SCHEDULE 2 – THE SERVICES

A. Service Specifications

1. Service name	Neonatal Critical Care
2. Service specification number	240301
3. Date published	11 March 2024
4. Accountable Commissioner	NHS England – Specialised Commissioning

5.	**Population and/or geography to be served**
5.1	**Population Covered** This service is for babies who are generally (but not exclusively) less than 44 weeks corrected gestational age (less than 28 days old, corrected for gestational age assuming 40 weeks defined as term) as outlined within this specification. Neonatal services provide care for all babies less than 44 weeks corrected gestational age that require on-going in-patient medical care. Neonatal services form part of an integrated pathway for high quality maternity, children's and family care serving a geographically defined regional population. Neonatal services are provided in a variety of settings dependent upon the complexity of care required for the baby and with dedicated transport services to support babies being transferred to and from neonatal units.
5.2	**Minimum population size** There are approximately 625,000 babies born in England each year. Around 10% (60,000-70,000) are admitted to Neonatal Units.
6.	**Service aims and outcomes**
6.1	**Service aims** This service specification covers the provision of Neonatal Critical Care, including neonatal intensive care, high dependency care, special care and transitional care. The vision for neonatal services across England is for a seamless, responsive, multidisciplinary sustainable service built around the immediate needs and optimisation of long-term outcomes for newborn babies and the involvement of families and carers in their care.

<table>
<tr><td></td><td>High quality neonatal care will be networked across England, to improve outcomes for all families and carers, provide safe and sustainable expert care as close to their home as possible, and keep mothers and babies together while they need care.

Neonatal Critical Care Services provide specialist medical and surgical inpatient care for newborn babies requiring ongoing hospital admission after their birth. Care is delivered at Healthcare Resource Group (HRG) levels XA01Z to XA05Z in four categories of neonatal unit.</td></tr>
<tr><td>6.2</td><td>Outcomes

NHS Outcomes Framework Domains & Indicators
<table><tr><td>Domain 1</td><td>Preventing people from dying prematurely</td></tr><tr><td>Domain 2</td><td>Enhancing quality of life for people with long-term conditions</td></tr><tr><td>Domain 3</td><td>Helping people to recover from episodes of ill-health or following injury</td></tr><tr><td>Domain 4</td><td>Ensuring people have a positive experience of care</td></tr><tr><td>Domain 5</td><td>Treating and caring for people in safe environment and protecting them from avoidable harm</td></tr></table>Service defined outcomes/outputs

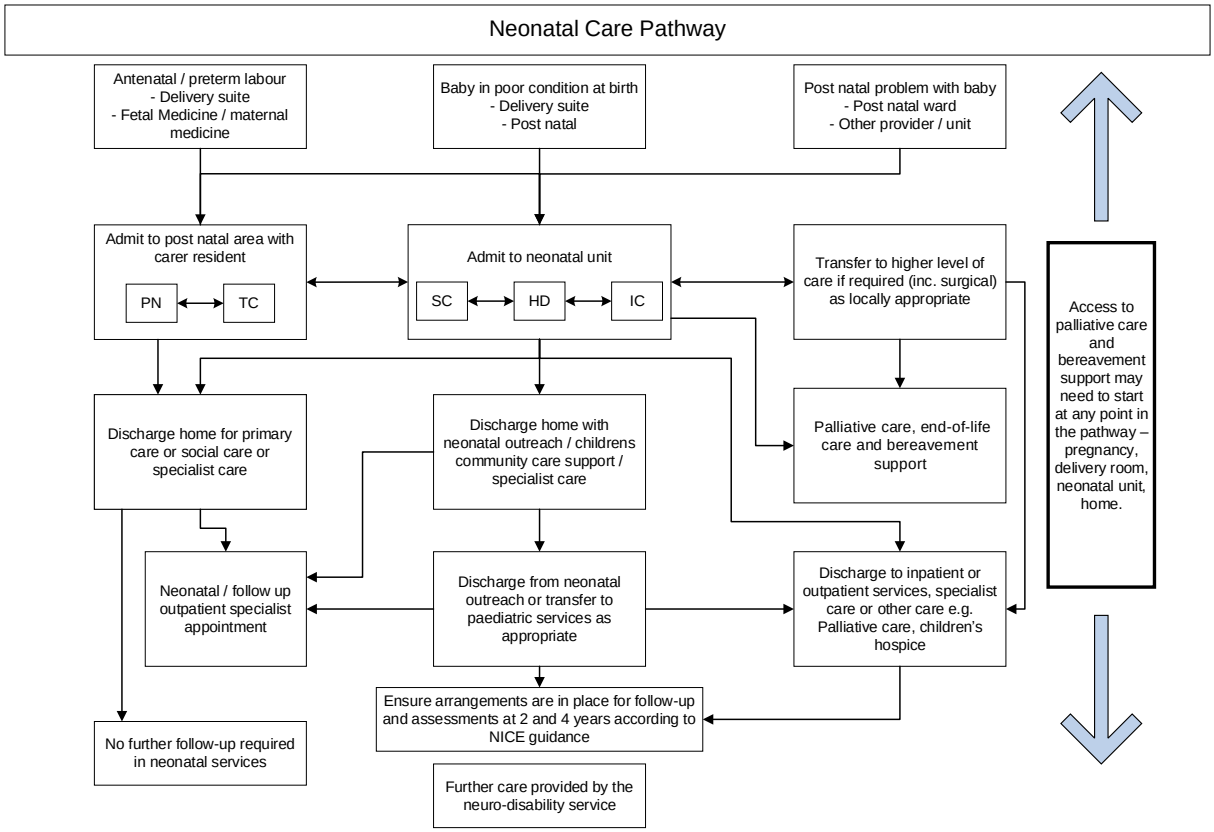
Clinical and quality outcomes and outputs for neonatal services are defined by the National Neonatal Audit Programme (NNAP). Audit measures are reviewed annually by the NNAP Project Board. The data is currently reported quarterly . All neonatal units must submit data to the NNAP for all measures.</td></tr>
<tr><td>6.3</td><td>Data Requirements

The service will complete/upload data for all listed quality metrics to the national Specialised Services Quality Dashboard (SSQD). The full version of the quality metrics and their descriptions including the numerators and denominators can be accessed at:

https://www.england.nhs.uk/wp-content/uploads/2022/04/Neonatal-Critical-Care-Intensive-Care-HDU-and-Special-Care.pdf</td></tr>
<tr><td>7.</td><td>Service description</td></tr>
<tr><td>7.1</td><td>Service model

Neonatal Critical Care is organised around Operational Delivery Networks (ODNs) in close alignment with maternity services (Local Maternity and Neonatal Systems (LMNSs)). There are 4 designations of neonatal unit (section 7.4) delivering 5 categories of care (section 7.3), forming a key element of NHS maternity services and closely aligned to hospital and community paediatric services.</td></tr>
</table>

7.2 Pathways



7.2.1 Categories of Neonatal Critical Care

Neonatal Critical Care services are delivered according to 5 categories of care, each with a defined Health Resource Group (HRG).

The Neonatal Critical Care Minimum Data Set (NCCMDS) version 2 has been developed by NHS stakeholders for use in neonatal services. Five HRG groups are identified within the NCCMDS version 2 dataset specifically relating to neonatal care with a further HRG for neonatal transport (see below).

The NCCMDS provides a record of what happens to a patient when they receive neonatal critical care in a Neonatal Unit, Maternity Ward or Neonatal Transitional Care Ward. Capture of data is required to generate a Neonatal Critical Care Healthcare Resource Group (HRG) for each calendar day (or part thereof) of a period of neonatal critical care. The NCCMDS will be updated from time to time to reflect current practise in neonatology.

Neonatal Intensive Care - (HRG XA01Z):

Intensive Care is care provided for babies who are the most unwell or unstable and have the greatest needs in relation to staff skills and staff to patient ratios. Intensive Care (HRG XA01Z) is currently specified as any of the following:

- Any day where a baby receives any form of mechanical respiratory support via a tracheal tube

- BOTH non-invasive respiratory support (i.e. any respiratory support not delivered via a tracheal tube apart from low flow nasal cannula oxygen or ambient oxygen) AND parenteral nutrition (PN) (amino acids +/- lipids)
- Day of surgery (including laser therapy for retinopathy of prematurity (ROP), but excluding Anti-VEGF intravitreal injection)
- Day of death
- Any day with umbilical venous catheter (UVC) present
- Any day with umbilical arterial catheter (UAC) or peripheral arterial catheter present
- Any day with a chest drain in situ
- Any day on which an insulin infusion is given
- Any day on which a prostaglandin infusion is given
- Any day on which an inotrope or vasodilator (including pulmonary vasodilator) is given
- Day on which exchange transfusion occurs (includes dilutional exchange)
- Any day on which therapeutic hypothermia is given (hypothermia treatment given during the initial assessment period should not be counted if ongoing cooling is not required)
- Any day on which a Replogle tube is present
- Any day on which an epidural catheter if present
- Any day on which an abdominal silo is present (for anterior abdominal wall defects)
- Presence of external ventricular drain or intraventricular catheter
- Dialysis (any type)

Neonatal High Dependency Care (HRG XA02Z):

High Dependency care is provided for babies who require skilled staff but where the ratio of nurse to patient is less than intensive care. High Dependency care is currently specified when criteria for XA01Z are not fulfilled, but where one of the following applies:

- Any day where a baby receives any form of non-invasive respiratory support (i.e. any respiratory support not delivered via a tracheal tube apart from low flow nasal cannula oxygen or ambient oxygen)
- Any day a baby receives Parenteral Nutrition (PN) (amino acids +/- lipids)
- Any day a baby receives an infusion of blood products (red cells, fresh frozen plasma, platelets, cryoprecipitate, intravenous immunoglobulin). It does not include infusion of albumin
- Any day on which a central venous or long line (PICC) is present
- Any day on which a tracheostomy is present after the first tracheostomy tube change
- Any day with a trans-anastomotic (TAT) tube present following oesophageal atresia repair
- Any day with naso-pharyngeal (NP) airway/nasal stent present
- Confirmed clinical seizure(s) today and/or continuous cerebral function monitoring (CFM) recording
- Ventricular tap (including via reservoir)

Neonatal Special Care (HRG XA03Z) / Special Care with External Carer (Transitional Care) (HRG XA04Z):

Special Care is provided for babies who require additional care delivered by the neonatal service on the neonatal unit or in a transitional care area with the primary carer resident with the baby. HRG XA03Z and HRG A04Z are currently specified when criteria for XA01Z or XA02Z are not fulfilled, but where one of the following applies:

- Presence of an indwelling urethral or suprapubic catheter
- Oxygen by low flow nasal cannula
- Feeding by orogastric, nasogastric, jejunal tube or gastrostomy
- Care of a Stoma
- Intravenous medication not otherwise specified elsewhere
- Receiving intravenous sugar +/- electrolyte solutions
- Receiving drug treatment for neonatal abstinence AND on an observations scoring regimen 4 hourly or more frequently
- Birth weight ≤2kg for first 48 hours after birth
- Gestation at birth 35 weeks for first 48 hours after birth
- Gestation at birth 34 weeks for first 7 days (168 hours) after birth
- Gestation at birth <34 weeks until discharge from hospital

Neonatology Supported Care (HRG XA05Z)

Neonatology Supported Care is provided when the criteria for XA01Z/XA02Z/XA03Z/XA04Z are not fulfilled, but any of the following is required:

- Any baby receiving care in a neonatal unit (NOT in a transitional care ward) who does not fulfil the criteria for HRG codes XA01Z-XA03Z
- Babies receiving phototherapy

7.2.2 Categories of Neonatal Unit

There are 4 categories of Neonatal Unit:

Special Care Unit (SCU)

The service will provide:

- Neonatal services commensurate with national guidelines and professional standards where births are anticipated after 31+6 weeks gestational age provided the anticipated birth weight is above 1,000g. This threshold may be higher for multiple births, depending on agreed ODN pathways, which will be dependent on staffing and capacity.
- Care around ODN care pathways that will define antenatal factors or conditions present soon after birth which increase the likelihood that transfer to a NICU for complex or prolonged neonatal intensive care OR a LNU for short term neonatal intensive/high dependency care will be required. ODNs and the Trusts responsible for these units should monitor adherence to these care pathways. Where possible, women will be transferred in-utero to the network NICU or a network LNU maternity unit when gestational age, anticipated birth weight or need for either intensive care or high dependency care is anticipated, in accordance with ODN care pathways.
- Stabilisation of babies meeting the threshold for transfer, prior to transfer to a LNU or NICU

- Care for local babies with special care needs following repatriation from LNUs or NICUs within the network or from out of area in accordance with approved ODN care pathways.
- Referrals for ongoing special care from other network neonatal units who are unable to undertake this work due to capacity reasons.
- Care for local babies post specialist surgery following repatriation from the network surgical unit or step down from other LNUs in accordance with approved ODN care pathways.
- Transitional care, working in collaboration with postnatal services, subject to the commissioner agreed local service model and according to the BAPM Framework for Practice for Neonatal Transitional Care (2017).

A SCU will not be expected to provide the following except under exceptional circumstances which have been agreed and formally documented by the ODN on an individual case basis:

- Care beyond initial stabilisation to babies less than 31+6 weeks gestation.
- Care beyond initial stabilisation to babies with a birth weight <1,000g.
- Intensive care (HRG XA01) for any baby apart from initial stabilisation prior to transfer.

Local Neonatal Unit (LNU)

In addition to all the services provided by SCUs, LNUs will provide:

- Neonatal services commensurate with national guidelines and professional standards where; singleton births are anticipated after 26+6 weeks gestational age (or after 27+6 weeks gestational age for multiple births) providing the anticipated birth weight is above 800g.
- High dependency care and special care for their local population.
- Care for local babies repatriated from neonatal units who require ongoing high dependency or special care.
- Ongoing care for local babies who have undergone specialist surgery following repatriation from a surgical NICU.
- Referrals from within network neonatal units who are unable to undertake high dependency care and special care, due to capacity reasons and/or network guidelines. LNUs must not accept out of network in-utero or postnatal referrals without prior discussion with the ODN defined lead NICU and regional neonatal transfer service, in order to ensure the integrity of capacity for network babies.
- Care around ODN care pathways that will define antenatal factors or conditions present soon after birth which increase the likelihood that transfer to a NICU for complex or prolonged neonatal intensive care will be required. ODNs and the trusts responsible for these units should monitor adherence to the care pathways. (Please refer to section below which outlines complex and prolonged intensive care). Where possible, women will be transferred in-utero to the Network NICU when gestational age, anticipated birth weight or need for complex or prolonged intensive care is anticipated in accordance with ODN care pathways.
- Limited intensive care (i.e. usually less than 24 hours) in accordance with approved ODN care pathways. This may include short periods of invasive ventilatory support. However, the clinical condition of any baby requiring short term intensive care must be discussed with a consultant in the Network NICU

by 48 hours and every 24 hours thereafter if intubated ventilatory support continues. In these instances, an agreed management plan, including decisions regarding transfer criteria, must be documented.
- Initial stabilisation prior to transfer for babies requiring complex or ongoing (i.e. prolonged) intensive care, including initiation of therapeutic hypothermia. These babies will be transferred to the ODN NICU in accordance with approved care pathways.

LNUs should admit more than 25 very low birth weight (VLBW) (i.e. birth weight <1500g) babies per year, undertake at least 500 combined intensive and high dependency days per year and be making progress towards undertaking more than 1000 combined intensive and high dependency days per year. There may be a small number of exceptions for geographically remote services where the alternative would result in very long travel times. However, these exceptions should be agreed with the ODN and commissioners prior to local implementation and be subject to quarterly review to ensure that safety and quality are not compromised. [NCCR recommendation].

LNUs will not ordinarily provide the following:

- Ongoing intensive care beyond initial stabilisation to babies less than 27+0 weeks of gestation.
- On-going intensive care beyond initial stabilisation to babies with a birth weight below 800g.
- Ongoing complex intensive care beyond initial stabilisation, including babies requiring respiratory support with symptoms of additional organ failure (e.g. hypotension, disseminated intravascular coagulation (DIC), renal failure, metabolic acidosis) or babies requiring the following treatment and support:
    - Support of more than one organ, for example ventilation via a tracheal tube plus any one of the following: Inotrope infusion, insulin infusion, presence of a chest-drain, exchange transfusion and prostaglandin infusion, beyond initial stabilisation.
    - Inhaled nitric oxide (iNO)
    - High Frequency Oscillatory Ventilation (HFOV)
    - Therapeutic hypothermia beyond initial stabilisation
    - Prolonged intensive care (intubated ventilatory support) for greater than 48 hours

Neonatal Intensive Care Unit (NICU)

In addition to services provided by SCUs and LNUs, NICUs will provide:

- Neonatal services commensurate with national guidelines and professional standards on extreme pre-term birth - (Perinatal Management of Extreme Preterm Birth Before 27 weeks of Gestation: A BAPM Framework for Practice (2019)).
- Intensive care for all babies born within the network according to ODN approved care pathways including those less than 27+0 weeks gestation, or with a birth weight <800g and any baby requiring complex or prolonged intensive care. ODNs should monitor adherence to these care pathways.
- Neonatal intensive care service for other neonatal networks or out of area neonatal units due to lack of capacity in their network NICU. This also requires discussion with the regional neonatal transfer service.

- Leadership within neonatology for the neonatal ODN units and 24-hour acute clinical telephone consultations as required by the network hospitals and, if required, neonatal transport services. Where more than one NICU is within a neonatal ODN, there will be a sharing of responsibility to provide 24-hour acute clinical consultations.
- Care for local network babies repatriated from elsewhere requiring ongoing care from a NICU.

Neonatal Intensive Care Units should admit more than 100 very low birth weight (VLBW) (i.e. birth weight <1500g) babies per year and be making progress towards undertaking more than 2000 intensive care days per year. There may be a small number of exceptions for geographically remote services where the alternative would result in very long travel times. However, these exceptions should be agreed with the ODN and commissioners prior to local implementation and be subject to quarterly review to ensure that safety and quality are not compromised. [NCCR recommendation].

A Neonatal Intensive Care Unit would not necessarily be expected to provide the following, which are only available in specialist centres to optimise outcome and remove inequity:

- Extra - Corporeal Membrane Oxygenation (ECMO).
- Surgical care, except as part of approved ODN pathway.
- Specialised cardiac care, except as part of approved ODN pathway.

The ODNs will determine the care pathways for the above services in designated units delivering specialist services. These Trusts will provide, in addition to the above:

- Specialist surgical assessment, treatment and care prior to repatriation to local neonatal unit.
- Specialist medical assessment treatment and care, for example renal and endocrine services.
- Specialist cardiac assessment, treatment and care.

Neonatal Surgical Intensive Care Unit

In addition to services provided by NICUs, Neonatal Surgical Intensive Care Units will provide neonatal surgical care as part of an approved ODN pathway.

- Units providing surgical care must have staff with appropriate skills and knowledge to deliver high quality surgical care. Specific additional staffing arrangements are covered in the Service Specification; Paediatric Surgery: Neonates E02/S/c
- Parents must be sufficiently informed of the risks and potential outcomes of surgery, the need for consent must be explained, and decisions must be made in partnership with parents and fully documented.
- There must be a surgically experienced nurse on every shift able to give nursing surgical advice to other units in the ODN.
- There must be a designated lead specialist paediatric surgeon for the surgical neonatal unit and 24-hour consultant paediatric surgical cover.
- In designing neonatal surgical care pathways, particular attention should be taken to ensure that appropriate arrangements are in place to provide care for the postpartum mother. Mothers and their babies should be co-located to facilitate early nutrition, bonding and family integrated care. This will help to

	ensure continuity of care between medical and surgical services for both baby and mother. **Acceptance Criteria for Neonatal Critical Care** The service should accept referrals from: • obstetric, maternity or feto-maternal services. Within the antenatal period, high risk mothers or mothers with high-risk babies should be under the care of an obstetrician and delivery planned to take place within a provider with the required designation of neonatal unit. • other providers of neonatal services within the ODN or within defined regional pathways. ODN pathways should clearly articulate the designation of unit required and referrals managed across these designations. When the baby's condition has stabilised, ongoing care will be undertaken at a designated provider closer to the family's or carer's home. Referrals should meet one of the following criteria: • From co-located maternity services in discussion with relevant medical staff. • Within the network as per approved in utero transfer pathways and in discussion with parents / carers and relevant multi-professional senior staff (to include direct consultant-to-consultant dialogue when required) • Within referral thresholds from within the ODN as per approved network policies and following discussion with parents / carers and multi-professional senior staff, including consultant-to-consultant dialogue when required. • From other NNUs for referrals for specialist care (e.g. surgery) or diagnostic procedures and following discussion with parents / carers and multi-professional senior staff, including consultant-to-consultant dialogue when required. • From outside the network when capacity allows following discussion with the ODN transfer service and following discussion with parents / carers and multi-professional senior staff, including consultant-to-consultant dialogue when required. • From other ODN units which are closed due to capacity, staffing or infection outbreaks and following discussion with parents / carers and multi-professional senior staff, including consultant-to-consultant dialogue when required. • The care, prioritisation and urgency of any transfer required will be based upon the individual needs of the baby, network policies / guidelines. • Referrals will be accepted by the neonatal unit based on the baby's need and in accordance with referral criteria and the designation of the individual unit. • With the exception of neonatal referrals for fetal medicine/surgical expertise and referrals for specialist services, a unit within the ODN will not accept referrals from outside the ODN unless there is no possibility of the baby being accommodated within or near to its ODN of origin. • Transfers either within the local ODN or outside should be discussed with the ODN transfer service and should follow the criteria as set out in the neonatal transfer service specification.
7.3	**Clinical Networks**

	There is a requirement for providers of this service to comply with the provisions of *Schedule 2F (Clinical Networks) of the NHS Standard Contract 2022/23 The Particulars.* This includes meeting the requirements of the *relevant* Specialised Services Clinical Network Specification. **Clinical Network/ODN** — **Link to 'published' network/ODN specification** Neonatal Critical Care ODN — *Weblink TBC* All Providers will be required to participate in a networked model of care to enable services to be delivered as part of a co-ordinated, combined whole system approach. Neonatal Critical Care is organised into geographically networked groups of providers, with local clinical pathways providing local access to highly specialised care in Neonatal Intensive Care Units (NICUs). Networked providers are organised as ODNs, which may encompass more than one local clinical pathway / network. Neonatal ODNs are the vehicle by which national strategies are mobilised and they ensure that access, outcomes and quality standards are improved. Neonatal ODNs focus on an operational role, supporting the activity of provider Trusts across evidence based commissioned pathways with a key focus on the quality and equity of access to services. Neonatal ODN teams should be reflective of the wider MDT (including AHPs and psychological professionals) in order to support best practice within the region. ODNs should also monitor neonatal outcomes for provider units and networks and support commissioners and providers in quality improvement activities. Maternity care is organised around Local Maternity and Neonatal Systems (LMNSs) and is inextricably linked to neonatal care. Neonatal ODNs and LMNSs work closely together to deliver the best outcomes for women and their babies who need specialised care, whilst ensuring that high quality care is provided and delivered as close to home as possible. To this end all maternity services should align with a local clinical pathway that is based on the natural patterns of referral as set out in the Toolkit for High Quality Neonatal Services (DH 2009), centred on one or two Neonatal Intensive Care Services (see below) determined by geography. LMNSs and provider Trusts work together with ODNs to ensure there is adequate capacity within the local clinical pathways to accommodate the need for specialist medical/surgical care, with safe return of babies and families / carers to their local hospital as soon as is clinically appropriate.
7.4	**Essential Staff Groups** 1. Providers should ensure that medical, nursing, Allied Health Professional (AHP) and psychological professional staff with specialist skills, and numbers in accordance with those specified or referenced below, are in place to deliver the level of care required for that NNU. 2. NNUs should engage with ODN workforce strategies. Ongoing development and modernisation of the workforce should be reviewed annually to ensure skills meet future service requirements.

3. NNUs, ODNs and LMNSs should work with commissioners to produce annually updated workforce plans, with workforce transformation considered for gaps or anticipated gaps in nursing, medical, AHP, psychological and pharmacy staffing.

Nurse staffing:

Each NNU must implement or work towards an agreed plan with commissioners for nurse staffing levels based on the following staff to baby ratios for direct patient care, as described in the Toolkit for High Quality Neonatal Services (2009) and recommended by the British Association of Perinatal Medicine (BAPM) and the Neonatal Nurses Association (NNA):

- Intensive Care 1:1 staff-to-baby ratio[a]
- High Dependency 1:2 staff-to-baby ratio[a]
- Special Care 1:4 staff-to-baby ratio[b] (babies will be separated from mother and in NNU).
- Special Care with carer 1:4 staff to baby ratio[b] (babies will be cared for alongside their mother either on a dedicated TC or PN bed).
- A minimum of one nursing coordinator per shift i.e. a supernumerary team leader additional to the staff caring for the babies on each shift

[a]registered nurse with specialised training in neonatal care (Qualified in Specialty (QIS)), or training for the same and under supervision of QIS staff

[b]registered nurse or midwife, or non-registered staff with NVQ level 3 or Foundation degree under supervision of QIS staff. Additional staffing arrangements for surgical units are covered in the Service Specification; Paediatric Surgery: Neonates E02/S/c

- Additional provision should be implemented for staff delivering quality, management and other non-direct patient-facing roles, so that these roles are additional to the above direct patient care ratios.
- Each NNU should ensure that non-direct patient-facing roles (i.e. additional to the above direct patient care ratios) including provision for a designated lead nurse, clinical nurse educator, supernumerary shift co-ordinator and discharge planning / outreach co-ordinator, patient safety and governance nursing lead and other roles outlined in the Toolkit for High Quality Neonatal Services (2009)
- NNUs and ODNs should use the most up to date version of the CRG Neonatal Nurse Staffing Tool (Safe, sustainable and productive staffing: An improvement resource for neonatal care. NHS Improvement on behalf of the National Quality Board (NQB) (2018)) to calculate and benchmark nurse staffing establishments.
- Provider NNUs and ODN Education and Workforce Lead Nurses should produce an annually updated gap analysis of nurse staffing.
- Where necessary, NNUs should submit an interim plan to the ODN and commissioners, to mitigate high vacancy rates, using as support, for example, float nurses, team support workers, escalation plans, non-registered staff and specially trained AHP staff.
- ODN Education and Workforce Lead Nurses should work with Maternity Clinical Networks and LMNSs to develop longer term regional neonatal nurse

staffing plans. These must take into account any predicted changes in birth rate.
- ODN Education and Workforce Lead Nurses should monitor nurse staffing and vacancy levels against clinical outcomes using quality dashboard models in liaison with commissioners, thereby providing an audit of mitigation strategies
- ODN Education and Workforce Lead Nurses should support NNUs to develop non-registered workforce roles to support families and carers of babies receiving special and transitional care.

Medical staffing:

- NICU providers should ensure that medical staff numbers are consistent with those recommended in Optimal Arrangements for Neonatal Intensive Care Units in the UK (2021): A BAPM Framework for Practice.
- LNU and SCU providers should ensure that medical staffing numbers are consistent with those recommended in Optimal Arrangements for Local Neonatal Units and Special Care Units in the UK (2018): A BAPM Framework for Practice.
- Each NNU should ensure adequate time in consultant job plans for a named clinical lead, a named education/training lead, each consultant providing educational supervision and for Perinatal Mortality Review Tool (PMRT) and Child Death Overview Panel (CDOP) reviews.
- Provider NNUs and ODNs should produce an annually updated gap analysis of medical staffing.
- NNUs, ODNs and LMNSs should produce annually updated medical workforce plans, with workforce transformation considered for gaps or anticipated gaps, including training and recruitment of Advanced Neonatal Nurse Practitioners (ANNPs) https://www.bapm.org/resources/300-advanced-neonatal-nurse-practitioner-capabilities-framework, Enhanced Neonatal Nurse Practitioners (ENNPs), Physician Associates (PAs), resident consultant neonatologists and Medical Training Initiative (MTI) appointments.

Allied Health Professionals (AHPs), Psychological Professionals and Pharmacy:

Neonatal units require key contributions from an essential group of AHPs, psychological professionals and pharmacists who have special expertise in their discipline. These are essential to champion the need to view neonatal care that looks forward to improving longer term outcomes for babies and their families.

NNUs and ODNs through their ODN AHP and psychological professional teams should ensure AHP, psychological professional and pharmacy staffing provision and competencies according to the following recommendations:

Dietetics:

https://www.bda.uk.com/uploads/assets/bf9dfd91-0475-4894-8560c8b183f171fc/BDA-Formatted-Competencies.pdf

https://www.bda.uk.com/specialist-groups-and-branches/paediatric-specialist-group/paediatric-sub-groups-home/neonatal-dietitians-sub-group/neonatal-dietetic-workforce-recommendations.html

Occupational therapy:

	https://www.rcot.co.uk/practice-resources/rcot-publications/downloads/neonatal-services Physiotherapy: Physiotherapists | British Association of Perinatal Medicine (bapm.org) Speech and language therapy: https://www.rcslt.org/speech-and-language-therapy/clinical-information/neonatal-care Psychology: https://acpuk.org.uk/member-networks/psychology-staffing-on-the-neonatal-unit/ Pharmacy https://nppg.org.uk/wp-content/uploads/2022/10/NPPG-Neonatal-Staffing-Standards-V2.pdf • AHP and psychological service provision into neonatal units requires specialised skills and competencies. AHPs and psychological professionals providing services in neonatal settings must demonstrate the required skills and competencies as stipulated by the relevant professional body in the documents above. • AHPs play a key role in the delivery of enhanced neurodevelopmental surveillance within preterm developmental follow-up clinics as detailed in the NICE guideline (2017). The role of Clinical Psychologists in follow up includes both neurodevelopmental assessments (as per NICE, 2017) as well as providing specialist psychological assessments and interventions to support the mental health of babies and families. • NNUs and ODNs should also ensure that parents, carers and staff have access to psychological support. • Acute and clinically complex neonatal cases require clinical pharmacy, aseptic services and dispensary support. • Neonatal pharmacists play a role in the optimisation of drug therapy in the critically ill neonate, including prescription monitoring, provision of advice on the use of off-label and unlicensed medicines, and therapeutic drug monitoring. Neonatal pharmacy expertise is critical for adverse drug reaction prevention, treatment, monitoring and reporting as well as minimising the potential for medication errors through guideline development, provision of medicines information, teaching of other healthcare professionals and drug interaction prevention. A neonatal pharmacist is an essential member of the NNU parenteral nutrition team. • NICUs should have a minimum of five day access to an aseptic and centralised intravenous additive service where this is needed to provide bespoke parenteral nutrition and for provision of high risk intravenous medications. • NNUs should support the training, development and appointment of prescribing pharmacists. • NNUs and ODN AHP teams should develop an AHP, psychological professional and pharmacy strategy as part of annual workforce planning, which sets out the level and expertise of AHPs, psychological professionals and pharmacists required, the level currently available and how any gaps will be filled.

- For smaller NNU services, AHP, psychological professional and pharmacy workforce planning and funding should be supported by ODN AHP, psychological and pharmacy teams, Maternity Clinical Networks and LMNSs.
- Each ODN must have AHP, psychological and pharmacy teams to ensure quality, training and staff development for safe and equitable service delivery across the network. The staffing recommendations for these roles are detailed in the above referenced documents.

Professional Competence, Education and Training:

- Each NNU should ensure that appropriate and specific training programmes for all trained and untrained staff are in place with regular neonatal specific update training where required.
- Each NNU should ensure that a minimum of 70% (special care) and 80% (high dependency and intensive care) of the nursing and midwifery establishment hold NMC registration.
- Each NNU should ensure that a minimum of 70% of registered neonatal nursing establishment hold a post registration qualification in specialised neonatal care (QIS).
- Funded staffing levels must recognise the need for specialist training provision and allow for this in the calculation and benchmarking of nursing establishments using the CRG Neonatal Nurse Staffing Tool.
- Training / supervision should be provided to all staff in order to remain competent in practice.
- Staff should adhere to all relevant national, ODN and local guidelines and policies.
- NNU staff should adhere to local, network and national programmes to actively reduce hospital acquired infections.
- Through their Education and Workforce Lead Nurse, ODNs should support and facilitate cross-site staff education, training and maintenance of professional competence.

Standards for Family Experience, Communication and Facilities

- Each unit must provide a Family Integrated Care approach, which integrates parents / carers and families into the care team to enable them to make informed choices and deliver developmentally supportive cot-side care to their baby.
- NNUs should be supported by ODN Care Co-ordinators to ensure consistency of approach to family integrated care. Working with the multidisciplinary team across the network pathways, care coordinators foster a culture where family integrated care is embedded into everyday practice.
- Parents / carers and families should be supported and facilitated, including through the provision of parent education and specialist psychological support, to be the primary care provider for their child. This is delivered by trained nursing or Allied Health Professional and psychological professional staff, who work alongside medical and nursing clinical practice staff.
- All staff should receive training in the provision of developmentally sensitive care, delivered by a multi-disciplinary team.
- Staff must have the skills and training to provide knowledgeable and skilled advice to parents / carers and families. This should include communication

skills to ensure staff have empathy with the needs of babies' and their families / carers and are able 'to stand in their shoes.'

- A parental / carer consultation, led by a senior member of the neonatal team (i.e. a consultant, middle grade doctor or nurse practitioner acting in such a role), to inform parents / carers of their baby's condition and treatment must take place and be documented within the first 24 hours of their baby being admitted to the neonatal unit. Written and verbal parent / carer support information, which includes local unit information (including accommodation, parking transport and food), financial help, welfare and breastfeeding, should be available from their baby's admission to the neonatal unit. Written information should be accessible, and ideally available in a range of languages.
- Parents / carers must be kept informed and must receive regular updates from all health professionals involved in the care of their baby. Health care professionals must consider how parents / carers want to be kept updated and must allow for them to ask questions. This is particularly important where the babies' condition or care plan is subject to change. Parents / carers should have access to consultants / senior staff to help them understand their babies' condition and treatment.
- Parents / carers should be supported to develop the skills and confidence to provide kangaroo care, comfort holding, feeding, nappy changing, bathing and other cares, including learning to read their baby's unique behavioural cues for responsive caregiving.
- Parents / carers must have 24-hour access to their baby, including during medical and nursing rounds, and during handover.
- Facilities and resources must be available to enable parents / carers to be resident with their baby for as long as they want and are able to be. This includes sufficient accommodation on or close to the neonatal unit for all families, support with travel and subsistence costs (free parking, support with public transport and meal costs), private and comfortable breastfeeding/expressing facilities, an area for making drinks and preparing simple meals, a private room for confidential conversations and any other relevant facilities to support family-centred care and parent / carer involvement in delivering care to their baby.

Family involvement and feedback:

- Each neonatal unit must be supported to seek and acquire accreditation under the Bliss Baby Charter and the UNICEF Baby Friendly Initiative in order to facilitate the development of Family Integrated Care which enables the integration of the family as the primary carer. Parent / carer feedback & review is a key component of assessment under both schemes.
- Provider Trusts should involve families not only in the health care of their own baby but also in the evaluation of the service they are accessing. There must be a continuous process for involving parents / carers in co-production of improving the delivery of family-centred care.
- A range of tools must be in place to measure parent experience which balances real time and retrospective feedback. This must be in a form which can be nationally and regionally benchmarked.
- Providers should have a named lead who is responsible for receiving and responding to concerns from parents / carers.

	• Provider Trusts must demonstrate that procedures are in place for involving families in routine audit arrangements for the purpose of evaluating service performance from a family perspective. These procedures should include a variety of methods for obtaining parent / carer feedback and the results used to help identify future audit topics, action plans and agreed targets. • Providers within a network (through their ODN's) and providers individually should ensure that parent / carer representatives are included within governance structures and that parent / carer representatives have support to fulfil their involvement role, including support with expenses and training. The arrangements for the involvement of parents / carers should be integrated across maternity and neonatal services to cover the whole care pathway.
7.5	**Interdependent Service Components – Links with other NHS services** 1. Co-located services: Neonatal units are located alongside obstetric-led maternity services. Paediatric services for ongoing care are available either through the provider Trust or an NHS Trust in the parents' / carers' area of residence. Neonatal Units are usually but not always co-located with hospital paediatric services, however, for some LNUs and all SCUs, this is essential because of combined medical staffing rotas. 2. Interdependent services: Neonatal services form part of an integrated high-quality maternity and family care service serving a regional population. Neonatal services are interdependent with maternity, fetal and maternal medicine, paediatric and neonatal surgery, paediatrics and specialised neonatal transport services. 3. Related services: Some babies require care which is ongoing and beyond the scope of the neonatal services. There needs to be established links with local hospital paediatric services including Paediatric Critical Care (PCC), community paediatric services and primary care (including health visiting). The following list includes, but is not limited to, the following related services: o congenital heart disease services, o community paediatric services, o primary care and social care, o safeguarding services o hospice care, o Children's Centres, o ambulance services, o perinatal mental health services, o national screening and laboratory services, o neonatal surgical services, o neonatal supra-specialist services. Clear care pathways must be developed in conjunction with ODNs to provide a seamless service for babies and their families. ODN approved care pathways should link in with pathways of care (universal and complex) if ongoing care is required.
7.6	**Additional requirements** **Capacity**

1. Each NNU must ensure they have sufficient capacity to deliver the appropriate service for their booked maternity population and local network. NNU capacity must be planned in co-ordination with network maternity and fetal medicine services and the neonatal ODN. This should take into account the level of care provided at the unit and the anticipated neonatal network transfers, both in- and ex-utero. NICUs should have sufficient capacity to deliver all births <27+0 weeks gestation from their local network of hospitals for whom they have responsibility, as determined by the ODN.
2. ODN and individual NNU capacity should be planned on the principle of 100% availability and an average 80% occupancy. This provides reserve to cope with the stochastic nature of NNU admissions, which are unpredictable in terms of quantum and intensity of care required as well as improved clinical outcomes. [NOTE: This does not mean that 80% capacity is a notional ceiling on a day to day basis]
3. Management of capacity and workforce requirement in individual neonatal units and across ODNs when neonatal units are close to capacity should be according to the BAPM Framework for Practice (Calculating Unit Cot numbers and Nurse Staffing Establishment and Determining Cot Capacity – A BAPM Framework for Practice – Supplementary Guidance).

Transfers

Transfer of babies will be co-ordinated by the regional neonatal transfer service (NTS) in accordance with the national neonatal transport service specification E08/S/b. The transport for nationally commissioned services (e.g. ECMO) will be arranged by the receiving specialist centre in consultation with the local network transfer team.

Discharge from Neonatal Critical Care

1. By working closely with community services, neonatal services support babies and their families in the transition and adjustment from an in-patient stay on a neonatal unit to family life in the community.
2. Babies should be discharged from neonatal care as soon as their condition allows, after collaborative discussion with paediatric services for ongoing in-patient care when required and taking into consideration the support needed for the baby and parents / carers.
3. Discharge planning will be facilitated and coordinated from initial admission to discharge date, to ensure both the baby and their family receive the appropriate care and access to resources. This includes decisions about any continuing care needs that the mother, her baby and her family or the baby's carer and family may have to make following discharge from in-patient care.
4. Pre-discharge planning should involve parents / carers and other key family members, GP, Health Visitor and the care co-ordinator and if appropriate, social care. A neonatal unit based outreach service or other designated neonatal unit staff should coordinate this for complex or long stay patients or patients with any safeguarding concerns.
5. All key professionals should receive copies of the discharge plan (section 2.11), including details of when the patient will next be seen and by whom, and emergency contact details.
6. Before discharge, parents / carers should be advised about their babies' medication and its side-effects, supported to administer all medicines and provided with appropriate advice on safe usage.

7. Following discharge, the baby and family should be contacted by a health visitor or other designated community professional in primary care within one week.
8. NNUs should have written local criteria for higher risk follow-up arrangements.
9. Care plans should reflect a multi-disciplinary approach to neonatal care, both within primary care and community teams.
10. Local services, including neonatal, midwifery and primary care professionals should provide follow-up support to babies and families in the community after they have been discharged, and help to ensure that there is a seamless transition from in-patient stay back into family life.
11. Ongoing admission of babies with delayed discharge for social or community resource reasons must be agreed with the Regional Specialised Commissioning team via the ODN as soon as the delay is anticipated.
12. The ODN and the Regional Specialised Commissioning team should receive a report detailing the reason for delayed discharge home or transfer to paediatrics services for all babies remaining on an NNU beyond 44 weeks corrected gestational age.
13. If readmission to hospital is necessary in the first 1-2 weeks following discharge from a neonatal service (or up to 44 weeks corrected gestational for the purpose of retinopathy of prematurity treatment), then consideration may be given to either readmission to the neonatal service or the general paediatric service according to local guidelines / arrangements.

Neonatal end of life care

1. End of life care for babies and support for their families should be provided according to national guidelines:
   - Perinatal Management of Extreme Preterm Birth Before 27 weeks of Gestation: A BAPM Framework for Practice (2019)
   - End of life care for infants, children and young people with life-limiting conditions: planning and management. NICE guideline NG61
   - Palliative Care - A Framework for Clinical Practice in Perinatal Medicine: A BAPM Framework for Practice (2010)
2. Consideration and arrangements for potential organ donation should be according to the national guideline:
   - UK Paediatric and Neonatal Deceased Donation. A Strategic Plan by the Paediatric Subgroup of the National Organ Donation Committee. NHS Blood and Transplant (2019)
3. All neonatal deaths should be reviewed using the standardised framework of the Perinatal Mortality Review Tool (PMRT) and the local Child Death Overview Panel (CDOP), alongside maternity staff responsible for the care of the mother and with active communication with parents.

Neonatal Out-Reach / In-Reach or Community Services

1. Community support should be provided by an integrated hospital-community neonatal team or an identifiable team of specifically trained community health professionals.
2. Staff providing community support for babies recently discharged from neonatal units should undertake specific neonatal training and have skills and competencies for neonatal out / in-reach. These staff should feel confident and able to provide consistent and appropriate advice to parents / carers supported

by the appropriate information ahead of discharge, including details of any particular arrangements identified in the baby's care plan, in order to best support families' care for their babies at home.

3. Units should enable parents / carers to meet with the community team supporting them at home before the baby is discharged from the hospital.

Follow-up services

1. Babies born at less than 30 weeks gestation or with a high risk of neurodevelopmental problems should receive enhanced neurodevelopmental surveillance post discharge in accordance with the NICE Guideline: Developmental follow-up of children and young people born preterm (2017).
2. Babies born at 30 weeks or more gestational age who are suspected of being at increased risk of developmental problems or disorders, should also receive enhanced neurodevelopmental surveillance and access to therapy services if required post discharge, considering the presence and severity of risk factors. Risk factors include:

- Brain lesions on neuroimaging likely to be associated with developmental problems or disorders (e.g. severe intraventricular haemorrhage (IVH) or cystic periventricular leukomalacia (PVL))
- Grade 2 or 3 neonatal hypoxic ischaemic encephalopathy (HIE)
- Neonatal bacterial meningitis
- Neonatal Herpes simplex encephalitis
- Severe jaundice requiring exchange transfusion

3. Parents / carers of babies requiring enhanced neurodevelopmental surveillance post discharge should be provided with an agreed discharge plan, which includes details of follow-up.
4. Parents / carers of a babies requiring enhanced neurodevelopmental surveillance post discharge should be provided with a single point of contact for outreach care within the neonatal service.
5. Babies born preterm who are eligible for enhanced neurodevelopmental surveillance should have at least 2 follow-up appointments in the first year and an assessment at 2 years age corrected for prematurity that focus on development. The results of the 2-year corrected gestational age assessment should be entered into the baby's electronic records.
6. Babies born <28+0 weeks' gestation should have a formal assessment, including a specialist assessment of overall cognitive functioning carried out by a Clinical or Educational Psychologist at 4 years as specified in the NICE guideline.

Neonatal patient safety and governance

1. Each provider Trust must have in place a range of practice guidelines, operational policies and care pathways to ensure consistent and evidence-based clinical management. In the main, these will reflect national professional guidance, such as that available from NICE, BAPM, Department of Health, the Royal College of Obstetricians and Gynaecologists or the Royal College of Paediatrics and Child Health.
2. ODN approved guidelines, operational policies and care pathways should be adopted by Trusts.

3. Neonatal Units must have evidence of written clinical procedures and operational policies in place, this must include joint maternal and neonatal safety and governance processes.
4. There should be evidence that each neonatal unit reviews their NNAP, SSQD and MBBRACE data and develops plans to improve areas that require attention.
5. Neonatal safety champions must work closely with maternity safety champions to provide a perinatal safety culture and support the board level safety champions to understand the needs of neonatal services by articulating any barriers to achieving safe care. Trusts providing neonatal care must ensure that the neonatal safety champion is supported in their role.
6. Each provider Trust must have a process for sharing patient safety concerns with their ODN.
7. Trusts must engage with ODN governance processes to raise concerns to the LMNS / ICB / NHS England region.

Applicable Obligatory National Standards

NNU Providers and ODNs should adopt the following NICE guidelines and quality standards unless superseded by more recent evidence or guidance:

- Neonatal specialist care. NICE Quality standard QS4
- Specialist neonatal respiratory care for babies born preterm. NICE guideline NG124.
- Specialist neonatal respiratory care for babies born preterm. NICE Quality standard QS193
- Preterm labour and birth. NICE guideline NG25.
- Preterm labour and birth. NICE Quality Standard QS135
- Neonatal parenteral nutrition. NICE guideline NG154.
- Neonatal parenteral nutrition. NICE Quality Standard QS205
- Neonatal infection: antibiotics for prevention and treatment. NICE guideline NG195.
- Neonatal Infection. NICE Quality standard QS75
- Jaundice in newborn babies under 28 days. NICE Clinical guideline CG98.
- Jaundice in newborn babies under 28 days. NICE Quality standard QS57
- Diabetes in pregnancy: management from preconception to the postnatal period. NICE guideline NG3
- End of life care for infants, children and young people with life-limiting conditions: planning and management. NICE guideline NG61.
- End of life care for infants, children and young people with life-limiting conditions: planning and management. NICE Quality standard QS160
- Babies, children and young people's experience of healthcare. NICE Guideline NG204
- Developmental follow-up of children and young people born preterm. NICE Guideline NG72.
- Developmental follow-up of children and young people born preterm. NICE Quality Standard QS169

Other Applicable National Standards to be met by Commissioned Providers

	NNU Providers and ODNs should adopt the following BAPM Frameworks for Practice and these other national standards unless superseded by more recent evidence or guidance: 1. Enhancing Shared Decision Making in Neonatal Care: A BAPM Framework for Practice (2019) 2. Calculating Unit Cot numbers and Nurse Staffing Establishment and Determining Cot Capacity: A BAPM Framework for Practice - Supplementary Guidance (2019) 3. Perinatal Management of Extreme Preterm Birth Before 27 weeks of Gestation: A BAPM Framework for Practice (2019) 4. UK Paediatric and Neonatal Deceased Donation. A Strategic Plan by the Paediatric Subgroup of the National Organ Donation Committee. NHS Blood and Transplant (2019) 5. Optimal arrangements for Local Neonatal Units and Special Care Units in the UK (2018): A BAPM Framework for Practice (2018) 6. Use of Central Venous Catheters in Neonates: A BAPM Framework for Practice (Revised 2018) 7. National Care Principles for the Management of Congenital Diaphragmatic Hernia: A BAPM Framework for Practice (2018) 8. Neonatal Transitional Care - A BAPM Framework for Practice (2017) 9. Identification and Management of Neonatal Hypoglycaemia in the Full Term Infant: A BAPM Framework for Practice (2017) 10. The Use of Donor Human Milk in Neonates: A BAPM Framework for Practice (2023) 11. The Provision of Parenteral Nutrition within Neonatal Services - A BAPM Framework for Practice (2016) 12. Neonatal Brain Magnetic Resonance Imaging: Clinical Indications, Acquisitions and Reporting: A BAPM Framework for Practice (2023) 13. NEWTT 2 – Deterioration of the Newborn - A BAPM Framework for Practice (2023) 14. Optimal Arrangements for Neonatal Intensive Care Units in the UK: A BAPM Framework for Practice (2021) 15. Categories of Care: A BAPM Framework for Practice (2011) 16. Neonatal Support for MLU and Home Births: A BAPM Framework for Practice (2022) 17. Service Standards for Hospitals Providing Neonatal Care (3rd edition): A BAPM Framework for Practice (2010) 18. Palliative Care - A Framework for Clinical Practice in Perinatal Medicine: A BAPM Framework for Practice (2010) 19. UK screening of retinopathy of prematurity guideline. RCPCH (2022) 20. Treating of Retinopathy of Prematurity in the UK. Royal College of Ophthalmologists (2022) 21. Department of Health (2009) Toolkit for High-Quality Neonatal Services 22. Safe and Effective Repatriation of Infants to Care Locations Closer to Home after Specialist Care: A BAPM Framework for Practice (2023) 23. Early Postnatal Care of the Moderate-Late Preterm Infant: A BAPM Framework for Practice (2023) 24. Sudden and Unexpected Postnatal Collapse: A BAPM Framework for Reducing Risk, Investigation and Management (2022)

	25. Framework for Practice: Lactation and loss. Management of lactation following the death of a baby. A BAPM Framework for Practice (2022) 26. Pre-hospital management of the baby born at extreme preterm gestation: A BAPM Framework for Practice (2022) 27. Family Integrated Care: A BAPM Framework for Practice (2021) 28. Advanced Neonatal Nurse Practitioner Capabilities Framework: A BAPM Framework for Practice (2021) 29. Therapeutic Hypothermia for Neonatal Encephalopathy: A BAPM Framework for Practice (2020) 30. Managing the Difficult Airway in the Neonate: A BAPM Framework for Practice (2020) 31. The Prevention, Assessment and Management of in-Hospital Falls and Drops: A BAPM Framework for Practice (2020) 32. Safe and Effective Repatriation of Infants. A BAPM Framework for Practice (2023)
7.7	**Commissioned providers** *To be completed by responsible Commissioner*
7.8	**Links to other key documents** Three year delivery plan for maternity and neonatal services (2023). NHS England. https://www.england.nhs.uk/wp-content/uploads/2023/03/B1915-three-year-delivery-plan-for-maternity-and-neonatal-services-march-2023.pdf NHS England and NHS Improvement (2019) Implementing the Recommendations of the Neonatal Critical Care Transformation Review. https://www.england.nhs.uk/publication/implementing-the-recommendations-of-the-neonatal-critical-care-transformation-review/ National Maternity Review (2016) Better Births. Improving outcomes of maternity services in England. A Five Year Forward View for maternity care. NHS England NHS England (2019) The NHS Long term Plan, (Chapter 3: a strong start in life for children and young people) Neonatology. GIRFT Programme National Specialty Report. NHS England, (2022) Health Building Note 09-03: Neonatal units. Department of Health (2013) NHS Improvement (2017): Reducing harm leading to avoidable admission of full-term babies into neonatal units. National Neonatal Audit Programme, Annual Report 2022 on 2021 data MBRRACE-UK (2022) MBRRACE-UK Perinatal Mortality Surveillance Report: UK Perinatal Deaths for Births from January to December 2020

	MBRRACE-UK (2022) Saving Lives, Improving Mothers' Care: Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2018-2020 Paediatric General Surgery and Urology. GIRFT Programme Specialty Report. NHS England and NHS Improvement (2021) Patterson, L, O'Mara, C, Hunn, L, (2020), Neonatal nursing workforce survey – What does the landscape look like in England? Journal of Neonatal Nursing, Vol. 26 Issue 1 pp.-3-16 Helenius K, Longford N, Lehtonen L, Modi N, Gale C (2019). Association of early postnatal transfer and birth outside a tertiary hospital with mortality and severe brain injury in extremely preterm infants: observational cohort study with propensity score matching. BMJ; 367:l5678. Bliss (2015), The Bliss Baby Charter Audit Tool. Department of Health (2009) Toolkit for High-Quality Neonatal Services. Sakonidou S, Kotzamanis S, Tallett A, et al. Parents' Experiences of Communication in Neonatal Care (PEC): a neonatal survey refined for real-time parent feedback Archives of Disease in Childhood: Fetal & Neonatal Ed 2022