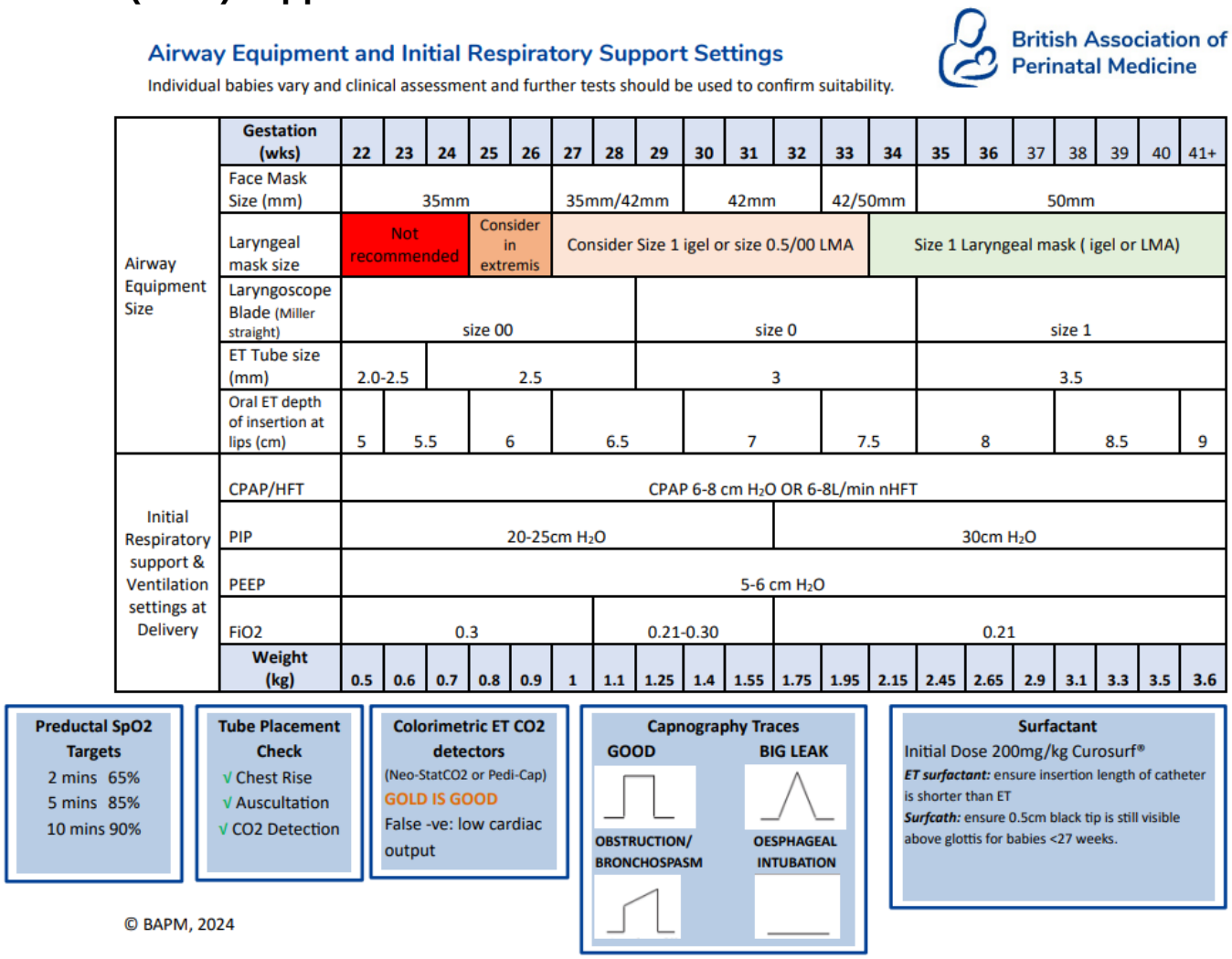
5.0 Appendices

Appendix 1: Outcome of extreme preterm births infographic

Produced by BAPM alongside the Perinatal Management of Extreme Preterm Birth Before 27 weeks of Gestation. A framework for practice (BAPM, 2019)



Appendix 2: BAPM Neonatal Airway Safety Standard. A Framework for Practice (2024) - appendix D



Airway Equipment and Initial Respiratory Support Settings

Individual babies vary and clinical assessment and further tests should be used to confirm suitability.

British Association of Perinatal Medicine

	Gestation (wks)	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41+
Airway Equipment Size	Face Mask Size (mm)	35mm					35mm/42mm			42mm			42/50mm		50mm						
	Laryngeal mask size	Not recommended			Consider in extremis		Consider Size 1 igel or size 0.5/00 LMA								Size 1 Laryngeal mask (igel or LMA)						
	Laryngoscope Blade (Miller straight)	size 00								size 0					size 1						
	ET Tube size (mm)	2.0-2.5		2.5						3					3.5						
	Oral ET depth of insertion at lips (cm)	5	5.5		6		6.5			7			7.5		8			8.5			9
Initial Respiratory support & Ventilation settings at Delivery	CPAP/HFT	CPAP 6-8 cm H_2O OR 6-8L/min nHFT																			
	PIP	20-25cm H_2O											30cm H_2O								
	PEEP	5-6 cm H_2O																			
	FiO2	0.3						0.21-0.30					0.21								
	Weight (kg)	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1**	**1.1**	**1.25**	**1.4**	**1.55**	**1.75**	**1.95**	**2.15**	**2.45**	**2.65**	**2.9**	**3.1**	**3.3**	**3.5**	**3.6**

Preductal SpO2 Targets
2 mins 65%
5 mins 85%
10 mins 90%

Tube Placement Check
√ Chest Rise
√ Auscultation
√ CO2 Detection

Colorimetric ET CO2 detectors
(Neo-StatCO2 or Pedi-Cap)
GOLD IS GOOD
False -ve: low cardiac output

Capnography Traces
GOOD
BIG LEAK
OBSTRUCTION/ BRONCHOSPASM
OESPHAGEAL INTUBATION

Surfactant
Initial Dose 200mg/kg Curosurf®
ET surfactant: ensure insertion length of catheter is shorter than ET
Surfcath: ensure 0.5cm black tip is still visible above glottis for babies <27 weeks.

This guide highlights airway equipment sizes that may be useful to appropriately trained staff and may not be applicable to all staff and situations.

Appendix 3: Minimum equipment for newborn resuscitation in the pre-hospital environment. Resuscitation Council UK, 2023

Resuscitation Council UK

Minimum equipment for newborn resuscitation and the support of transition of infants at birth in the pre-hospital setting

Introduction

This equipment list, developed for Resuscitation Council UK Newborn Life Support Subcommittee by the Pre-Hospital Newborn Life Support working group, represents a minimum recommended standard for those delivering care for planned or emergency births in the out-of-hospital setting.

All items should be latex free.

Thermal care

- Towels x 4
- Hat (small and large) x 2
- TransWarmer © (or similar)
- Clear plastic bag.

Airway management

- Portable suction equipment – battery operated with adjustable pressure (manual acceptable)
- Paediatric Yankeur catheter x 2
- i-gel/LMA size 1
- Laryngoscope with size 1 blade
- Sachet of lubricant gel
- 5 mL syringe (if inflatable cuffed LMA carried).

Breathing support

- Self-inflating paediatric resuscitation bag (approximately 500 mL volume)
- Face masks for positive pressure ventilation – appropriate to all gestations (e.g. Size 00, 0 and 1)
- Paediatric nasal cannula.

Additional items

- Cord clamps x 3
- Sharp scissors/umbilical cord scissors
- Gauze
- Clinical waste bag x 2
- Stethoscope
- Gloves
- Patient ID bracelet x 2
- Axilla thermometer
- Copy of the NLS algorithm
- Oxygen cylinder and saturation monitor with an appropriate probe.

Newborn Life Support Subcommittee | Minimum equipment for newborn resuscitation and the support of transition of infants at birth in the pre-hospital setting| Jan/2023 | Version 1

Appendix 4: Neonatal Care Pathway

Green	Amber	Red
Gestation: >37 weeks	**Gestation:** Any baby 27-36+6 weeks Any baby >37 weeks requiring respiratory support	**Gestation:** Any baby <27 weeks Any baby requiring ongoing resuscitation
Resuscitation needed: - None - Stimulation - Inflation breaths	**Resuscitation needed:** - Inflation/ventilation breaths - PEEP - Occasional IPPV	**Resuscitation needed:** - Ongoing IPPV - Cardiac compressions - Drugs
Current condition: - Self ventilating in air - No clinical concerns	**Current condition:** - Self ventilating in air - Occasional PEEP or requiring low flow oxygen	**Current condition:** - Requiring continuous PEEP or IPPV - Regular respiration not established
Actions: - Skin to skin - Keep warm - Early feed	**Actions:** - Keep warm - If axilla temperature <36C use transwarmer - Check temperature and remove transwarmer when >37C - Consider feed if >30 minutes to nearest hospital - Saturation/ECG monitoring if able - Consider low flow oxygen to maintain target saturations Preterm: 1L/min Term: 1-4L/min	**Actions:** - Call SONeT Consultant for clinical advice: 01865 223344 - Keep warm - If axilla temperature <36C use transwarmer - Check temperature and remove transwarmer when >37C Saturation/ECG/temperature monitoring if able - Consider iGel/LMA for transfer if requiring IPPV - Ventilation for transfer if equipment available - Consider IV cannulation + dextrose for transfer if >30 minute journey - 10% dextrose rates based on estimated weight: 1kg - 2.5ml/hr 2kg – 5ml/hr 3kg – 7.5ml/hr 4kg – 10ml/hr
Transfer: Not required unless clinical concerns or maternal transfer required Stay with birth parent	**Transfer:** >37 weeks: labour ward with neonatal review <37 weeks: neonatal unit (see separate table) **Clinical advice and transfer location:** **SONeT: 01865 223344** **KSS: 0207 407 499**	**Transfer:** Any baby <27 weeks: Neonatal unit (see separate table) Any baby requiring ongoing resuscitation: Nearest hospital (ideally with neonatal unit) **Clinical advice and transfer location:** **SONeT: 01865 223344** **KSS: 0207 407 499**

Appendix 5: Transfer Care Pathway

The recommendations within the table below are based on the gestational age, clinical stability of the baby and the geographical distance from neonatal units. An individual decision for location of care for babies on the amber or red pathways should be made between the neonatal Consultant and the transferring clinicians. This may result in a journey time of more than thirty minutes if appropriate care can be provided during the journey.

Green	Amber	Red
Clinical status: - Gestation >37 weeks - No ongoing respiratory support or clinical concerns	**Clinical status:** - Gestation <37 weeks - Ongoing respiratory support or clinical concerns	**Clinical status:** - Oxygen saturations <80% - Requiring cardiac compressions - Acute clinical concerns
Preferred neonatal unit designation: Any labour ward (if transfer required)	**Preferred neonatal unit designation:** An individual decision for each baby should be made by the neonatal Consultant and transferring clinicians <u>NICU:</u> - Gestation <27 weeks *and* <30 minute journey to NICU - Any baby if nearest neonatal unit is NICU <u>LNU:</u> - Gestation <27 weeks if journey time to NICU is >30 minutes - Gestation <32 weeks *and* <30 minute journey to LNU - Gestation >32 weeks if nearest neonatal unit is LNU <u>SCU:</u> - Gestation <32 weeks if journey time to LNU/NICU is >30 minutes - Gestation >32 weeks	**Preferred neonatal unit designation:** Nearest hospital (ideally with neonatal unit) Stabilisation and subsequent neonatal transfer if required: LNU – short term intensive care only SCU – stabilisation only for intensive care
Nearest hospital	**Hospitals:** <u>NICU:</u> - Ashford - Brighton - Chertsey - Medway - Oxford - Portsmouth - Southampton <u>LNU:</u> - East Surrey Hospital - Frimley - Milton Keynes	**Hospitals with neonatal units:** <u>Thames Valley:</u> - Milton Keynes - Oxford - Reading - Stoke Mandeville - Wexham Park <u>Wessex:</u> - Basingstoke - Chichester - Dorchester - Isle of Wight

	- Poole - Reading - Salisbury - Stoke Mandeville - Tunbridge Wells - Wexham Park <u>SCU:</u> - Basingstoke - Chichester - Darent Valley - Dorchester - Guildford - Haywards Heath - Isle of Wight - Margate - St Leanards on Sea - Winchester - Worthing	- Poole - Portsmouth - Salisbury - Southampton - Winchester <u>KSS:</u> - Ashford - Brighton - Chertsey - Darent Valley - East Surrey Hospital - Frimley - Guildford - Haywards Heath - Margate - Medway - St Leanards on Sea - Tunbridge Wells - Worthing

Appendix 6: Communication SBAR for neonatal clinical advice

Call
SONeT (Thames Valley and Wessex) 01865 223344
KSS neonatal transport service (KSS) 0207 407 4999

For babies who are anticipated to follow the amber/red pathway, a call for advice pre-delivery may be helpful (if time allows).

Trigger for bypass:
"This is a Direct to Neonatal Consultant call for a pre-hospital newborn on the amber/red pathway. This is an emergency and takes priority over other calls"

Note for hub staff: this call is for clinical advice only and does not need a job number generating. The call should be put through to the transport Consultant immediately. Unless requested by the transport Consultant, the rest of the team do not need to be included in the call.

Communication Structure:
Situation

- Prehospital clinician name, contact details
- "I am calling about a pre-hospital newborn on the amber/red pathway due to ..."
- Gestation, age in minutes
- Location

Background:

- Known maternal/newborn comorbidity
- Important events preceding birth

Assessment (currently):

- Airway: Own, iGel, ETT (size)
- Breathing: Supported (continuous, intermittent, PEEP), SpO2
- Circulation: HR, colour, lines, CPR
- Disability: Tone, blood sugar
- Temperature

Response:

- Treatment to date
- Intended transfer location based on geography/table

Appendix 7: Transfer destination for unwell newborn infants <24hours of age

What3Words (W3W) can be used to pinpoint an exact location more precisely than a postcode or hospital site. For each hospital site, the W3W location is the entrance to the maternity/neonatal building

Thames Valley					
Neonatal unit designation	Hospital	Address	Destination Location for New-born (<24hr)	Neonatal Unit Location & Telephone Number	Maternity Unit Location
NICU Any baby **W3W:** ///tubes. pulled.fled	John Radcliffe Hospital	Headley Way, Headington, Oxford, Oxfordshire OX3 9DU	New-born Care Unit	Oxford Newborn Care Unit Level 2, Women's Centre Building. Access via Women's Centre Building main entrance. **Contact via Maternity Assessment Unit or Delivery Suite**	Womens' Centre Building Level 2, Women's Centre Building. Access via Women's Centre Building main entrance **Maternity Assessment Unit 01865 220221** **Delivery Suite 01865 221988 / 221987**
LNU >27/40 **W3W:** ///storms. defeat.token	Milton Keynes University Hospital	Standing Way, Eaglestone, Milton Keynes, MK6 5LD	Emergency Department	Green Zone, Level 2 Access via ED Entrance **Neonatal Unit 01908 995591 / 997167**	Purple Zone, Level 2 Access via ED Entrance **Delivery Suite 01908 996480 / 996478**
LNU >27/40 **W3W:** ///craft.them. hurray	Royal Berkshire Hospital	London Road, Reading Berkshire. RG1 5AN	Emergency Department	Buscot Ward, Maternity Block (Craven Road), Level 6, Access via Maternity Building main entrance. **Neonatal Unit 0118 322 7430**	Delivery Suite, Maternity Block (Craven Road), Level 3, Access via Maternity Building main entrance **Labour Ward 0118 322 7215 / 7303**
LNU >27/40 **W3W:** ///such. comical.wells	Stoke Mandeville Hospital	Mandeville Road, Aylesbury, Bucks. HP21 8AL	Emergency Department (Paediatric Area)	Neonatal Unit, Claydon Wing Ground floor. Access via Claydon Wing Main Entrance. **Neonatal Unit 01296 316115**	Aylesbury labour ward, Claydon Wing, Ground Floor. Access via Claydon Wing Main Entrance. **Labour Ward 01296 316102 / 316103**
LNU >27/40 **W3W:** ///winner. shower.icons	Wexham Park Hospital	Wexham, Slough, Berkshire. SL2 4HL	Neonatal Unit **IF** pre-warned, otherwise Emergency Department	Neonatal Unit, Ground Floor. Access via Entrance 4, Wexham Park Lane **Neonatal Unit 01753 633148 / 633609**	Labour Ward, Ground Floor. Access via Entrance 4, Wexham Park Lane. **Labour Ward 01753 634521**

Wessex					
Neonatal unit designation	Hospital	Address	Destination Location for New-born (<24hr)	Neonatal Unit Location & Telephone Number	Maternity Unit Location
SCU >30/40 **W3W:** ///stews.keys.maps	Basingstoke and North Hampshire Hospital	Aldermaston Road, Basingstoke, Hampshire RG24 9NA	Neonatal Unit	Ground floor, Sherborne building to the right of main hospital building. Access via building's main door **Neonatal Unit 01256 313686**	Second Floor, Sherborne building, to the right of main hospital building. Access via building's main door **Delivery Suite 01256 313600 / 01256 313795**
SCU >32/40 **W3W:** ///tins.began.lyricism	Dorset County Hospital	Williams Ave, Dorchester DT1 2JY	Labour Ward	East Wing Level 1, Access via East Wing Entrance 1 **Neonatal Unit 01305 254235**	East Wing Level 1, Access via East Wing Entrance 1. **Labour Ward 01305 254252**
NICU Any baby **W3W:** ///edges.cave.apply	Princess Anne Hospital	Coxford Rd, Southampton SO16 5YA	Term - Maternity unit Pre-Term – Neonatal unit	D Level. Access via D level main doors and bear left **Contact Neonatal Unit Coordinator 07880078907** **Neonatal Unit 02381208164**	D Level. Access via D level main doors and straight ahead. **Labour Ward 02381 208103**
NICU Any baby **W3W:** ///chairs.price.rope	Queen Alexandra Hospital	Southwick Hill Road, Portsmouth, Hampshire. PO6 3LY	Children's Assessment Unit (CAU) East Entrance.	B level, Ward B9. Access via Main Entrance A, Lift area 2 **Neonatal Retrieval Nurse 07843 505036 (First POC)** **Neonatal Unit 02392 283231 / 283232**	B8 level, Access via Main Entrance A, Lift area 2 **Labour Ward 02392 286000 Ext 3286 (Red Phone – no direct line)**
SCU >30/40 **W3W:** ///dishing.hiding.pranced	Royal Hampshire County Hospital	Romsey Road, Winchester, Hampshire. SO22 5DG	Neonatal Unit **IF** Pre-alerted	Lower Ground floor, Florence Portal House (left off Queens Road) **Neonatal Unit 01962 824200 or via switchboard (01962 863535) & bleep paediatric team**	Maternity Unit, First floor, Florence Portal House. Access via FPH main entrance (left off Queens Road) **Delivery Suite 01962 824231 / 824232**

Wessex					
Neonatal unit designation	Hospital	Address	Destination Location for New-born (<24hr)	Neonatal Unit Location & Telephone Number	Maternity Unit Location
LNU >27/40 **W3W:** ///food.keep.green	St Mary's Maternity Hospital, Poole	St Marys Road Poole Dorset BH15 2LG	Neonatal Unit	First Floor, St Mary's Maternity Hospital, St Mary's Road **Neonatal Unit** **03000 192330**	Ground Floor, St Mary's Maternity Hospital, St Mary's Road **Maternity Unit** **01202 442319** **Triage 01202 448472**
SCU >32/40 **W3W:** ///sounds.Likening.faced	St Mary's Hospital	Parkhurst Road, Newport, Isle of Wight PO30 5TG	Emergency Department (Paediatric Area)	Ground floor Maternity Unit, Access via Mat Unit entrance at rear of hospital **Neonatal Unit** **01983 534337**	Ground floor Maternity Unit, Access via Mat Unit entrance at rear of hospital **Labour Ward** **01983 534334**
SCU >32/40 **W3W:** ///scam.best.extra	St Richards Hospital	Spitalfield Lane. Chichester. West Sussex. PO19 6SE	Neonatal Unit	3rd Floor, Women and Children's Building, West Wing, Access via Entrance 2 (Amb area) **Neonatal Unit** **01243 831442**	3rd Floor, Women and Children's Building, West Wing, Access via Entrance 2 (Amb area) **Labour Ward** **01243 831443**
LNU >27/40 **W3W:** ///play.chair.wiping	Salisbury District Hospital	Odstock Road, Salisbury, Wiltshire. SP2 8BJ	Maternity Unit Labour Ward	Maternity Unit, Level 3. Access via hosp entrance A. Unit is on ground level from this direction. **Neonatal Unit** **01722 425180**	Maternity Unit, Level 3. Access via hosp entrance A. Unit is on ground level from this direction. **Labour Ward** **01722 425183**

Kent, Surrey and Sussex					
Neonatal unit designation	Hospital	Address	Destination Location for New-born (<24hr)	Neonatal Unit Location & Telephone Number	Maternity Unit Location
NICU Any baby	Medway Maritime Hospital	Windmill Road, Gillingham Kent, ME7 5NY	Emergency Dept. (Paediatric area)	**Green Zone Level 4** Oliver Fisher Unit Medway Maritime Hospital Windmill Rd Gillingham Kent ME7 5NY **Tel: 01634 825125**	**Green Zone Level 4** Delivery Suite Windmill Rd Gillingham Kent ME7 5NY **Tel: 01634 825278**
SCU **>32/40**	Darent Valley Hospital	Darenth Wood Road, Dartford Kent, DA2 8DD	Emergency Dept. (Paediatric area)	**Level 3** Darent Valley Hospital Darenth Wood Rd Dartford Kent DA2 8DA **Tel: 01322 428795**	**Level 3 West Wing** Darent Valley Hospital Darenth Wood Rd Dartford Kent DA2 8DA **Tel: 24-hr Maternity Assessment Unit 10322 428280 or 01322 428278**
SCU **>32/40**	Queen Elizabeth the Queen Mother Hospital	St Peters Road Margate, Kent, CT9 4AN	Emergency Dept. (Paediatric area)	**Ground Level** Queen Elizabeth The Queen Mother Hospital Margate St Peter Street CT94AN **Tel: 01843234260**	**Ground Level** Queen Elizabeth The Queen Mother Hospital Margate St Peter Street CT94AN Delivery Suite **Tel: 01843292494**
NICU Any baby	William Harvey Hospital	Kennington Road Willesborough Ashford Kent. TN24 0LZ	Emergency Dept. (Paediatric area)	**Green Zone Level 1** William Harvey Hospital Kennington Road Willesborough Ashford Kent TN24 0LZ **Tel: 01233 616204**	**Green Zone Level 1** William Harvey Hospital Kennington Road Willesborough Ashford Kent TN24 0LZ Delivery Suite **Tel: 01233 616124**
LNU **>27/40**	The Tunbridge Wells Hospital at Pembury	Tonbridge Road, Pembury, Tunbridge Wells Kent, TN2 4QJ	Delivery Site if just delivered or Paediatric ward	Women & Children Floor 2 Tunbridge Wells Hospital Tonbridge Rd. Pembury	**Women & Children** Floor 2, Delivery Suite Tunbridge Wells Hospital Tonbridge Rd.

				Tunbridge Wells Kent TN2 4QJ **Tel: 01892 633359**	Pembury Tunbridge Wells Kent TN2 4QJ **Tel: 01892 633500**
NICU Any baby	Royal Sussex County Hospital	Eastern Road, Brighton, East Sussex, BN2 5BE	Emergency Department (paediatric)	**Level 14 Thomas** Kemp Tower block Eastern Road Brighton BN2 5BE **Tel : 01273523450**	**Labour ward level 13** Thomas Kemp Tower block Eastern Road Brighton BN2 5BE Tel: switchboard **01273 696955**
SCU **>32/40**	Conquest Hospital	The Ridge, St Leonards on Sea, East Sussex TN37 7RD	Maternity unit or SCBU	Level 1 Green zone The Ridge St leonards-on-sea East Sussex TN37 7RD **Tel: 03001314500 Ext. 770532**	Buchanan Delivery Suite Level 1 Green zone The Ridge St leonards-on-sea East Sussex TN37 7RD **Tel: 03001314931**
SCU **>32/40**	Princess Royal Hospital	Lewes Road Haywards Heath West Sussex, RH16 4EX	Emergency Department (paediatric)	Level 2 Princess Royal Hospital Lewes Rd. Haywards Heath RH16 4EX **Tel: 01444448733**	Level 2 Princess Royal Hospital Lewes Rd. Haywards Heath RH16 4EX **Tel: 01444448718**
NICU Any baby	St Peters Hospital	Guildford Rd, Lyne, Chertsey, Surrey KT16 0PZ	Neonatal Unit	Level 3. Abbey Wing (Front of Hosp), Access via Abbey Wing entrance. **Neonatal Unit 01932 722015**	Level 3. Abbey Wing (Front of Hosp), Access via Abbey Wing entrance. **Labour Ward 01932 722399 / 723963 / 722864**
LNU >27/40	East Surrey Hospital	Three Arch Road Redhill, Surrey, RH1 5RH	Emergency Department (paediatric)	Neonatal Unit 1st floor Green Zone **Tel:01737231765**	Delivery Suite 1st Floor Green Zone **Tel: 01737 231764**
LNU >27/40	Frimley Park Hospital	Portsmouth Rd, Frimley, Camberley, Surrey GU16 7UJ	Emergency Department (Paediatric area)	Red Road, Level 2. Access via ED Entrance **Neonatal Unit 01276 604038 / 522573**	Yellow Road, Level 2. Access via ED entrance. **Labour Ward 01276 604035**

SCU >32/40	Royal Surrey Hospital	Egerton Rd, Guildford, Surrey GU2 7XX	Emergency Department (Paediatric Area)	Level G, Main Building. Access via Main Hospital Entrance on Level B. **Neonatal Unit 01483 464834**	Level G, Main Building. Access via Main Hospital Entrance on Level B. **Labour Ward 01483 464133**
SCU >32/40	Worthing Hospital	Lyndhurst Road Worthing West Sussex BN11 2DH	Maternity unit	East Wing 1st floor Neonatal Unit **Tel: 01903 285184**	East Wing 1st floor Delivery Suite **Tel: 01903 285222**