Implementing *Better Births:*
Integrating Neonatal Care into Local Maternity System Transformation Plans

Introduction

Neonatal critical care services provide care for babies less than 44 weeks post menstrual age that require on-going medical care. The services form part of an integrated pathway with maternity, paediatric and family care and serve geographically defined regional populations.

Neonatal critical care services are provided in a variety of settings dependent upon the interventions required by the baby. Dedicated neonatal transport services play a vital role in transferring babies to and from neonatal units. Approximately 10% of all babies born will receive some type of neonatal care.

Neonatal critical care is a high cost service and its £750M annual spend. Neonatal critical care is a highly intensive environment in which nurses and doctors provide continuous support for very sick children and their families 24 hours per day.

Neonatal services aim to:

- Improve babies' chances of survival and minimise the morbidity associated with being born either premature or at full term and sick. It is a low throughput service in which clinical expertise is a key determinant of the quality of the outcomes for the baby.
- Provide a family-centred approach to care, defined as involving families in the care of their own children, and helping parents understand their baby's needs.
- Improve the quality of care by working in partnership with service commissioners and other provider units within Operational Delivery Networks (ODNs) linked to the Local Maternity System Transformation Programme. This approach ensures integrated across the whole of the maternity and children's care pathway.

Categories of Care

Neonatal activity is linked to the following categories of care:

Intensive care (specialised care for the smallest and most seriously ill babies who require constant care and, often mechanical ventilation to keep them alive);

High dependency care (care provided to babies who need continuous monitoring);

Special care (the least intensive level of neonatal care and the most common);

Transitional Care (Babies who have special care needs but are able to be managed alongside the mother, who is the main carer; the mother is supported by neonatal staff alongside the midwifery team. In some services, transitional care occurs in the postnatal ward and, in others, in a discreet area or transitional care unit with staffing from both neonatal and midwifery teams).

Designation of Services

Linked to the categories of care, neonatal services are set across the following levels of care:

- **Level 1 Special Care Baby Unit (SCBU)** is for babies who need continuous monitoring of their breathing or heart rate, additional oxygen tube feeding, phototherapy recovery (to treat neonatal jaundice) and convalescence from other care.
- **Level 2 Local Neonatal Unit (LNU)** is for babies needing short-term intensive care with apnoeic attacks who require support, including receiving continuous positive airway pressure (CPAP). Some babies receiving parenteral nutrition (tube feeding) may also need this level of care.
- **Level 3 Neonatal Intensive Care Unit (NICU)** is for babies needing respiratory support (ventilation) weighing less than 1,000g, born at less than 28 weeks gestation and needing significant CPAP support. Babies with severe respiratory disease who also require surgery may need this level of care too.

Neonatal Operational Delivery Networks

Since 2013 there have been 11 Operational Delivery Networks (ODNs) across England, each with its own management and administrative team.

Neonatal care is delivered in 157 Units across England, categorised as NICUs (n=46; 18 of which also support a co-located neonatal surgical service), Local Neonatal Units (n=73) and Special Care Units (n=38). Some NHS Trusts host more than one neonatal care unit.

The NHS England service specification, E08/S/a Neonatal Critical Care, requires that all babies who are born <27 weeks of gestation or at a birthweight <800g should receive care in a maternity service with an NICU facility, together with all babies with complex intensive care needs. A level 3 NICU service will also provide local lower level neonatal support across their maternity catchment area.

A LNU will provide care for all babies born at their hospital at 27 weeks of gestation and above (which includes short-term intensive care where necessary) and they may receive babies 27-32 weeks from SCBUs as transfers.

SCBUs provide local care for babies born at 32 weeks or above who require only special care or short term high dependency care.

There may be some local variance agreed for these cut-off points but specialist medical and nurse staffing of these units is a critical issue and is concentrated in NICUs.

Neonatal care is delivered alongside local and specialist maternity services. The care of the woman and her baby requires close working between maternity and neonatal care and despite the mature and separate structure of Neonatal ODNs, close collaboration and co-planning between Maternity Networks and Neonatal ODN is critically important, particularly for the delivery of fetal medicine and high risk obstetric services. However, it is recognised that there is a general lack of coordinated, joined up working between Neonatal ODNs and maternity services.

National Maternity Review

The National Maternity Review (The review) outlined how maternity services cannot be considered in isolation and are inextricably linked to neonatal services, which are key in delivering optimal outcomes for babies. The review highlighted a number of concerns linked to neonatal medical and nursing staffing numbers, nurse training, the provision of support staff and cot capacity, safety and sustainability (particularly in remote and rural settings).

Neonatal deaths have declined slowly over time and in 2013, there were 1.77 neonatal deaths per 1000 live births in England. There is however, significant variation across the country with higher numbers occurring in areas that are generally more deprived and that have greater proportions of older or younger mothers.

Neonatal services are regularly caring for many more babies than commissioners had expected them to. This has resulted in many neonatal units consistently operating at an occupancy level above that which optimises patient safety.

The review outlined the need for safer care, with professionals working together across boundaries to ensure rapid referral, and access to the right care in the right place, leadership for a safety culture within and across organisations and investigation, honesty and learning when things go wrong. It also described how maternity services should ensure smooth transition between midwife, obstetric and neonatal care, and ongoing care in the community from their GP and health visitor.

The review stated that providers and commissioners should come together from across a larger geographical area through clinical networks, coterminous for both maternity and neonatal services. That they should share information, best practice and learning and provide support and advice on the commissioning of specialist services to support local maternity systems. Also, that commissioners need to take clear responsibility for improving outcomes and reducing health inequalities, by commissioning against clear outcome measures, empowering providers to make service improvements and monitoring progress regularly.

The review further highlighted that there was a need to improve and provide better facilities which would significantly improve patient experience. Feedback from women to the review said that they wanted to be located close to their baby if it is in a NICU when they are still a patient themselves, that care needs to be sensitive and respectful, and that facilities should be of a suitable standard.

The review focussed on how for the woman and her baby the period of care after the birth is equally as important as it is during pregnancy and birth. Within that context, the review said that commissioners and providers must attach sufficient importance to securing high quality neonatal and postnatal care in order to give women and their babies the best start in family life.

The review pointed out that in the event of neonatal complications, there needs to be quick referral and availability of specialist services for the woman and her baby. This might involve care in a specialist neonatal unit where the doctors and nurses with the greatest expertise work. However, the baby will be cared for as close to home as possible at the nearest appropriate centre. So that the woman is not separated from her baby, any ongoing care she needs should be transferred to the same location and neonatal services should include accommodation and assistance for parents. Parents should be actively encouraged to participate in their baby's care on the neonatal unit and in discussions and decision-making with the neonatal team.

In the time frame in which the National Maternity Review was conducted, it was not possible to review neonatal services concurrently. Within that context, the review asked that a dedicated review should be taken forward for neonatal services and that the review should also include the payment arrangements for neonatal services, in the context of the wider payment system for maternity services, and consider whether a neonatal tariff should be developed.

Neonatal Critical Care Review

The Neonatal Critical Care Review (The NCC Review) is led by Professor Neil Marlow the Chair of the NHS England Neonatal Critical Care Clinical Reference Group. The NCC Review is structured across the following work streams:

1. Capacity
2. Workforce
3. Pricing
4. Education
5. Models of Care

The aim of the NCC Review is to make recommendations that will support the delivery of high quality, safe, sustainable and equitable models of neonatal care across England. It has also set out below the following themes that will need to be factored in and included within Local Maternity Systems' Transformation Plans.

The drivers for change across neonatal care services are linked to a combination of:

- The need to start neonatal intensive care in the most appropriate setting to promote survival and minimise morbidity;
- To keep families as close to home as possible whilst also providing high quality care.

The challenges for the service are linked to:

- Developing the optimal model of service delivery;
- Capacity and patient throughput;
- Workforce and safety issues;
- The utilisation of transport services to support patient flows;
- The social complexity of women delivering babies who require neonatal care can conflict with the national choice agenda.

Mortality

One of the themes that the NCC Review has reported on to all of the Regional Maternity Boards is mortality. It presented an interim report highlighting that the available evidence in neonatal mortality suggests overall levels of mortality are within the range of potential international comparisons and that they are encouraging signs of an improving picture both overall and for babies of extremely low gestational ages. However, the interim report also outlined that there remains significant variation in mortality rates across the country, particularly for very preterm infants that should prompt local and regional reviews and intervention where necessary.

The interim report was also presented to NHS England's Specialised Commissioning Oversight Group in July 2017 and as a consequence, a Neonatal Mortality Working Group has been established reporting to the Medical Director for Specialised Services. Clinicians and colleagues in the field are defining the key questions that need to be asked of the data to guide the analysis which will include to what extent the deaths relate to:

- Gestational age <25 weeks and non-active care in the delivery room
- Serious congenital malformations
- Antenatal complications
- Causes of deaths using standard classifications
- Rates of mortality and major morbidities together for babies under 32 weeks
- Rates of neonatal encephalopathy and seizures in term babies

Local Maternity System Transformation Plans are asked to include the recommendations of the 'Action on Neonatal Mortality' programme and as the work

progresses through the Neonatal Mortality Group, its further findings and recommendations will need to be incorporated into local Transformation Plans.

The recommendations for the LMS for immediate implementation from the 'Action on Neonatal Mortality' programme include:

> **Pre-delivery transfer.** LMSs must ensure that, where possible, all women <27 weeks are able to give birth in centres with a neonatal intensive care unit (NICU). LMSs and Operational Delivery Networks (ODN) should have clear guidelines for antenatal transfer in the event of impending delivery < 27 weeks, as part of the shared clinical and operational governance being developed across LMSs. LMS and ODN should aim to ensure at least 85% of all births at 23-26 weeks of gestation are in a maternity service with an on-site NICU include actions to deliver this in local transformation plans. ODN should report and investigate exceptions to this rule. Investigation includes an independent review of the case, feedback of lessons learnt to the local team, and through the LMS, maternity Clinical Network and ODN for wider dissemination where appropriate.
>
> **Mortality review**. LMSs are working to improve and standardise investigations into serious incidents and relevant actions are expected to be included in local transformation plans. LMSs must ensure that all neonatal deaths are investigated at a local level using a standardised framework including root cause analysis and reported nationally to support learning. Each Baby Counts (RCOG) investigates local review quality for term babies. Local maternity systems and networks should ensure that, following birth at 23 weeks of gestation or more, every death (100%) in the delivery room and neonatal unit is investigated, and that lessons are learned, implemented and shared though maternity Clinical Networks. Trusts should adopt appropriate methodology as it becomes available, including the Perinatal Mortality Review Tool (https://www.npeu.ox.ac.uk/pmrt) and the Child Death Audit Guidance, both of which will be published by the end of 2017 and in line with the Serious Incident Framework.

Themes

1. Integrated Local Maternity System Planning

Neonatal care is organised across an Operational Delivery Network, which may cover more than one LMS area, and delivered alongside local and specialist maternity care. The LMS needs to ensure that providers, ODN and commissioners are working together as a single system approach, to ensure integration across the whole maternity and children's pathway of care. The issues linked to the themes listed can only be improved through the development and delivery of local transformation plans supported by coterminous networks for both maternity and neonatal services.

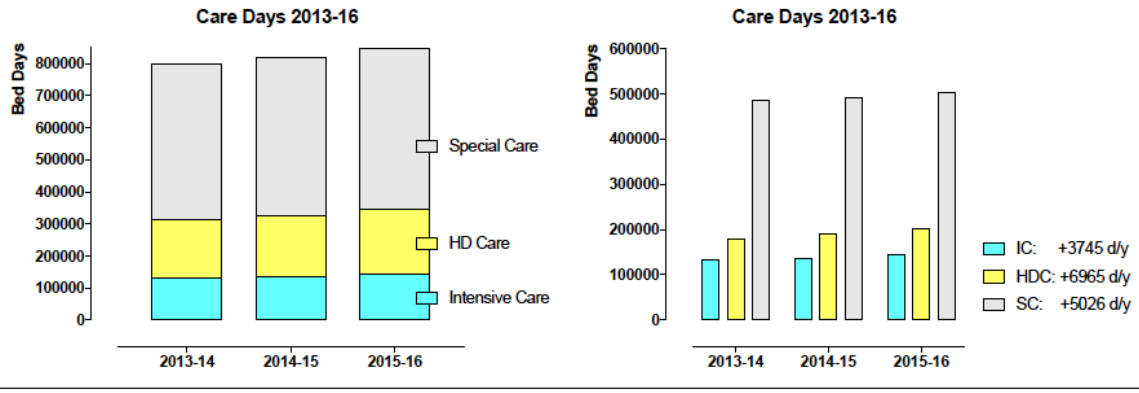
ACTION REQUIRED BY LMS

Local Maternity System Transformation Plans must be jointly developed and delivered by neonatal and maternity services, the ODN and their respective commissioners.

2. Neonatal care capacity

In 15/16 there were around 595,000 live births in England with 63,000 admissions to neonatal critical care across 899,000 care days (see figure 1). The top 4 admissions being because of preterm birth, cardiovascular disease, respiratory disease and asphyxia.

Figure 1: Clinical activity in neonatal units 2013-6 (Fiscal years) in England



Capacity in neonatal services is defined by the physical, equipped cots available for care and the medical and nurse staff available to provide that care. Demand is a function of the number of live births, and admissions to neonatal units.

A specific focus is:

- The number of extremely preterm births as these babies have exponentially greater neonatal care needs with increasing prematurity; and
- Admissions of term babies to neonatal units (see below section on term admissions).

Each Network should have the capacity to provide all neonatal care for at least 95% of babies born to women booked for delivery in the network (i.e. no more than 5% of babies born to booked women should be transferred out of network for inappropriate reasons).

Within that context, unit capacity must be planned in partnership with local maternity and fetal medicine services and Neonatal Operational Delivery Networks.

Units across the network should not be operating at above the 80% occupancy averaged over the year and the need to start neonatal intensive care in the most appropriate specialist service to promote survival and minimise morbidity is a key service standard.

ACTION REQUIRED BY LMS

Local Maternity System Transformation Plans must include the following objectives:

- **To review the capacity and demand data that accompanies this report,**
- **To ensure that Neonatal services have the capacity to provide all neonatal care for at least 95% of babies who require admission for neonatal intensive care and are born to women booked for delivery in the network (i.e. no more than 5% of babies requiring intensive care born to booked women should be transferred out of network for inappropriate reasons),**
- **To ensure that neonatal care services do not operate above the 80 percent occupancy averaged over the year, and**
- **To ensure that babies requiring neonatal services receive that care from a unit with the appropriate level of care as close as possible to the family home.**

3. Neonatal Transport Transfers

Babies occasionally need to move to a unit other than where they were born for specialist care that is not provided in their local unit. When this is required, a Neonatal Transfer Service is used to move babies between hospitals. The service is staffed by specialist clinicians and nurses to provide ongoing neonatal care before and during the journey. The service will undertake moves of babies out and back to the local unit, and may on some occasions need to transfer babies where there is not sufficient capacity in a unit.

A six month data profile for 2016 shows that there were in the region of 6748 neonatal transfers undertaken in England (in the first three days after birth).

Stakeholders (including clinical personnel from network units, the ambulance service, parents and commissioners) have input into the planning, development and monitoring of the transfer service. Service planning will be influenced by the configuration of local services and geographic and demographic imperatives including:

- Annual number of live births in the local catchment area.
- Retrieval distances and time.
- Location of Neonatal Intensive Care Units (NICU) and natural patient pathways into and out of a region’s neonatal services.
- Anticipated annual activity for the transfer service.

The NHS England service specification E08/S/b Neonatal Critical Care Transport sets out the standards of good practice for a range of areas linked to staffing, the service model, the categories of transfer, and the reasons for transfer.

Neonatal transfers are not uncommon and many of the transfers are needed so that babies can be cared for in the right category and level of neonatal unit, as described in the overview.

In the first 6 months of 2016, 475 (7%) babies were transferred to a more specialised unit (uplift) which happens when a baby needs complex intensive care because they are very premature or sick. 114 babies (1.68%) were transferred as units were experiencing capacity issues.

Commissioners and providers are responsible for transfer capacity and planning to ensure adequate provision and delivery of a service at all times.

ACTION REQUIRED BY LMS

Local Maternity System Transformation Plans must include the following objectives:

- **Review the 2016 data received from the Neonatal Transport Group (this data represents a 6 months profile) to:**
    - **Assess the reasons for babies being transferred because of lack of capacity (space or staff),**
    - **Review the reasons why babies are transferred for more specialised care, and**
    - **Establish if any of the babies transferred in the first 3 days should have been born in an intensive care unit in the first place**
- **Local Maternity System Transformation Plans must ensure that they have in place systems that enable an annual needs assessment, and gap analysis to ensure that adequate transfer capacity plans are in place.**

4. Reduction of term admissions and ATAIN

While some term admissions (babies born after 37 weeks of gestation) are entirely appropriate (for example babies born with a congenital abnormality), up to 30% of neonatal unit admissions between 2011 and 2013 were considered avoidable. Some babies will require admission for antibiotic treatment or intensive phototherapy for jaundice, although babies who remain well with these conditions can often be managed in a transitional care or maternity setting alongside their mothers.

In 15/16 53% of admissions to neonatal units across England were infants delivered >37 weeks gestation. By 2015 the number of term admissions had risen nationally despite a 3.6% fall in the number of term live births

Term live births in England (2011 to 2014) in relation to term care days (2011 to 2015)

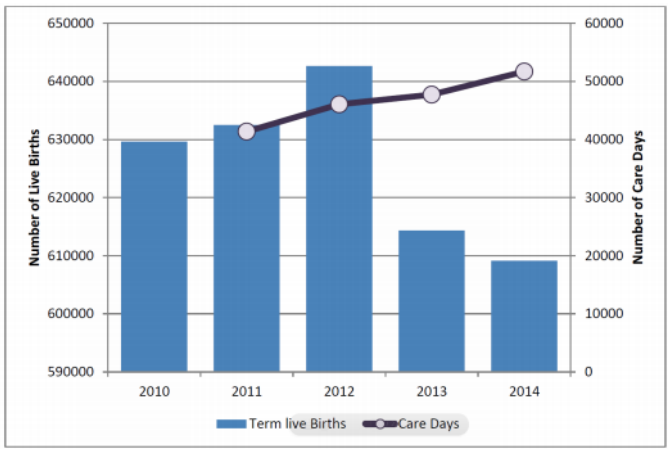


Figure 2: NHS Improvement, 'Reducing harm leading to avoidable admission of full-term babies into neonatal units, Findings and Resources for improvement', February 2017

As well as the cost saving potential to the NHS there are also significant benefits to preventing separation of mother and baby such as establishing and maintaining breastfeeding, attachment and maternal mental health.

ATAIN (Avoiding Term Admissions into Neonatal Units) is a work programme coordinated by NHS Improvement, started in 2013, which focused on work around four key reasons for admission: respiratory conditions, hypoglycaemia, jaundice and asphyxia (perinatal hypoxia–ischaemia).

Overall findings include:

- 20%–30% of all babies admitted to Levels 1, 2 or 3 care received Interventions that could have been delivered whilst they remained with their mothers
- 31% of babies were admitted for <48 hours and received no high dependency or intensive care intervention
- 4% of term admissions are from home/community (20%)
- Babies born at 37-38 weeks were twice as likely to be admitted to neonatal services as those born at 39-42 weeks gestation

The South West Neonatal Network have undertaken this programme of work locally and this is currently in the planning stages for implementation as a national scheme.

The SW report is available on this link http://www.swneonatalnetwork.co.uk/media/101820/sw-term-admissions-2017-main-report.pdf which gives details of a resource directory that other localities can take advantage of when implementing this programme of work. Please see appendix 2 for further information

ACTION REQUIRED BY LMS

Local Maternity System Transformation Plans will include the following objectives

- **Review the admissions by gestational age data that accompanies this report to understand the local picture**
- **Ensure that the ATAIN scheme and action plan are implemented and**
- **Monitor the levels of term baby admissions in neonatal units**

5. Workforce Planning

In 2003, the Department of Health announced that neonatal services should be organised into managed clinical networks. Subsequently, in 2007 the National Audit Office reviewed the work of the networks and concluded that the development of neonatal networks had improved measures but that further improvement was required. Under the auspices of the NHS and the Department of Health (DH), endorsed by Sir David Nicholson, a Taskforce was commissioned to provide a Toolkit for High-Quality Neonatal Services (Dec 2009).

http://www.bliss.org.uk/toolkit-for-high-quality-neonatal-services

The Toolkit outlines the quality principles required for the care of the neonate and endorses the British Association Perinatal Medicine (BAPM) standards in relation to nurse to baby ratios for:-

- Intensive care (1:1),
- High dependency care (1:2)
- Special care (1:4).

Cots for neonatal care are often flexed in response to capacity demands and staffing problems unlike the fixed beds within an ITU setting.

Research undertaken by a collaborative group using NHS routine data from the national neonatal database (BadgerNet), with the help of the Neonatal Data Analysis Unit, evaluated 1:1 nursing and its effect on death rates. Between 2008 and 2012, the provision of one to one nursing in tertiary neonatal units declined from a median of 9.1% of intensive care days in 2008 to 5.9% in 2012. A 10% increase in the proportion of intensive care days on which one to one nursing was provided led to a reduction in the in-hospital mortality rate of 0.6 percentage points (Watson S et al).

During 2013/14 Neonatal units were asked to self-assess their compliance against the core neonatal critical care service specification requirements which are included in appendix 3. The exercise revealed that 47% of units reported that they were not compliant with core requirement two. This exercise was repeated in 2016 which showed that around 20% of units were not compliant.

Core Requirement 2	A workforce plan must be in place, designed to maintain

	sustainable staffing levels based on the DH Toolkit standards and in line with predicted increased in birth rate. Each unit must work towards an agreed plan with commissioners to have nurse staffing levels based on the following nurse to baby ratios: 1:1 Intensive Care 1:2 High Dependency 1:4 Special Care

NHS England, through its Quality Surveillance Team (QST) will be carrying out a comprehensive national peer review programme across all neonatal units from October 2017. All neonatal units have been informed of the peer review and will be required to self-assess against a new set of clinically agreed quality indicators (appendix 4) and will have to upload key evidence to support their declaration two weeks before the visit.

After the Peer Review visit a comprehensive quality report is written which contains a score against the indicators with a final version usually being sent to the trust 8 weeks after the review day. If any immediate risks or serious concerns have been identified, an action plan will need to be put into place and sent to the QST Senior Regional Quality Manager. For immediate risks, the formal response from the organisation is required within 10 working days of the email to the organisation's CEO or equivalent; for serious concerns the response is required within 20 working days. On receipt of the action plan the Senior Regional Quality Manager will acknowledge the content with the provider and formally hand over the plan to the local quality lead, supplier manager and director of nursing for specialised commissioning for monitoring of implementation via local contracting processes.

The specialised services quality dashboard (SSQD) programme is an important part of NHS England's quality assurance framework. SSQDs are a key tool in monitoring the quality of services and enable comparison between service providers to support continuous improvement of outcomes.

For each SSQD, of which Neonatal Intensive Care is one, there is a 'Metric Definition Set' for which data is to be collected. These are available on the NHS England website.

https://www.england.nhs.uk/commissioning/spec-services/npc-crg/spec-dashboards/

SSQD information is provided to local specialised commissioners to monitor the quality and outcomes of services. Healthcare providers can use the information to compare themselves against other providers of the same service.

ACTION REQUIRED BY LMS

Local Maternity System Transformation Plans must include the following objectives:

- **Review progress against local workforce plans in place to address staffing.**
- **Review the outcomes of the QST peer review visits and ensure work is being undertaken to address the risks and concerns identified as part of the local transformation planning.**
- **Carry out a capacity review to determine the correct level of cots and their distribution across local maternity systems.**
- **Specialised Commissioning Hub Teams to share the quality dashboard metrics relevant to the providers within the local maternity system to inform local transformation planning.**

Summary

Summary of actions required by Local Maternity Systems:

Mortality

- Local Maternity System Transformation Plans will need to include a 'neonatal mortality theme' and as the work progresses through the Neonatal Mortality Group, its findings and recommendations will need to be incorporated into local Transformation Plans
- LMSs must ensure that, where possible, all women <27 weeks are able to give birth in centres with a neonatal intensive care unit (NICU).
- LMSs and Operational Delivery Networks (ODN) should have clear guidelines for antenatal transfer in the event of impending delivery < 27 weeks, as part of the shared clinical and operational governance being developed across LMSs.
- LMS and ODN should aim to ensure at least 85% of all births at 23-26 weeks of gestation are in a maternity service with an on-site NICU include actions to deliver this in local transformation plans.
- ODN should report and investigate exceptions to this rule. Investigation includes an independent review of the case, feedback of lessons learnt to the local team, and through the LMS, maternity Clinical Network and ODN for wider dissemination where appropriate.
- LMSs must ensure that all neonatal deaths are investigated at a local level using a standardised framework including root cause analysis and reported nationally to support learning.
- Each Baby Counts (RCOG) investigates local review quality for term babies. Local maternity systems and networks should ensure that, following birth at

23 weeks of gestation or more, every death (100%) in the delivery room and neonatal unit is investigated, and that lessons are learned, implemented and shared though maternity Clinical Networks.

- Trusts should adopt appropriate methodology as it becomes available, including the Perinatal Mortality Review Tool (https://www.npeu.ox.ac.uk/pmrt) and the Child Death Audit Guidance, both of which will be published by the end of 2017 and in line with the Serious Incident Framework.

Integrated Local Maternity System Planning

- Local Maternity System Transformation Plans must be jointly developed and delivered by neonatal and maternity services, the ODN and their respective commissioners.

Neonatal Care Capacity

- To review the capacity and demand data that accompanies this report,
- To ensure that Neonatal services have the capacity to provide all neonatal care for at least 95% of babies who require admission for neonatal intensive care and are born to women booked for delivery in the network (i.e. no more than 5% of babies requiring intensive care born to booked women should be transferred out of network for inappropriate reasons),
- To ensure that neonatal care services do not operate above the 80 percent occupancy averaged over the year, and
- To ensure that babies requiring neonatal services receive that care from a unit with the appropriate level of care as close as possible to the family home.

Neonatal Transport Transfers

- Review the 2016 data received from the Neonatal Transport Group to:
    - Assess the reasons for babies being transferred because of lack of capacity (space or staff),
    - Review the reasons why babies are transferred for more specialised care, and
    - Establish if any of the babies transferred in the first 3 days should have been born in an intensive care unit in the first place
- Local Maternity System Transformation Plans must ensure that they have in place systems that enable an annual needs assessment, and gap analysis to ensure that adequate transfer capacity plans are in place.

Reduction of Term Admissions and ATAIN

- Review the admissions by gestational age data that accompanies this report to understand the local picture
- Ensure that the ATAIN scheme and action plan are implemented and

- Monitor the levels of term baby admissions in neonatal units

Workforce Planning

- Review progress against local workforce plans in place to address staffing.
- Review the outcomes of the QST peer review visits and ensure work is being undertaken to address the risks and concerns identified as part of the local transformation planning.
- Carry out a capacity review to determine the correct level of cots and their distribution across local maternity systems.
- Specialised Commissioning Hub Teams to share the quality dashboard metrics relevant to the providers within the local maternity system to inform local transformation planning.

References

Watson SI, Arulampalam W, Petrou S, Marlow N, Morgan AS, Draper ES, Modi N; Neonatal Data Analysis Unit (NDAU) and the Neonatal Economic, Staffing, and Clinical Outcomes Project (NESCOP) Group. The effects of a one-to-one nurse-to-patient ratio on the mortality rate in neonatal intensive care: a retrospective, longitudinal, population-based study. Arch Dis Child Fetal Neonatal Ed. 2016 May;101(3):F195-200

NHS Improvement, 2017. Reducing harm to leading to Avoidable Admission of Full Term Babies into Neonatal Units, Findings and Resources for Improvement

South West Neonatal Network, 2017, South West Neonatal Term Admissions Report

Appendices

Appendix 1

ACTION ON NEONATAL MORTALITY

Specialised Commissioning NHS England

Dear Local Maternity System Chairs,

The Neonatal Critical care Review has been assessing the outcomes from neonatal critical care services in England, and what recommendations need to be made to support continuous improvement. Although neonatal mortality is falling and rates are similar to other western societies there is wide variation in the rates of mortality across neonatal networks. We are therefore leading an 'Action on Neonatal Mortality' programme to focus on the steps that are most likely to impact on reducing neonatal mortality when applied to secondary or tertiary care. There are two immediate steps that all LMSs must undertake. However, it is also worth noting that further action is likely to be necessary once the review is complete, and we need you to factor flexibility into your local transformation plans to allow for this.

At the same time, we would encourage LMSs to continue to engage in existing programmes which aim to improve maternity and neonatal services, including in particular the Avoiding Term Admissions in Neonatal Units (Atain) programme.

Pre-delivery transfer. LMSs must ensure that, where possible, all women <27 weeks are able to give birth in centres with a neonatal intensive care unit (NICU). LMSs and Operational Delivery Networks (ODN) should have clear guidelines for antenatal transfer in the event of impending delivery < 27 weeks, as part of the shared clinical and operational governance being developed across LMSs. LMS and ODN should aim to ensure at least 85% of all births at 23-26 weeks of gestation are in a maternity service with an on-site NICU include actions to deliver this in local transformation plans. ODN should report and investigate exceptions to this rule. Investigation includes an independent review of the case, feedback of lessons learnt to the local team, and through the LMS, maternity Clinical Network and ODN for wider dissemination where appropriate.

Mortality review. LMSs are working to improve and standardise investigations into serious incidents and relevant actions are expected to be included in local transformation plans. LMSs must ensure that all neonatal deaths are investigated at a local level using a standardised framework including root cause analysis and reported nationally to support learning. Each Baby Counts (RCOG) investigates local review quality for term babies. Local maternity systems and networks should ensure that, following birth at 23 weeks of gestation or more, every death (100%) in the delivery room and neonatal unit is investigated, and that lessons are learned, implemented and shared though maternity Clinical Networks. Trusts should adopt appropriate methodology as it becomes available, including the Perinatal Mortality Review Tool (https://www.npeu.ox.ac.uk/pmrt) and the Child Death Audit Guidance, both of which will be published by the end of 2017 and in line with the Serious Incident Framework.

Neil Marlow
Chair, Neonatal Critical Care CRG Services

29 August 2017

James Palmer
Medical Director Specialised

NHS England

Appendix 2

Further information regarding the South West Neonatal Network ATAIN (Avoiding Term Admissions into Neonatal Units) programme.

http://www.swneonatalnetwork.co.uk/media/101820/sw-term-admissions-2017-main-report.pdf

Notable South West conclusions from 5 years of data:

- In 2016, 8 of the 12 neonatal units in the SW admitted more than 5% of live births as term admissions to NNU.
- Had these 8 units all reached the ATAIN 5% target in 2016 there would have been at least 740 fewer term admissions to NNU.
- Over the past 5 years the greatest increase in term admissions has been seen for suspected infection increasing from just 1 admission in 2012 to 671 admission in 2016 and accounting for 23% of all term admissions across the SW.
- Across the SW 12% (n=358) of term admissions to NNU received no treatment other than observation during their neonatal care period and a further 48% (n=1425) received only 'limited' treatment (those that could potentially be provided on a TC or PN ward). Indicating that there is substantial opportunity to decrease NNU term admissions if greater options for care on a TC or PN ward were available

An action plan has been developed by the ATAIN project working group to support the national work programme which is set to release an implementation pack to local commissioners by the end of 2017 for implementation early 2018. A summary of actions to be undertaken is included below with the few in bold that directly mention the relationship with LMS's:

- Appoint maternity and neonatal ATAIN leads in every Trust, to be responsible for leading ATAIN programme and working with the Maternity & Neonatal Networks to address findings.
- Maternity and neonatal ATAIN champions to audit at Trust level to establish reasons for admission and identify interventions to address findings of admissions considered to be avoidable.
- Benchmark and report at ODN and MCN level to establish providers within each network with higher than expected term admission rates and activity
- **ATAIN scheme to be included as a LMS Plan priority objective. Network reports to be made available to LMS Boards with MCN and ODN representation of ATAIN programme on LMS Boards. Support and oversight through LMS as part of local plans to care for mother and baby as a single entity where safe to do so.**

- **NHS England/NHS Improvement regional teams to host an ATAIN event involving LMS and relevant stakeholders. Aim of event is to develop key relationships across LMS's and for teams to learn more about the ATAIN programme while sharing insights and good practice**.
- Identified lead commissioner within the regional team who will be responsible for addressing the service needs identified through the reviews.
- **Service redesign as a result of the need to address findings from reviews of ATAIN must involve service users, drawing on Maternity Voice Partnerships, parent representatives within ODN's and LMS.**
- Mandatory completion of the HEE e-Learning for Health ATAIN programme. Trusts to introduce training and report number of clinical staff who have completed e-learning package

Appendix 3

Neonatal Specification	E08/S/a
Core Requirement 1	All babies <27 weeks should be born in a network level 3 unit (NICU)
Core Requirement 2	A workforce plan must be in place, designed to maintain sustainable staffing levels based on the DH Toolkit standards and in line with predicted increased in birth rate. Each unit must work towards an agreed plan with commissioners to have nurse staffing levels based on the following nurse to baby ratios: 1:1 Intensive Care 1:2 High Dependency 1:4 Special Care
Core Requirement 3	Trusts must ensure that they are able to securely maintain accurate, reliable computerised records of patient-level and unit-level data. Systems must be capable of capturing operational activity. The data must be suitable for retrieval, analysis and presentation stratified by month, calendar year or financial year as required.

Appendix 4

Neonatal Critical Care Quality Indicato