RCPCH Invited Reviews Programme

Design Review

Northern Neonatal Network / NHS England

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Executive Summary

Around ten percent of new-borns in the UK require some form of additional care in the first few hours or days of life but only a relatively small minority are born so small, so soon or so sick to need high dependency or intensive care from specialist neonatologists for the first crucial phase of their lives.

Hospitals have always shared expertise and have transferred infants to where highly specialised care can be provided. During the early nineties the sixteen units[1] in north east England and north Cumbria set a national example for collaborative working, and transfers of infants out of this region have always been rare. Over the past decade, however, there is a view that the 'network' has lost momentum with specialist care spread too thinly and a resistance to reconfiguration. Planning and contracting for neonatal care is increasingly carried out by individual NHS Foundation Trusts with less adherence to a network 'vision'. This is likely to reduce the overall efficiency and effectiveness of care for infants compromised by extreme prematurity and or illness.

The RCPCH was invited by the Specialist Commissioner to provide an external independent opinion on the arrangements for neonatal intensive care in the region. There are four units, at Newcastle, Sunderland, Middlesbrough and Stockton providing this level of care for the sickest, smallest infants in the region, but they are not compliant with the latest standards from the Department of Health and the British Association of Perinatal Medicine (BAPM) [2]. For over ten years numerous local reviews had recommended a change in the current configuration of services but despite the consistency of all the review findings they have all been rejected or blocked by local providers.

Terms of Reference

a) Consideration of current/proposed service arrangement for neonatal care, specifically focussing on Intensive care provision.

b) Consideration of strategic models for providing sustainable and compliant neonatal care within the Network catchment.

c) Provision of a report including options and recommendations setting out the above from a perspective of clinical safety and quality and compliance with standards.

This review provides an external opinion and recommendations for the network, providers and commissioners of neonatal care in the region. The RCPCH team met a wide range of unit staff, commissioners and others such as those responsible for

[1] At this time there were special care units at Bishop Auckland, Hexham, Shotley Bridge, Hartlepool and Northallerton. All are now closed leaving eleven units in the current network.
[2] DH 2009 Toolkit for High Quality Neonatal Services, BAPM 2010 Service Standards for Hospitals Providing Neonatal Care (3rd edition)

medical training and strategic planning of paediatric and obstetric care, which have clear interdependencies with neonatal service. Contact was made with other network managers and various data was evaluated enabling quantitative and qualitative comparisons to be made.

The staff in the four intensive care units, in the seven special care units and those leading the network are clearly fully committed to the care of neonates, work incredibly hard and generally get on well, with a high level of respect and professional collaboration.

There are however problems in three main areas which are significantly affecting the short and long term outcomes for infants. These need swift action by the Specialist Commissioner, individual providers and the network to achieve a safe high quality and sustainable neonatal intensive care service.

Specifically;

- Neonatal transport must be re-commissioned as a stand alone service. The current service represents a very significant and on-going risk to patient safety. This is a particular issue when the retrieval service is staffed on an on-call basis and providers must urgently ensure that 'backfill' staff are in place until the transport team is fully supernumerary.

- The Network is not working effectively; it is failing to influence providers or commissioners with a single voice and has 'lost pace' compared with others in England. There appears to be a 'disconnect' between the decisions and recommendations of the Network Board and the planning and funding discussions between the Specialist Commissioner and individual Foundation Trusts.

- Redesignation of all units must happen swiftly, driven by the Specialist Commissioner and advised by the Network, to provide a truly integrated pathway of care that meets current standards and learns from other networks. The report proposes that the Royal Victoria Infirmary (RVI)) in Newcastle and the James Cook University Hospital (JCUH) in Middlesbrough are strengthened as Neonatal Intensive Care Units (NICU). The Sunderland Royal team should work closely with RVI, to relieve pressure on their capacity, caring for infants over 26 weeks, and the expertise at North Tees would be more effectively deployed if the unit focussed on caring for infants over 30 weeks gestation, with its specialist staff strengthening the team at JCUH to provide high quality intensive and high dependency care.

The arrangements for costing and funding specialist neonatal care were opaque and differ for each provider, adding to the complexity of strategic planning. During the course of the review a decision not to fully fund a proposal for a joint neonatal and paediatric transport service demonstrated to the Review team the dysfunctional nature

of the current working arrangements between the network, the Commissioning team and relevant partners particularly given the on-going risk to patient safety.

The Network describes a shortage of ‘funded’ cots in the service, but whilst one unit appears excessively busy, others are less so; the data has until recently been based on historic categories of care whilst other networks have used the new definitions for some time. Sharper classifications of care, unit designation and transfer criteria, a focus on risk/impact and compliance will provide evidence for accurate modelling of demand and capacity and consequently inform decisions on how limited service funding can be best utilised.

Overall the Network Board, supported by specialist and local commissioners, must set a vision for the whole network that is adopted by provider trusts, recognising the political, policy and financial landscape in which they operate. It must use the latest evidence and standards to design a quality driven, cost-effective service that meets agreed levels of care for infants across the region and monitors them robustly. Where financial or other constraints prevent full compliance by a Trust, the impact of derogation on other units and the quality of care for infants across the network must be determined and managed by the Network and Specialist Commissioner.

The greatest risk to the service and patient safety is further delay. For over ten years reconfiguration and new models of care have been advocated but prevarication and the organisational self-interest inherent in the NHS internal market have disabled agreed developments which would have made better use of NHS resources and improved care for families. There should be no further procrastination.

1 Introduction and background

Overview

1.1 This report, commissioned by the Specialist Commissioner on behalf of the Northern Network Board, sets out the Review team's findings following extensive visits, meetings and data analysis. It draws on a wide range of material sought through interview, data and information requests and general research.

1.2 The Review team found during the review many areas of good or developing practice which were outwith the core purpose of the review. We have referenced these where appropriate to the main issues but the remaining material is appended or available separately

The services

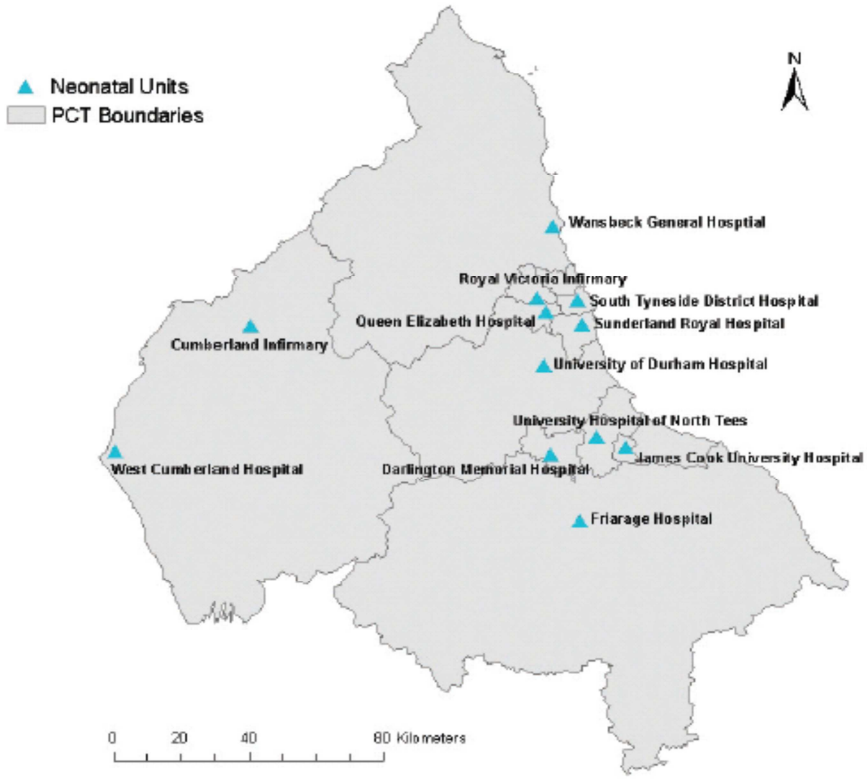
1.3 The Northern Neonatal Network is one of the largest of the neonatal Operational Delivery Networks (ODN) in England in terms of geographical area covered. The eleven units in the north east of England and north Cumbria are managed by eight different NHS Foundation Trusts[3] and although the units have been working co-operatively for over 23 years this was the last formal network to be established in England in 2010. Four of the units are reported to be working as Level 3 or Neonatal Intensive Care (NICU), and seven as Level 1 or Special Care (Baby) Units (SCUs)[4]. These classifications are the result of local decisions and not a formal designation process.

1.4 The units between them cater for a geographically disparate population of over 3.2 million people with approximately 35,000 births per year. The population is mainly concentrated in a small number of conurbations around Newcastle, Sunderland, Middlesbrough, Durham, Darlington and Stockton which are well connected by major roads. The Network boundaries stretch from North Yorkshire to the Scottish Border and transport links to and from the western units are poor. There is a range of population challenges, from the densely populated cities to the remote and rural communities in Cumbria with pockets of wealth and of poverty across the area. The birth rate across the region is relatively stable.

[3] North Cumbria University Hospitals NHS Trust is functionally managed by Northumbria Healthcare NHSFT and formal merger is expected soon.

[4] Defined by BAPM 2010. Formal designation of all units has not been carried out. In fact we were told that the SCUs all offer CPAP and care for >30 weeks so are working at an enhanced level

Unit	Type	NHS Trust	Births[5]
Royal Victoria Infirmary (RVI)	NICU	The Newcastle upon Tyne Hospitals NHSFT	7387
Sunderland Royal	NICU	City Hospitals Sunderland NHSFT	3267
University Hospital of North Tees	NICU	North Tees and Hartlepool Hospitals NHSFT	3259
The James Cook University Hospital (JCUH)	NICU	South Tees Hospitals NHSFT	4162
Friarage Hospital [6] - closed	SCU		1221
Wansbeck in Ashington	SCU	Northumbria Healthcare NHSFT	2425
Queen Elizabeth Gateshead	SCU	Gateshead Health NHSFT	1748
Cumberland Infirmary	SCU	North Cumbria University Hospitals NHST	1696
West Cumberland Hospital	SCU		1292
South Tyneside	SCU	South Tyneside NHSFT	1397
University Hospital North Durham	SCU	County Durham and Darlington NHSFT	3004
Darlington, (and Bishop Auckland MLU)	SCU		2249



[5] Live Births 2013-4 from Network annual report 2013-4
[6] Closed October 2014 with most activity transferring to The James Cook University Hospital

1.5 The Network is hosted by City Hospitals Sunderland NHSFT which is commissioned to recruit and manage the network team and to ensure that the Network Board has clear terms of reference, constitution and governance arrangements. The Board is chaired by the Chair of South Tees Hospitals NHSFT. The Board is composed of clinicians and managers representing each provider unit who are authorised to make commitments on behalf of their host organisations to implement decisions made collectively by the Network Board. Managerial representatives are nominated by chief executives and representative doctors and nurses are those whose designation in relation to neonatal care in their Trust naturally leads to network responsibilities.

1.6 The four sites providing neonatal intensive care fall into two geographical areas – the RVI in Newcastle and Sunderland Royal are around 14 miles apart in the Tyne and Wear area and North Tees and James Cook (JCUH) hospital sites are around 11 miles apart in the Teesside area. All four sites have maternity and paediatric inpatient services within the hospital.

1.7 The RVI and JCUH each provide 24/7 retrieval transport of sick and premature infants requiring intensive care from outlying units. The two services work together to identify suitable available cots across the four intensive care units. Transfer is by portable incubator units within regular emergency ('999') ambulances using staff from the host units.

Commissioning and service planning

1.8 Neonatal care and transport for the region are commissioned against the National Neonatal Critical Care and Neonatal Transport service specifications by NHS England - North (North East & Cumbria). Contracts and funding are negotiated by the Specialist Commissioner through NHS England with individual Foundation Trusts using a funding formula based on historical activity. For two of the units this includes an undisclosed sum for provision of the neonatal transport service. Special Care is commissioned through a separate funding stream from NHS England and some Trusts indicated that neonatal care is cross-subsidised in order to provide a local service.

1.9 For over ten years a sequence of reviews and studies[7] have concluded that neonatal intensive care is provided in too many centres in the region. Supporting four discrete sites located so closely together is inefficient and proving difficult to staff effectively. Each review was not implemented, often due to an imminent change of management somewhere within the system. The introduction in 2014 of increasingly prescriptive professional standards for the workforce in intensive care units has highlighted the need for action to be taken in order that a realistic strategy designed to meet those standards can be put in place.

1.10 This report aims to provide the rationale and model for the changes that need to occur to meet current standards of care and the expectations of families and staff.

[7] see appendix for details

2 The Review Process

2.1 The RCPCH was approached in December 2014 to conduct an 'Invited Review' of the Neonatal Intensive Care service provided by the network. The review was commissioned by NHS England Specialist Area Team but delegated to the Neonatal Operational Delivery Network in terms of management and support.

2.2 The terms of reference (see Appendix 2) and Review team (appendix 1) were agreed at the Network Board meeting on 21st January 2015. Following that meeting the RCPCH gathered from participant neonatal units a range of documentation and data in order to begin the review work. A standards compliance questionnaire was also prepared which the four units which provide intensive care were invited to complete.

2.3 The Review team visited these four units and three of the SCUs (South Tyneside, Durham and Queen Elizabeth Gateshead) during February 2015, conducting interviews and discussions with individuals and groups selected by the Trusts, representing the range of staff working with or in the neonatal service.

2.4 Further visits to the area by Review team members took place in March and April, involving staff from the four remaining SCUs (West Cumbria, Darlington Carlisle and Wansbeck) and other key personnel involved with the neonatal, maternity and paediatric networks. Contact was made with the obstetric and paediatric Heads of School from the Northern Deanery and the National Specialist Commissioning Clinical Reference Group (CRG) was approached to provide strategic context.

2.5 Data was gathered by network managers from the Badgernet system for the Review team's use. The RCPCH's Workforce Census was accessed to provide comparative data to inform the review alongside publicly available data from RCOG and HES and contact was made with network managers around the UK to provide comparative information.

3 The case for change and national policy

Standards

3.1 The core standards against which neonatal services In England are expected to be designed, both at a site level and across a network of units are set out in seven key documents (please see Appendix 5 for details)

- Neonatal Toolkit (DH 2009)
- NICE Quality Standard (DH 2010)
- BAPM Hospital standards (2010) and Categories of Care (2011)
- BLISS Baby Charter (2010) and Audit tool (2011).
- NIC Units Medical Staffing - A Framework for Practice (BAPM 2014),

3.2 These documents define professionally agreed standards for how and where care should be delivered in relation to clinical acuity, and set out specific requirements for staffing, clinical capability, governance, facilities and arrangements for families.

3.3 Of these standards, those which set out the skilled workforce required to meet the clinical needs of infants have been the most challenging for UK units to meet. Financial restrictions limit establishment of additional posts, but a limiting factor has been the availability of sufficient, suitably qualified permanent medical staff at middle grade (Tier 2 – traditionally covered by medical registrars) and neonatal nurses of sufficient experience and seniority to deliver appropriate levels of specialist care.

Workforce

3.4 Nationally sixteen of the 40 NICUs in England have six or fewer funded consultant neonatology posts. Neonatal consultant vacancies stand at 10%[8] although there are around 30 neonatal CCT holders entering the workplace each year. Increasingly NICU consultants are being required to work at least part resident on call, which may be making these jobs less attractive

3.5 Recent analysis by the National Neonatal Clinical Reference Group (unpublished) and feedback from neonatal network managers indicate national difficulties in resourcing and recruiting suitably trained neonatal nurses to meet current standards. It is expected that guidance around derogation (assessing compliance with national standards) may be available soon, and providers should already be working closely with their networks, deaneries and nurse training providers to plan for the needs of the current and future workforce.

3.6 It is anticipated that networks and commissioners will adopt the 2014 BAPM guidance, driving consolidation and re-designation of units, centralising specialist activity and increasing throughput. Fewer units will enable recruitment of a full complement of medical staff across all three tiers, utilised effectively and supporting the development of a high quality training environment.

[8] RCPCH workforce census 2013

4 Compliance with national guidance and standards

The four units providing intensive care, and the overall network were reviewed against the documents listed in 3.1 above. Whilst compliance with all standards is important, and indeed most were being met, the Review team prioritised those considered essential for the service to be:

- safe (having sufficient suitably qualified staff for the work-load of babies at all times and sufficient cot capacity to meet demand)
- sustainable (demonstrating adequate recruitment and with specialist interdependencies, such as surgery, cardiology and specialist therapy in place)
- acceptable to parents (close to home, adequate parent facilities, offering choice)
- value for money (appropriate occupancy and activity levels)

The findings are tabulated overleaf and summarised below.

4.1 Capacity and Activity

4.1.1 The network monitors activity and occupancy of the units based on acuity, available staffing and/or physical cots, recorded by each unit on the Badgernet system. However,

- The Network has (until April 2015) used the BAPM 2001 definitions of special (SC), high dependency (HD) and intensive (IC) care, rather than the 2011 Categories of Care, which are clearer about what is classified as intensive care and link to the healthcare resource group (HRG) specialist funding categories.
- Analyses often combine IC and HD cots together when determining occupancy for NHS England commissioning purposes, despite these having very different nursing and medical needs. Quarterly staffing reports have mapped actual activity against staffing for the past 2 years but this difference in approach risks undermining the discussions about activity and negotiation of staffing and funding.
- The SCUs differ on the criteria for transfer of infants; West Cumbria indicated that they aim to transfer all under 30 weeks gestation, Durham will tend to transfer only those below 29-30 weeks whilst South Tyneside tend to transfer all below 32 weeks. All units will assess infants and discuss them with either transport team consultant, arranging transfer where the need for support is clearly ongoing, such as for total parenteral nutrition (TPN).

4.1.2 Notwithstanding the points above, the network has analysed occupancy and capacity of all eleven units for the year to March 2015. Findings include:

- Special care (SC) capacity appears to be sufficient across the network for demand and activity fluctuations

- Total IC/HD capacity is manipulated to manage demand. Just two infants were transferred outside the network in 2014, by far the lowest for any network[9] and the National Neonatal Audit Project (NNAP) indicates in 2013 less than 4%[10] of transfers were outside the region compared other networks reporting 9-34% of infants transferring out. This masks a service that 'copes' rather than complies with standards,
- The data as presented show the RVI as extremely busy, with average unit occupancy (IT, HC and SC) exceeding 100% on 75 days (21% of the year) and average occupancy recorded at 93.6%. It is possible that some of the 'transferred-in' activity could have been transferred out or diverted to Sunderland which is less busy, but most activity was inborn.
- Activity overall exceeds the 'funded' IC/HD provision in three of the four units, with Trusts providing 'top-up' support. With the current tailored funding arrangement out the detail of 'funding' and precise activity this data is difficult for the Specialist Commissioner to act upon.
- Overall, the network consistently reports being under-funded by 'eight IC/HD' cots, and has proposed four be funded at RVI as a matter of urgency.

4.1.3 The BAPM 2014 standards set activity levels to support establishment of a NICU, i.e. the 'critical mass' to support training and maintain expertise of specialist nurses and doctors. The table on pages 15-18 shows how the four units are currently performing in relation to two of the standards. Although some of the Very Low Birth Weight (VLBW) infants have been double-counted due to transfers between units, against these new standards and current model of service, Sunderland and North Tees do not provide sufficient neonatal intensive care to maintain full NICU status.

4.2 Medical Staffing

4.2.1 The four units do not meet the requirements for staffing and there is no network-based staffing strategy.

4.2.2 The **RVI** is staffed against 2010 medical staffing standards for a regular-sized NICU, but falls short at Tier 1 and against the 2014 requirements for augmented rotas commensurate with its maternity activity exceeding the threshold of 7000 births per year. Staffing concerns were highlighted during the derogation process in summer 2014, and a costed strategy for expansion was presented to the Trust Board in January 2014 but a decision on further recruitment has not been made. Consultant level (Tier 3) support is on site up to 10pm seven days a week and thereafter on call from home.

4.2.3 **Sunderland** does not yet meet medical staffing standards for an intensive care unit. Whilst the Tier 1 rota is compliant the Tier 2 rota is not fully separate although with recent appointments there is 70% separation with a business case approved in principle

[9] NNAP audit data question
[10] The NNAP report states 4% but this was disputed downwards by the network

for further posts. This was flagged at the derogation process[11]. Both the Tier 1 and Tier 2 rotas are 50% staffed with ANNPs. Such a level of reliance on ANNP's at Tier 2 is unusual and the Review team was unable to comment as to whether the ANNPs' preparation for this level of practice, by job based competencies assessment, has the same level of academic rigour as an equivalent medical practitioner at ST4 and above. Given the absence of nationally-agreed qualifications and competencies for ANNPs working at middle grade, it is incumbent on the Trust to demonstrate that the model provides a safe level of care with clear accountability and supervision arrangements. The consultant (Tier 3) rota is incomplete. Five consultant neonatologists provide on-site support for eight hours a day Monday to Friday and five hours a day at weekends, plus an additional hour of late evening cover from 9pm seven days a week.

4.2.4 **North Tees** has just 7.33 whole time equivalent (wte) staff on the Tier 1 rota, with five qualified ANNPs working a total of 1.33 wte. When training is complete in September the complement will increase to 3 wte on the rota with plans to recruit and train more. Tier 2 is separate with a Research Fellow and an 'echo' fellow included in the rota. The Tier 3 rota is however non-compliant with just five neonatologists providing a ten hour daily presence.

4.2.5 **JCUH** is currently non-compliant; although there is full separation at all three tiers not all posts are filled, and there are only seven fully funded posts at Tier 1. The greatest concern at this site is the depletion of the service when the transport squad is mobilised as a senior Tier 2 doctor (or consultant) goes out and a paediatric registrar on call covers the service. The five on-call consultants do remain on site until 10.30/ 11pm seven days a week.

[11] the term 'derogation' is a process by which provider trusts declare any non-compliance with a national service specification; their contract may reflect this and include an action plan to achieve compliance.

Compliance analysis – Neonatal Standards for NICUs

Standard		RVI	Sunderland	JCUH	North Tees
Capacity (see 4.1)					
Spec 3.2.9 Each unit .has….capacity … for their booked maternity population ....planned on an average 80% occupancy	Occupancy Total cots	**93.6%**	**58.8%**	**73.9%**	**63.7%**
	Funded IC/HD cots	**103.7% (16)**	**92.2% (7)**	**79.5% (10.5)**	**123.4% (4.5)**
Activity (see 4.1)					
	Year	**12-13 13-14**	**12-13 13-14**	**12-13 13-14**	**12-13 13-14**
2014 NICUs should have a throughput of at least 100 VLBW infants per year (VLBW = less than 1500g)	Number[12]	**186 163**	**67 72**	**128 124**	**84 79**
2014 NICUs should undertake at least 2000 days of respiratory support per annum	Days support	**4873 5210**	**1729 1661**	**2429 2678**	**1551 1936**
Medical Staffing (see 4.2)					
BAPM 2010 – Tier 1 separate rota of 8. Paediatric ST1-3, ENNPs or ANNPs, specialty doctors.		**5 ST1-3 1 trust doctor separate rota**	**4 ST1-2 4 ANNPs separate rota**	**8.2 medical 5.0 ANNP separate rota**	**6 ST1-3 1.33 ANNP separate rota**
BAPM 2010 – Tier 2 separate rota of 8. Paediatric ST4-8, specialty doctors, other non-training grade doctors, ANNPs (with appropriate		**8 ST4-8 0.5 Sp doctor 3 trust doctors**	**3 ANNP 1 ST3-8 70% separate**	**4.8 medical 1.0 ANNP Separate rota**	**3 ST4-8 2 Fellows 3 trust doctors**

[12] Note – this figure may include some double-counting of transferred infants.

Standard	RVI	Sunderland	JCUH	North Tees
additional skills and training), resident neonatal consultants	**separate rota**	**82% by Oct 15 100% late 2016**		**Separate rota**
BAPM 2014 - Minimum resident out of hours care should include a Tier one clinician - ANNP or junior doctor ST1-3 and at Tier 2 an experienced junior doctor ST 4-8 or appropriately trained specialty doctor or ANNP	**Meet minimum but inadequate for size of unit.**	**Some shared cover at night from paediatric T2 doctors**	**T2 overnight plus T1 24hours 60-70% filled on each rota , gaps filled by locums**	**2 T1 and 1 T2 daytime and 1T1 and 1T2 OOH**
BAPM 2010/14 – Minimum 7 Consultant staff should be on the GMC specialist register for neonatal medicine or equivalent and have primary duties on the neonatal unit alone As units increase in size more staff would be required at all levels:	**8 x Consultants meets 2010 standards**	**5 x Consultants**	**5.6 x Consultants**	**5 x Consultants**
BAPM 2014 NICUs with more than 2500* intensive care days per annum should double tier 2 cover at night by adding a second experienced junior doctor ST4-8 or appropriately trained specialty doctor or ANNP. A consultant present and immediately available on NICU in addition to tier 2 staff would be an alternative	**3213 days 1 T1 and 1 T2 at night Consultant on call '20 minutes away'**	**977 days Not applicable**	**1705 days Not applicable**	**1177 days Not applicable**
BAPM 2014 NICUs co-located with a maternity service delivering more than 7000* deliveries per year should augment their tier 1 cover at night by adding a second junior doctor, an ANNP and/or by extending nurse practice	**7387 deliveries 1 T1 and 1 T2 at night**	**3267 deliveries Not applicable**	**5383 deliveries Not applicable**	**3259 deliveries Not applicable**
BAPM 2014 It is recommended that all NICUs seek to extend consultant presence on the unit to at least 12 hours per day.	**8am to 10pm 7 days a week**	**9-5 Mon-Fri 9-2 Sat – Sun 9-10pm (1 hour) 7 days a week**	**8am to 11pm 7 days a week**	**10 hours a day Mon-Fri, 8 hours a day Sat-Sun**
Toolkit 2.3.1 Providers … are working towards increased direct consultant presence during intensive care, including … 24-hour cover for NICUs'	**Business case to Board 2013-4**	**No indication of a strategy in place**		

Standard	RVI	Sunderland	JCUH	North Tees
BAPM 2014 NICUs undertaking more than 2500* IC days per annum should consider the presence of …2 consultant led teams during normal daytime hours	**Two daytime teams**	**Not applicable**		
Nursing and Allied Health Professional staffing of NICUs (see 4.3)				
Spec 3.2.10 A workforce plan must be in place based on DH Toolkit standards.	**No network workforce plan seen – national work in hand**			
All NICUs should have sufficient nursing staff to deliver BAPM's …nurse to patient ratios (days Q1 2015 when standards were met)	**31.1 %**	**7.8%**	**30%**	**61.1%**
BAPM 2010 6.1 / Spec 3.2.11 Access to dietetics minimum 0.1 WTE/IC cot	**Ad hoc**	**Paediatrics -same da response**	**Neonatal dietician (0.1 wte total)**	**Trust service, not specific neonatal**
BAPM 2010 6.2 - Spec 3.2.11 Access to specialist neonatal / respiratory Physiotherapy / OT	**1wte developmental role**	**Paediatric physiotherapy with special interest – same day response**	**Paediatric MDT physiotherapist available daily, visits 2/3 times weekly.**	**On call, quick response, all neonatal trained, not funded for neonatal**
Standard	**RVI**	**Sunderland**	**JCUH**	**North Tees**
BAPM 2010 6.3 - Spec 3.2.11 Access to specialist Speech and Language Therapy	**0.2wte**	**Same day assessment**	**Community /ward based, links to RVI &Sunderland Plan developed to expand (0.4 wte)**	**Not specifically linked to neonatal unit**
BAPM 2010 - Spec 3.2.11 Pharmacy 10-20 mins per IC / HD cot day	**Daily visit weekly round**	**Paediatric pharmacist when requested**	**Lead for W&C 0.45wte, ward round & monthly meetings**	**Neonatal pharmacist visits 1-2 times a week and ward rounds**
Family Focus (see 4.5)				

BAPM 2014 All NICUs should adhere to the Bliss Baby Charter Standards		**No unit fully compliant, all have completed audit and working to develop and implement action plans. See chapter 7 for detail**			
Toolkit 3.11 One room per intensive care cot plus 2 per unit for rooming in		**3 on ward, plus 23-room Crawford House**	**2 on ward, 5 in Woodford Williams Lodge**	**4 in flats plus 4 in hospital**	**2 rooms.**
BAPM 2014 All NICUs should submit outcome and benchmarking data to a benchmarking organisation		**Badgernet data collected. Some concerns raised over quality of data from Sunderland, NT and JCUH. Sunderland moved to B'Net 2014**			
Network-related standards (see 4.6)					
2014 Where geography allows within networks, NICUs should be provided in centres that also deliver neonatal general surgery and if possible cardiac surgery		**Regional centre general surgery. Cardiac surgery 2.7 miles away**	**None**	**Some neonatal general surgery and cardiac support**	**None**
BAPM 2014 All VLBW referrals into NICUs should be in utero. Where transfer is ex utero there is case review at network level	Proportion of In-utero infant transfers <30 weeks 2014	**Not yet policy across network**			
		48% 24/50	**52% 17/33**	**22% 4/18**	**33% 7/21**

4.3 Nurse staffing

4.3.1 Recommended levels of nurse staffing are directly dependent upon numbers and acuity of occupied cots[13]. There are two measures of compliance –

a) Funded staff in post based on average activity levels, assuming 80% occupancy, and
b) Retrospective analysis of the proportion of time that nurse staffing meets the requirements against acuity of the infants and what proportion of the time the BAPM standards are actually met.

4.3.2 The latter measure is calculated both nationally and locally through Badgernet and, assuming sound data input, better reflects management of absences and the care actually received by infants.

	2014				2015
	Q1	Q2	Q3	Q4	Q1
RVI	55.6%	49.5%	59.8%	50.0%	31.1%
Sunderland	27.8%	15.4%	19.6%	18.5%	7.8%
North Tees	60.0%	40.7%	26.1%	56.5%	61.1%
JCUH	11.1%*	13.2%*	9.8%*	28.3%	30.0%

Percentage of days when nurse staffing met BAPM 2010 standards

** measured against BAPM 2001*

4.3.3 The table above shows compliance with the nurse staffing requirements using BAPM's 2011 categories of care. Nurse staffing is insufficient in all four units with Sunderland consistently very low and RVI's numbers declining. Data for JCUH was combined with the separate Friarage site until October 2014 using BAPM 2001 classifications so meaningful data is not available

4.3.4 **The RVI** noted serious deficiencies in nursing staff numbers, citing over-occupancy and indeed had reduced the numbers of cots during February/March from 34 to 26 as a consequence of delays in recruiting after a period of high nurse staffing turnover. Nurse staffing for transfers is from within current establishment which is depleted for a significant period whilst transfers are undertaken.

4.3.5 **Sunderland** reported significant difficulty in recruiting nursing staff to the unit, seriously affecting its ability to provide safe and effective services. The Review team were told at their visit that there were six staff rostered, including two support staff per shift to cover the whole unit including 7 IC/HD cots in one room. By any measure this is inadequate.

[13] 1 nurse per cot for ICU, 1 nurse per 2 cots for HDU 1nurse per 4 cots SCU

4.3.6 The increases in quarter 4 at **JCUH** shown in the table above were due to closure and transfer of staff from Friarage hospital SCU, and from April 2015 a further 7 WTE staff nurses have started work. The unit remains under-established with 10 per shift rather than the 12 required and rosters a 1:2 ratio in IC and 1:3 for HD (the ratios should be 1:1 and 1:2 respectively). The number of staff available is depleted when the transport squad is called out.

4.3.7 **North Tees** is comparatively well staffed since the transfer of Hartlepool's activity and staffing to the unit in October 2013. They reported being fully staffed to 80% occupancy, although it was not clear whether this was IC or HD occupancy and this is not evidenced in the table above although it is the best of the four units in terms of nurse staffing.

4.3.8 Three of the four services (not North Tees) have identified nurse staffing as a risk on Trusts' risk registers reflecting a national issue which the Specialist Commissioning Clinical Reference Group (CRG) is monitoring carefully.

4.3.9 The Review team found evidence of some excellent practice in terms of nursing. These included nursing career pathways; role and individual development opportunities through access to education and training and exposure to experience. But there were also shortfalls, mainly in funded establishments. A number of services reported they survived on the good will of their nursing workforce to be flexible to meet fluctuations in demand. One service stated it relied heavily on staff doing additional shifts to cover routine shifts. Likewise opportunities for nurses to develop personally and professionally were very variable, often dependent on the strengths or weaknesses of medical rotas. Roles and responsibilities were often found to be very similar but pay grades, job descriptions, and job titles differed across the Network. Some services have been innovative in developing their non-professional workforce, including use of assistant practitioners at JCUH; such models should be considered on a network basis although should not compromise compliance with published standards Several of the units, including the SCUs reported that there is a 'bulge' of highly experienced nurses coming up to retirement age.

4.3.10 A key issue is that there is no overarching nursing or medical workforce strategy for the network In relation to nursing this would underpin sustainability by having a cohesive approach to commissioning post registration education and training, including the ANNP programme, recruitment and retention and service innovation. (see section 6)

4.3.11 Proposals to establish a two-year local course for ANNPs have been developed with commitment gained from network Trusts to support the course, but this has failed to translate into support to date from Health Education North East (HENE) which would need to approve and support the course.

4.4 AHP, multidisciplinary teams and other support

4.4.1 The Review team were equally impressed with the professionalism and commitment provided by allied health professionals (AHP), although again the Review team found the AHP support i.e. dietetics, physiotherapy, occupational therapy, and speech and language therapy, to be patchy across the four main sites. None of the four intensive care sites offered their therapy and dietetics staff across the network to advise the SCUs.

4.4.2 There appeared to be good multi professional working at JCUH who reported dedicated sessions from the team to the neonatal service, using paediatric therapists, but linking with RVI and Sunderland and using standard tools. Other units such as Sunderland were able to access specialist help such as dietetics from the generic paediatric service although there was not a specific neonatal practitioner; Sunderland explained that further provision was awaiting agreement of a business case. Therapy and dietetic services at RVI are shared with paediatrics but from a different directorate so access is difficult. Dedicated specialist pharmacy services were available in all four centres. Overall, though, provision is not compliant with standards across the network or in each unit, and requires investment in dedicated staff to meet the standards and bring the NICU services up to par with other services in England.

4.5 Family Focus

4.5.1 None of the four units were fully compliant with the standards for facilities and equipment for families but through the BLISS support nurse all had audited and set action plans in place. More information in section 7.

4.6 Network requirements

4.6.1 The co-location (at the RVI) of neonatal surgery and neonatology are important drivers for defining a ‘lead unit’ for a network. Neonatal cardiology and cardiac surgery are provided at the Freeman Hospital, some 2.7miles from the RVI but all other neonatal surgery is provided at the RVI. About 80 infants per year transfer in for surgery but many of the larger infants are cared for in the Paediatric Intensive Care Unit rather than the NICU due in part to shortage of cots. This is inappropriate and the RVI neonatal strategy proposes that such neonates are cared for together.

4.6.2 The Review team were also advised of a significant deficiency in paediatric radiology staffing at RVI. This is a major issue for the region as it is affects patient safety with the potential to delay urgent surgery, but following the review visit the Trust has apparently recruited to 24/7 consultant cover.

4.6.3 The BAPM 2014 guidelines use fresh evidence to strengthen the importance of in-utero transfer of very low birth weight infants. The network and participant neonatology teams have a key role to play in facilitating this through ensuring firstly

that their obstetric colleagues recognise the importance of transfer rather than attempting local intervention, that receiving units are sufficiently resourced and that where transfer does not occur in-utero, there is a process for determining lessons learned. Data for transfers in to receiving units indicate there is still some way to go.

4.7 Outcomes

4.7.1 Measurement of outcomes for neonatal care is not straightforward. Most indicators rely on process measurement since mortality is too low to compare meaningfully between units with markedly differing case mix. Morbidity can be similarly difficult to judge. The National Neonatal Audit Project (NNAP) was established in 2006 and is now reporting increasingly reliably on ten audit questions for all units in England and Wales. Results for six[14] of these questions are below.

NNAP Audit Question			**2014**		
Regional NICU/HDU	RVI	SRH	JCUH	N.Tees	**National**
Do all babies <> 28+6 week's gestation have their temperature taken within first 4 hours after birth.	91%	100%	88%	79%	**93%**
Are all mothers who deliver babies between 24+0 and 34+6 weeks GA given any dose of antenatal steroids?	81%	90%	81%	70%	**85%**
Are all babies with a GA of <32+0 weeks or <1501g at birth undergoing 1st RoP screening in accordance with the current national guideline recommendations?	77%	100%	75%	60%	**89%**
What proportion of babies <33+0 weeks GA at birth are receiving any of their mother's milk when discharged home from a neonatal unit?	51%	59%	23%	19%	**57%**
Is there a documented consultation with parents by a senior member of the neonatal team within 24 hours of admission?	79%	100%	74%	87%	**84%**
Two year follow up – data quality[15].	72%	43%	26%	48%	

[14] The other four questions do not provide data suitable for comparative purposes. See www.rcpch.ac.uk/NNAP

[15] In the 2012 data report, less than half of the babies born at less than 30 weeks gestation had any health data at all recorded. This indicator reports the amount of health data entered by hospital.

4.7.2 Other data on outcomes can be gleaned from the MBBRACE project led by Leicester University. The MBRRACE stillbirth and neonatal mortality surveillance report for 2013[16] showed varying performance across the region. The stabilised and adjusted rates of mortality (the methodology used by MBRRACE to account for varying case mix and population size) for the Northern Operational Delivery Network showed that for neonatal mortality the Network's neonatal mortality was yellow (i.e. up to 10% below the national average) whilst for extended perinatal mortality the Network was red (i.e. more than 10% above the national average).

Crude and stabilised & adjusted stillbirth, neonatal, and extended perinatal mortality rates by Clinical Commissioning Group based on mother's residence for births in 2013

Clinical Commissioning Group	Total births	Mortality rate per 1,000 births [$]						
		Stillbirth [†]		Neonatal [‡]		Extended perinatal [†]		
		Crude	Stabilised & adjusted (95% CI) [◊]	Crude	Stabilised & adjusted (95% CI) [◊]	Crude	Stabilised & adjusted (95% CI) [◊ #]	
ENGLAND								
Cumbria	4926	3.86	4.24 (3.65 to 4.91)	1.83	1.88 (1.34 to 2.65)	5.68	6.23 (5.17 to 7.53)	●
Darlington	1262	3.17	4.18 (3.54 to 4.87)	3.97	2.00 (1.37 to 3.00)	7.13	6.17 (4.97 to 7.67)	●
Durham Dales, Easington & Sedgefield	2935	4.43	4.22 (3.66 to 4.98)	1.71	1.78 (1.21 to 2.51)	6.13	6.12 (5.07 to 7.45)	●
Gateshead	2342	4.27	4.20 (3.52 to 4.94)	2.57	2.02 (1.39 to 3.02)	6.83	6.17 (5.03 to 7.62)	●
Hartlepool & Stockton-On-Tees	3436	5.82	4.29 (3.69 to 5.03)	1.46	1.63 (1.09 to 2.32)	7.28	6.12 (5.17 to 7.51)	●
Newcastle North & East	1541	1.95	4.11 (3.39 to 4.74)	1.95	1.79 (1.21 to 2.56)	3.89	5.71 (4.50 to 6.90)	●
Newcastle West	1811	8.83	4.34 (3.68 to 5.34)	2.23	1.88 (1.27 to 2.73)	11.04	6.56 (5.37 to 8.19)	●
North Durham	2451	*	4.28 (3.76 to 5.15)	*	1.69 (1.11 to 2.60)	5.71	6.13 (5.09 to 7.45)	●
North Tyneside	2294	*	4.29 (3.71 to 5.20)	*	1.67 (1.06 to 2.37)	6.54	6.21 (5.07 to 7.57)	●
Northumberland	2823	*	4.23 (3.66 to 5.02)	*	1.67 (1.09 to 2.45)	4.96	6.00 (4.99 to 7.21)	●
South Tees	3515	*	4.13 (3.48 to 4.73)	*	1.78 (1.21 to 2.55)	4.84	5.78 (4.72 to 7.01)	●
South Tyneside	1615	*	4.19 (3.58 to 4.89)	*	1.82 (1.20 to 2.73)	4.95	5.96 (4.80 to 7.20)	●
Sunderland	3005	5.66	4.28 (3.71 to 5.12)	2.68	2.03 (1.36 to 2.89)	8.32	6.47 (5.28 to 8.01)	●
West Lancashire	1117	6.27	4.23 (3.61 to 5.03)	2.70	1.90 (1.32 to 2.83)	8.95	6.24 (5.16 to 7.69)	●

4.8 Transport

4.8.1 Retrieval and repatriation of infants requiring intensive or high dependency care is managed by in-house neonatal services run from RVI and JCUH which use ward-based staff to accompany a portable incubator in ambulances drawn from the emergency pool of vehicles. Nurses at RVI are supernumerary and very

[16] https://www.npeu.ox.ac.uk/mbrrace-uk/reports published 10/6/15

experienced, accompanying senior trainees or consultants on calls. At JCUH staffing of the retrieval service is not based on supernumerary staff. The services communicate well, covering each other when calls come in and the SCUs value the advice and support they receive from the teams. Occasionally infants may have to wait several hours to be transferred due to availability of ambulances or staff. SCU staff training has however been put in place by the network to help them manage and stabilise infants during this time. This is a well established and very well evaluated and received training day.

4.8.2 The Review team have significant concerns regarding the transport service for the following reasons:

- It relies on goodwill from the medical and nursing teams. Staff allocated to transport are not wholly supernumerary, leaving the host units at times dangerously understaffed when emergency retrieval teams are mobilised. The Review team is not aware of any additional staff being brought in to provide cover.
- Inefficient use of regular ambulances. The ambulance and their staff are unable to cover other emergencies for a significant length of time as a transfer may take a number of hours.
- Repatriations often have to be “fitted in” and infants may remain distant from home for longer than required awaiting transfer to their local SCU and blocking beds in the intensive care unit.
- SCUs sometimes organise some of their own repatriations as the transport service is not always able to undertake routine repatriations, despite the impact for parents and capacity. Inevitably such irregular transfers will be less able to meet current standards.

4.8.3 A proposal for a combined paediatric and neonatal transport service was submitted for funding in July 2013. In December 2014 Specialist Commissioners agreed to fund a paediatric only service, this decision may have been influenced by both the RVI and JCUH reporting compliance with the current commissioned neonatal transport service. Data provided by the RVI supports this position in terms of mobilization times for transfer but this fails to recognise the issues set out above, in terms of service deficits, staffing / patient safety, and inappropriate use of ambulance services. **The Review team consider this is a serious safety issue that needs to be addressed as a matter of urgency.**

5 The RCPCH view – a networked model

5.1 A fully functioning network

5.1.1 The Review team sees the relationship between the Northern Neonatal Network, its Specialist Commissioners and the constituent providers as crucial to effective and safe care. The Network was one of the last in England to be formally recognised, in March 2010, and had only three years to establish itself and build its influence as a managed clinical network before it changed to an Operational Delivery Network.

Operational Delivery Networks (ODN) were established in 2013. Formally they were known as Managed Clinical Networks with much more commissioning and provider influence. The purpose of ODN's is to support the operational delivery of care by setting out and monitoring the following:

- Networked pathways of care – taking account of the principles of 'Right Care' Programmes of Care – *right time, right place* i.e. designation of services
- Outcomes and quality standards
- Evidence based care
- Equity of access to care

ODN's are essentially provider led but supported through specialist commissioner funding. The host provider organisation is held to account by the commissioner for the ODN outcomes and outputs through the service specification. A key role of the host is to ensure that all the organisations represented on the Network Board operate to the protocols and procedures agreed by the Board.

Governance arrangements are fundamental for both the commissioner and provider accountabilities. Terms of reference should include mechanisms for identifying, managing and escalating risks.

An ODN is expected to have strong links with other parts of the NHS, most notably Health Education England, Strategic Clinical Networks, Academic Health Science Networks and commissioners.

Ref*: Developing Operational Delivery Networks: The Way Forward DH 2012*

5.1.2 In order to gauge neonatal network developments since 2013, a snapshot of ODN activities and arrangements from around that country was taken by members of the Review team in April 2015. It emerged that other networks vary in their influence but there are good examples where networks focus on governance and quality assurance; agreed polices and protocols are monitored using dashboard activity, including staffing / acuity. Non-compliance is flagged and incident forms are completed where there is a deviation from agreed pathways. It was apparent that there is a far greater transparency in other networks, in terms of commissioning and

funding arrangements, designation of units and transport. The good work with families could benefit from more engagement and consistency across the network rolling out more confidently the work of the BLISS nurse. How parent choice is facilitated, monitoring of repatriation and consistency of information is all part of other networks' focus.

5.1.3 The Review team recognised the commitment of the leadership within the Northern Neonatal Network, with the Chair, network manager, nursing, clinical and audit leads able to articulate a vision for neonatal services in the region. Beyond this the Review team were concerned that some constituent members of the Network appeared to be focussing on the impact for their unit rather than as Network members. Special Care units reported that they felt disenfranchised in Network meetings as the agenda was often too NICU focused. It was difficult to establish how and where significant risks identified by the Network were escalated or informed the strategic and contractual planning process in individual Trusts, and it was unclear how City Hospitals Sunderland NHSFT exercised its role as the lead provider for the Network in terms of its accountability on behalf of all the Network providers.

5.1.4 The Specialist Commissioner has not previously felt able to translate recommendations from the network through to commissioning. Almost all units became Foundation Trusts at an early stage which has hampered attempts to clarify contracts and cost breakdowns. Finance and business teams in provider Trusts are not linked to their Network nominees and decisions, such as the change to the transport proposal from a joint neonatal / paediatric service to one focussed purely on paediatric patients, and discussions around CQUIN are sometimes made without reference to the service leads.

5.1.5 The Review team recommend that the Network and Specialist Commissioner in particular review and refresh their working arrangements so they can together influence the provision of services. This requires a cultural shift to improve transparency, cooperation, team working and respect to maximize the opportunities a network brings to improve the care of all neonates and for new ways of working.

5.1.6 City Hospitals Sunderland NHSFT must take a more active role in representing the Network priorities, such as transport, education and training in other forums which link providers. The Review team understands that there is no formal forum for chief executives in the region so links must be strengthened through the maternity and children's network, Chief Nurses, the CCGs and Local Education and Training Board and others. This is crucial as it will give the Network a mandate to drive its priorities that all the providers and commissioners are signed up to.

5.1.7 The Network governance role needs to be stronger, with clearer lines of escalation to require consistency in areas such as transfers, data entry and availability of equivalent IT systems. Network Board members need to utilise their

host trust risk registers to highlight non-compliance with Network decisions, and there should be a mechanism for inter-unit peer review to underpin the notion of transparency, build relationships and contribute to a stronger governance model.

5.1.8 Workforce is a tremendous challenge for this Network but by working together many of the issues may be resolved. Other Networks have benefited from agreeing a strategy for nurse recruitment, career development, common job descriptions, education and training priorities etc. Well-functioning networks also encourage staff rotation. The Review team urge the Northern Network to consider these options.

5.1.9 The RCPCH team is aware of good practice elsewhere and very willing to facilitate discussion.

5.2 Reconfiguration of NICUs and related services

5.2.1 There is agreement, supported by previous reviews and analysis against standards that the current arrangement of four NICUs is unsustainable. Local geography lends itself to at least two specialist 'hubs' within the region to meet demand and provide safe and sustainable services, and population densities indicate that at least one must be in the Tyne and Wear area and one in the Teesside area to provide relatively local access and sufficient capacity for the region. This two-hub model is similar to that of the South West ODN, which has NICUs in Bristol and Plymouth (at each end of the area) but who work together within one network. Although the proposals for the new build (Wynyard) acute unit in the Tees area were at the time of the Review visit still 'live' they are not current and have not been considered here.

5.2.2 The network has not conducted a formal designation process against the BAPM standards, but it is important that this is carried out across all units and agreed by the network before detailed capacity planning and cot numbers can be identified. However taking into account current compliance with standards and for the reasons set out below the Review team propose:

- That the **RVI** should be built up as the 'quaternary' NICU unit for the Region, caring for the smallest sickest infants and fully compliant with 2014 standards for staffing and support services.

  Rationale:
  - The RVI is by far the largest in terms of births and activity.
  - It is a recognised site for neonatal Grid medical training.
  - It provides onsite neonatal surgery facilities
  - It is close to the Freeman Hospital's neonatal cardiac services
  - It has a core team of expert nurses and medical staff

- That **Sunderland** is designated to be the preferred unit to provide intensive and high dependency care for infants from 26 weeks gestation who are born in Sunderland or transferred from the northern SCUs, except those infants born at RVI who would not usually be transferred out.

  Rationale:

  - Based on current activity Sunderland has the capacity to increase further, taking more infants requiring IC at 26 weeks' gestation. The impact on case mix would not be significant; in 2014 there were 17 infants who would under the new arrangement require transfer, preferably in utero, to the RVI with repatriation as early as possible.
  - Sunderland has a core team of expert nurses and medical staff
  - This arrangement will provide sufficiently challenging and complex caseload to sustain a viable service. The Tier 3 rota may be augmented with paediatricians with an interest in neonatology but will not require all paediatricians to cover neonates.
  - It is well placed geographically and demographically to sustain this level of care
  - it is the third smallest NICU in England by birth rate (see table overleaf)
  - If necessary it could help manage short term peak activity levels at RVI
  - It is the host provider for the Neonatal Network

- That the NICU at **JCUH** is developed to provide a centre of excellence for Teesside (as part of a joint Teesside service with NIC based at South Tees), which complies with the latest standards and brings medical and some nursing / therapy staff from North Tees to fill rotas.

  Rationale:

  - It has the capacity to expand to become a viable tertiary neonatal service for Teesside
  - It has a core team of expert medical, nursing and AHP staff
  - It is well placed geographically and demographically very near to major transport links
  - By consolidating the Teesside expertise in neonatal care, research and family support on one site there is a real chance to build a centre of excellence for Teesside
  - JCUH is, like RVI, a recognised neonatal Grid training site.
  - The unit has a strong reputation for research supported by an annual international conference.
  - All reviews of acute and maternity services in the area over the last 15 years[17] have proposed JCUH as the provider of neonatal Intensive care in the south of the region[18].

[17] see separate analysis of past consultations
[18] Except the Darzi review which was overturned by the Independent Reconfiguration panel

- That **North Tees** become an SCU caring for infants over 30 weeks' gestation. The unit will be staffed by general paediatricians and specialist nurses/ANNPs closely linked to JCUH and where possible cross cover and or rotations (e.g. by consultants) should be put in place.

  Rationale

  - North Tees is currently the smallest NICU in England by birth-rate
  - There is insufficient activity even to justify designation of an LNU at this site. There is insufficient complexity and throughput to attract and retain enough specialist medical staff, and consequently the paediatric team would probably be required to take on additional duties of cover for which they may not adequately trained or experienced.
  - Combining the expertise and capacity of the medical staff to that of the team at JCUH will maintain their skills and interest and facilitate the further development of a first class training and research centre for Teesside.

Code	Unit name	Births - 2013
RVWAE	University Hospital of North Tees	3130
RXH01	Royal Sussex County Hospital	3219
RLNGL	Sunderland Royal Hospital	3260
RBL14	Arrowe Park Hospital	3800
RJ224	University Hospital Lewisham	3887
RYJ01	St Mary's Hospital, London	3900
RVV01	William Harvey Hospital	3915
RTK01	St Peter's Hospital	3964
RYJ03	Hammersmith Hospital	4125
RTRAT	The James Cook University Hospital	4140[19]

NICUs in England by numbers of births

Implications for the Tyne and Wear model

5.2.3 The **RVI** is non-compliant with the current BAPM guidance and it must be fully staffed and equipped for the activity anticipated, including consideration of augmenting overnight rotas, which is likely to require capital investment and additional staff.

5.2.4 A business case in 2013 recognised the direction of travel and pressure on the current service, and the recent BAPM guidance should be included within a 'refreshed' document together with recognition that capacity must be modelled by the network. The Specialist Commissioner has a role in ensuring that capacity in other Network units is fully utilised before supporting capital expansion. The RVI should care for all surgical infants and the most immature births in the early stages of their

[19] note- JCUH figures in 2013 did not include 1156 births at Friarage hospital. Total figure is 5296

clinical course and would therefore need additional staffing capacity and physical space to do so. Optimising cot use across the Network, including making greater use of the facilities in Sunderland would be helped enormously by the provision of a dedicated transport service.

Implications for the Teesside model

5.2.5 The neonatologists (consultants and middle grades) currently working at North Tees appear to work well with the JCUH team. Integrating them into one service should help to resolve the gaps in rotas and improve the quality of care for infants.

5.2.6 The ANNPs on both sites could, if desired, work across both units providing continuity of care for Stockton families and improving maintenance of skills and competencies.

5.2.7 This change will mean around 60-70[20] local North Tees families per year (from a birth-rate of over 3000) will require transfer to Middlesbrough for specialist care, ideally in utero. Although this will be further from their home, and the implications for families who do not have easy access to transport are recognised, this change means that all infants across Teesside will benefit from a fully staffed, highly skilled service and those from the Stockton area will be transferred back to the local unit as soon as their condition allows.

5.2.8 In addition to local infants, 20-25 infants per year are transferred in to North Tees which would need to be redirected to JCUH or Sunderland. Detailed modelling of the capacity required at JCUH must be carried out by the network, using up to date classifications of acuity, in order to consolidate the specialist service for the south of the Network on the one site.

5.2.9 There are currently nine combined HD/IC cots in North Tees of which half are 'funded' by the specialist commissioning team, the rest being supported by the Trust so there may be potential savings if the service is transferred. The details of how the specialist contract is adapted to reflect the change must be negotiated by the Specialist Commissioner, taking advice from the network in collaboration with the provider units.

5.3 The model for SCUs.

5.3.1 Whilst recent network modelling indicated that capacity of SCUs was sufficient across the network, and the advice offered to the units by the NICU teams was highly regarded, there was evidence that thresholds for transfer were breached by the SCUs.

[20] based on 2013 annual report

5.3.2 Many of the units defined as special care are actually providing 'enhanced' care, retaining some infants from as young as 28 weeks of gestation when the usual threshold for SCUs is 32 weeks – a consequence of there having been no formal designation process and, more importantly a lack of suitable cots to which to transfer them. Whilst this enhanced arrangement potentially reduces pressure on the NICUs and enables infants to be cared for as close to home as possible, it breaches quality standards and is inconsistent with other networks which are increasingly defining standard referral arrangements and requiring exception reporting when these are breached.

5.3.3 The network should consider risk factors at each SCUs and ensure through a formal designation and activity modelling process that each unit satisfies the standards and competencies for an agreed case mix and to an occupancy level of around 80%.

5.3.4 A formal designation process would provide the opportunity for medical and nursing staff from all units to work differently, with staff from SCUs considering rotating through their 'linked' NICU and receiving support and encouragement to maintain skills.

5.3.5 Nationally there is work in hand to support transitional care and identify where this can relieve pressure on SC cots. One network has conducted a major drive to resource community neonatal support, delivering notable efficiencies by resourcing early discharge and support for homecare.

5.4 Obstetrics

5.4.1 Any reconfiguration of neonatal services, particularly Intensive Care, should take into account the local and national strategies for services for women. The NHS England maternity review[21] proposes to assess current maternity care provision and consider how services should be developed to meet the changing needs of women and infants. The national strategy for maternity services to date has been to reduce medical interference in the care of pregnant women, the expectation being that there will be fewer consultant-led maternity units and thus a need for fewer paediatric and neonatal staff co-located within maternity units. Such a strategy will be a powerful driver for the consolidation of neonatal services. Similarly there is a view that greater emphasis is now being given to the prevention of the complications of premature birth by diverting resources from neonatal care towards improving maternity services. It would be futile to propose a neonatal service that does not fit well with the local plans for developing maternity services. Maternity reconfigurations are often much more controversial and politically driven than those of neonatal or paediatric services.

[21] Due to report in January 2016

5.4.2 There are a number of challenges nationally in staffing middle grade obstetric rotas at smaller units, and it is acknowledged locally, that there are difficulties in staffing some of the eleven consultant - led maternity units in the region, with up to 25 middle grade gaps across the services.

5.4.3 Given the local and national stimulus, reconfiguration of maternity in the region is likely within the next few years. There have been reviews of maternity provision in the south of the area, and one in the north has been considered but is now awaiting the National review. The obstetric units at RVI, Sunderland and JCUH have significant local catchment populations and are supported by the Deanery as offering a suitable environment and casemix for trainee rotation. The proposals outlined in Section 5 will, it is anticipated, provide an initial framework alongside the modelling of obstetric configuration and consequent reassurance for medical and nursing recruitment.

5.4.4 Ensuring that there are good working arrangements between obstetric teams across the region is an important function of the network arrangement. Transferring preterm infants in-utero rather than by the neonatal transport service is recommended and some networks in England are making considerable progress in encouraging obstetricians to refer against clear thresholds.

5.5 Funding the model

5.5.1 Commissioners contract for IC/HD care on a historical activity basis using a "tariff" amount for each NIC and HD cot day across the four NICUs. This 'tariff' amount, which differs for each NICU, was reported to exceed the guideline national tariff figure (set in 2011/2 but republished in the 2014-5 Payment by Results guidance) and for JCUH and RVI includes the funding for transport services which is not separately itemised.

Activity		**2013/4 Activity**				
		RVI	**Sunderland**	**JCUH**	**North Tees**	**Network**
Level 1		3,213	977	1,705	1,177	7,072
Level 2		3,051	1,075	1,448	1,088	6,662
Level 1 & 2		6,264	2,052	3,153	2,265	13,734
Ceiling		4,614	2,200	3,003	1,468	11,285
Variance	OCD	-1,650	148	-150	-797	-2,449
	%	-35.76%	6.73%	-5.00%	-54.29%	-21.70%

5.5.2 There is an agreed floor and ceiling activity level within which these "full tariff" amounts are paid and these are based on the "funded cots" of 16 (RVI), 10.5 (JCUH), 7 (Sunderland) and 4.5 (North Tees). Activity over and above the 'ceiling' figures are only paid at much lower marginal rates. The network data indicates that each NICU

Trust consistently over-performs and whilst the link with actual cost or tariff is unclear the activity appears to significantly exceed that contracted.

5.5.3 The data seen from the network have until April 2015 used categories of care defined by BAPM in 2001 rather than the 2011 definitions, but it was not clear on what basis the current local tariff arrangement operates.

5.5.4 Work carried out by Deloitte LLP for the SeQIHS review programme in the Teesside area reported that neonatal care (including special care) across Durham Darlington and Tees generated a £1.4million loss in 2012/3, but it is not clear how the Trusts and CCGs are negotiating with the Specialist Commissioners or the Network to address this deficit.

5.5.6 Other networks reported a range of contractual positions for specialist commissioning, but seemed relatively open about the arrangements for funding, which broadly follow the HRG guidelines and are activity based with locally negotiated variations[22]. It may still be some years before a formal tariff system for IC/HD is introduced so a review of the local pricing arrangements should be carried out in parallel with the re-designation of units and modelling of activity. Network board members should support and encourage this within their own Trusts wherever possible so that a fair, whole-network approach to resourcing the service can be agreed.

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/379573/S118_ANNEX_7a_NTCN.pdf

6 Strategy for nursing and Advanced Nurse Practitioners

6.1 Section 4.3 above recommends that the Network develop a shared vision for the future of its nursing workforce and set this out in a strategy with which all the Trusts engage. It should be comprehensive and address key issues including:

- Workforce planning, based on accurate acuity measurements, for registered and non-registered staff groups.
- An agreed Network plan for core competencies and skill mix for registered and non-registered staff groups based on service specifications / designation decisions.
- Agreed core job roles that may be adopted by each Trust, harmonising career opportunities and grading across the Network
- Joint recruitment plans so that services are not competing for the same staff but are planning for current and future deficits
- An agreed joint education and training strategy, including inter and intra Trust collaboration on training including staff exchange schemes to enable exposure to a range of clinical environments.
- Clarity about the preferred provider(s) for its HEI programmes, particularly for ANNP trailing thus enabling these relatively high cost, low volume programmes to remain viable, and for the network to be assertive about its needs, perhaps linking with another network..
- A joint plan with the Deanery and others on the requirements for advanced nurse practitioners to staff medical workforce rotas, with a Network wide agreement on the right balance between medical and nursing posts
- Sharing innovation; the Network should agree how service innovation and expertise may be shared across services.
- Nurses already undertake research activities including the staging of international conferences. The Network should set out how it will support primary nurse research across services.

7 Parent and carer involvement

7.1 The Review team considered how far each of the eleven units involved parents and carers in their processes and the facilities and information available for those who have a sick baby in a unit in the network. The network provides on its website basic details for parents about the services and facilities available to them.[23]

7.2 The appointment of the BLISS nurse[24] has stimulated audit and increased focus on the family experience at all sites. All units are participating in the BLISS Family Charter Audit and most have developed action plans which can lead to charitable grants to improve facilities for parents. The region has also been chosen to participate in the accreditation pilot, requiring all 11 units to seek accreditation as a family friendly unit, and there is some healthy rivalry to be the first to be accredited.

7.3 A parent survey[25], based on the findings of previous BLISS audits and the national survey run by Picker, took place across the network between January and April 2014, with 261 responses, although 74% of these related to care in the RVI. Recommendations included the need for more consistent and accurate information across the network, better preparation for transfers, improved/cheaper car parking and improved skin-to-skin opportunities. There was a commitment by units to continue to audit and improve as a result.

7.4 Other initiatives being developed include:

- Clearer information for parents whose infants may need to be transferred about all the units in the network, Leaflets are sometimes available and an ‘App’ is under development which provides details of all the units. Clear, reliable signposting for parents will be fundamentally important under our proposed model
- A ‘parent passport’ was introduced at Wansbeck detailing the skills of parents in caring for their baby so they are encouraged to continue this care even when transferred to another unit. This initiative could be especially helpful for the small number of parents whose baby, under our proposals, would receive care at a specialist unit before transferring to their local unit.
- Introduction of headphones, enabling parents to remain at the cot-side during ward rounds, without overhearing confidential information being shared by clinical staff about other infants. This is being piloted in RVI and rolled out to other units
- Support for applications for charitable funds to purchase equipment or develop facilities to support parents and families.
- Standards monitoring and audit work

[23] http://www.nornet.org.uk/Parents-Information-&-Resources
[24] The national charity BLISS part fund a dedicated nurse within the Networks to support families and help with staff support, education and training towards auditing and implementing the standards. The nurse joined in September 2013, is 60% funded by BLISS and 40% by JCUH which hosts her role
[25] network parent survey final report December 2014, and action plans

7.5 Day to day the BLISS nurse works alongside the part-time bereavement officer at JCUH but is available for advice and telephone support to all parents whose baby is receiving or has been recently discharged from neonatal care.

Support and information

7.6 At the RVI there is a 275-member 'buddy group' facilitated by a senior nurse who runs a closed Facebook page and offers a monthly non-clinical meeting on the unit. Parents are put in touch with consenting others who have experienced similar situations and those involved find this support helpful, sometimes over several years, and report that the unit staff are very friendly, informative and reassuring, always personalising the care by using the baby's and parents' names, for example. There is a separate group managed by a senior nurse on the unit for bereaved parents, and another which focusses on fundraising for the unit whose trustees include clinicians and managers.

7.7 Given the BLISS nurse is part funded by JCUH and is based there it is inevitable that a significant proportion of her time will be spent working with parents and staff at the site and developing initiatives within the hospital. It is important that the role is seen as a network role and that teams across all eleven sites can benefit from her expertise and encouragement.

7.8 It was not clear what links existed across the region to ensure that information about infants and parents who were transferred to a unit far from home, was passed on at a local level (e.g. If parents were bereaved, would information reach services local to them able to offer support?). Although staff were confident that they could establish links this did not appear to have been thought through formally.

Future development and recommendations.

7.9 If the RCPCH Model is taken forward expansion of the parent accommodation will be required in the RVI and JCUH to meet the standards of one room per intensive care cot.

7.10 There is no clear remit for the BLISS nurse's role and whether the post will continue to be funded by the network after the 3-year term is completed is uncertain. A strategy for engagement of parents and family-centred care across the network has been suggested, incorporating BLISS, NICE and Toolkit standards, together with a programme of network-led initiatives to embed the developments to date and ensure that the work continues.

7.11 Although a national problem, there should be consistent financial support available for families struggling with the additional costs of visiting and staying with a baby in NICU. National guidance is available but this is currently a Trust-level decision and is therefore inconsistently applied.

8 Conclusion and recommendations

8.1 The current arrangement of four units providing intensive care was acknowledged by all to whom the Review team spoke as being inefficient and overstretched, resulting in dilution of expertise and at times infants being cared for in inadequate facilities with insufficient staffing. The compliance analysis conducted by the Review team confirms this.

8.2 Across the region there appear to be insufficient IC and HD cots and staff to match activity and demand where it occurs. The service is maintained through the goodwill and in many cases excessive working hours of the medical and nursing teams. The neonatal transport service is dangerously depleting units of skilled staff and putting the most vulnerable infants at risk.

8.3 This situation is unacceptable and unsustainable and a plan must be put in place urgently to tackle three key elements of service provision

- Transport
- Network governance and effective commissioning
- Configuration of NICUs to meet current standards

To achieve the best outcomes for infants would require

Recommendation 1 – An independent 24/7 neonatal transport service must be commissioned as a matter of urgency for the network that is separately staffed and meets the National Specialist Service specification. This could be linked with the recently commissioned PICU service, developed separately on a standalone site or subcontracted administratively from an established service such as ‘Embrace’ in Yorkshire and Humberside. There are several other effective neonatal transport models in the UK which could provide useful advice and tips for working effectively..

In the short term sufficient staff should be made available at JCUH and RVI to cover the current two-site service without depleting the relevant unit cover.

Recommendation 2 – The Network and Commissioners should work together with the Foundation Trusts towards redesignating the NICUs as set out in Chapter 5, namely

- That the **RVI** should be built up as the ‘quaternary’ NICU unit for the Region, caring for the smallest sickest infants and fully compliant with 2014 standards for staffing and support services.
- That **Sunderland** is designated to be the preferred unit to provide intensive and high dependency care for infants from 26 weeks gestation who are born in

Sunderland or transferred from the northern SCUs, except those infants born at RVI who would not usually be transferred out.

- That the NICU at **JCUH** is developed to provide a centre of excellence for Teesside (as part of a joint Teesside service with NIC based at South Tees), which complies with the latest standards and brings medical and some nursing / therapy staff from North Tees to fill rotas.
- That **North Tees** become an SCU caring for infants over 30 weeks' gestation. The unit will be staffed by general paediatricians and specialist nurses/ANNPs closely linked to JCUH and where possible cross cover and or rotations (e.g. by consultants) should be put in place.

Recommendation 3 - the network should redesign the care pathway for transferring pregnant women/ infants to appropriate units. The system should be based on care as near to home as possible in a unit with the appropriate level of competence. An important but secondary consideration should be cot availability to ensure cot occupancy is broadly balanced across the patch. There should be a mechanism to monitor compliance and facilitate active reporting where this policy is breached. The network and/or units would need to decide the criteria for transfer based on the model proposed in chapter 5.

Recommendation 4 – given the model set out in chapter 5 the network should calculate what capacity is ultimately needed at each unit in the network (including SCUs) to meet the local demand at average 80% occupancy as set out in the Neonatal Toolkit. Modelling should use BAPM 2011 categories of care and be informed by the regional maternity strategy and birth trends. The Specialist Commissioner must state clearly what level of compliance with BAPM standards can be funded in the short term with a strategy to become compliant in the medium term.

Given the physical capacity issues at RVI the network should consider whether booked infants requiring Special Care should remain at RVI for the duration of their stay when around 50% are from outside the area.

Recommendation 5 – Ensure that the neonatal units are properly working in a network – including staffing strategies and transport arrangements, extended staff rotation between units, peer review and clear network-based information for parents.

This means sign-up by senior Trust management and boards to the Network principles and robust support from commissioners to influence service redesign.

Recommendation 6- The Specialist Commissioner /NHS England and the Foundation Trusts must reform the funding process so there is clarity about payments against activity for the three levels of care in order to cost the proposed model and identify affordable occupancy levels. This will require extraction of the transport costs to fund the separate service and a degree of openness at network level. There are effective models in other networks against which benchmarking should be conducted.

Recommendation 7 – Develop sustainable plans, linked to the model in chapter 5, for medical staff rationalisation to achieve working time compliance in future and meet RCPCH guidance for junior medical staff – including projections about trainee availability and how their training needs will be fulfilled. These plans can consider the training of ANNPs for Tier 1 rotas, and potential for resident consultants to maintain compliance with professional standards.

Recommendation 8 – Develop a clear nursing strategy aligned with the new model of service, including succession planning and development of ANNPs and senior nurses across the eleven units.

Recommendation 9 – Provide network support for Trust-based environmental improvements, including new-build or extended services to accommodate the changes in capacity anticipated from the RCPCH model including accommodation and facilities for families.

Recommendation 10– Develop a strategy for family focused care, prioritising clear and consistent communication across the network from antenatal contact to discharge irrespective of the location of care. This should include an ongoing survey of families who have faced antenatal or postnatal transfer and development of a strategy to ensure that the improvements brought by the BLISS nurse are continued and built upon.

9 Next Steps

9.1 The preferred model above provides a ‘direction of travel’ for neonatal care that improves efficiency and quality of care for the infants and families through being accommodated in the setting that provides the facilities and expertise they need as close to home as possible. It must have the support of a properly functioning Network Board, the provider Trusts and especially the Specialist Commissioner to provide the traction for implementation.

9.2 The greatest risk to the infants and families is procrastination and continued lack of investment. There have been numerous reviews and consultations in 15 years with no change to the location and designation of NICUs, and the transport service is now unsafe. Other UK neonatal networks / ODNs have reconfigured with clear strategies towards compliance with standards, mechanisms for monitoring and influencing changes and clearer funding arrangements. Without change the services are likely to deteriorate and become increasingly unsafe, with good staff becoming increasing demoralised by continually having to ‘cope’ within a service that is not functioning at its best.

9.3 The RCPCH is very willing to continue to be involved with the implementation of the recommendations and provide further clarity or detail to support the rationale.

Appendix 1 The Review team

Review lead

Dr David Shortland FRCPH has been a paediatrician for 25-years in Poole, Dorset, including ten years as neonatal lead and 12 years as clinical director. In 2006 David became the national workforce officer for the RCPCH and took over as Vice President (health services) in 2009, with a brief to support paediatricians through the current challenges of radical reform to the health service, working time legislation and service re-design.

David led the 2007 national workforce census and designed a cohort study of trainees which have provided the College with a clearer understanding of the current and future workforce, helping to define how the role of paediatricians can evolve to provide consultant delivered care and hence safe and sustainable services. David also led the RCPCH “Facing the Future” project developing a set of minimum standards of care for all acute paediatric services and the recently published audit of implementation. David is married with four children.

Neonatal reviewer

Professor David Field FRCPH has been professor of neonatal medicine at the University of Leicester and honorary consultant neonatologist at University Hospitals of Leicester NHS Trust since 1997. He has worked in paediatrics in a range of settings since 1977 and became a consultant in 1989. He has been an expert adviser to a range of government and medical boards since 1992. Professor Field was the President of the British Association of Perinatal Medicine from 2008-11 and led the work on the 2010 revised BAPM Standards. His current research activities have focused on the topics of the epidemiology of prematurity and preterm birth and trials in perinatal medicine and Professor Field is currently one of those leading the development of the MBRRACE-UK programme in partnership with NPEU.

Nurse reviewer

Jean Hawkins RN RM BA MA has led a number of strategic programmes for maternity services, children and families whilst working for the Yorkshire and the Humber SHA and in her current role as a Professional Consultant.
Jean was a member of the North Wales RCPCH Neonatal Review Team in 2013. Her experience includes workforce planning and commissioning development to ensure local delivery of safe,

sustainable services, together with establishing a network of networks for children and maternity services. Jean was for five years on the editorial board of The Practising Midwife, and has chaired the North Trent neonatal network. She has been a member of a number of Department of Health (England) project boards and chaired for Sir Bruce Keogh the national review of the neonatal workforce - part of development of England's Neonatal Toolkit. Jean is currently chairing the National PHE External Reference Group for Data and Intelligence for Maternity, Neonatal and Paediatrics. She is married with two adult children; she enjoys flower arranging and is training to become a demonstrator.

Lay reviewer

Sally Williams is an independent health services researcher. Her interests include governance within the NHS and private healthcare, improving quality and patient safety, and professional regulation and the training of health professionals. Her recent projects include undertaking an independent inquiry into the withdrawal of medical trainees from an NHS trust, leading a team of researchers to assist the RCVS in demonstrating best regulatory practice, and conducting a review of fitness to practise allegations for the General Chiropractic Council. Sally's published reports include as co-author of *The Francis Report: One Year On* (Nuffield Trust, 2014), *Can Hospitals Do More With Less?* (Nuffield Trust, 2012), and *Putting Quality First in the Boardroom* (The King's Fund and Burdett Trust for Nursing, 2010).

Sally also conducts invited reviews of NHS services on behalf of the Royal College of Surgeons of England and the Royal College of Paediatrics and Child Health, and she is a Lay Assessor with the National Clinical Assessment Service. She sits on the Nursing and Midwifery Council's Conduct and Competence Committee as a fitness to practise panelist and also adjudicates on complaints about private healthcare. She is an Education Associate with the General Medical Council (GMC) and a member of its Quality Scrutiny Group.

Sally worked for a number of years as Principal Health Policy Researcher for the Consumers' Association (now Which?). She has an MA in Health and Community Care from Durham University. She was previously a member of the Council for Healthcare Regulatory Excellence (CHRE) and was a non-executive director of NHS Cambridgeshire and NHS Peterborough Primary Care Trust and Chair of its Quality and Patient Safety Committee until March 2013.

Project / Administrative Support

Sue Eardley joined RCPCH as Head of Health Policy in January 2011 and now leads the Invited Reviews programme for the College. Sue originally trained as an engineer /project manager in the oil and gas industry but changed career when her children arrived. Sue spent 13 years as a non-executive and then Chairman of an acute hospital trust in south London, alongside a range of voluntary activities including national and local involvement in maternity user representation and the NHS Confederation. Sue led groups contributing both management and user input to the DH England Maternity National Service Framework and chaired her local MSLC for four years Before joining the RCPCH Sue spent six years full time heading up the maternity and children strategy team at regulator the Healthcare Commission and then Care Quality Commission, overseeing strategy, design and delivery of all inspections and reviews in England of maternity, child health and safeguarding. Sue is married with three grown up children.

Quality Assurance reviewers

Professor Stewart Forsyth OBE was a Consultant Paediatrician in Tayside, Scotland from 1983 and has variously been Director of Neonatal Services, Clinical Director for medical Paediatrics, Women and Children's Services, Medical Director for health service provision in Tayside and National Adviser to the CMO on Medical Paediatrics. Clinical interests include gastroenterology, nutrition and child protection. Professor Forsyth was Vice-Chair of the Ministerial CYP's Health Support Group, has chaired several reviews of paediatrics in Scotland and participated in child protection enquiries in the Western isles and Edinburgh. He is currently chairing the Scottish Government National Expert Advisory Group on Neonatal Services, is a Board Member of several charities and Vice-Convenor of *Children in Scotland* which supports the health and wellbeing of children in Scotland. Professor Forsyth retired from clinical practice in 2009. In the Queen's Birthday Honours in 2012 he received an OBE for services to children's health.

Dr Nicholas Wilson has been a consultant at Whipps Cross Hospital for 15 years; initially as lead for the Neonatal Unit. He subsequently became the lead clinician and then Clinical Director for Women and Children, a role he held for six years. He has wide experience in leadership and management, participating in several rounds of proposed service reconfigurations and mergers. Nic is fully apprised of the Department of Health's priorities and various modernization agendas, and comprehensively understands the process of service development and how to work constructively with local and specialist commissioners. Nic was an external adviser to the health care commission and is the Trust Named Doctor for Safeguarding Children. He is also the Clinical Lead for the North East London Neonatal Network and has been involved in the review of neonatal services in the region.

Appendix 2 Terms of reference

The RCPCH Invited Reviews team will conduct a review of the Neonatal Service in North East England and North Cumbria including studying advance materials, interviews with key individuals and a visit to the sites to engage with all the relevant clinicians and managers. This will follow in broad terms the process set out in "RCPCH Guide to Invited Reviews" dated April 2014 and comprise:

b) Consideration of current/proposed service arrangement for neonatal care, specifically focussing on Intensive care provision. This will include

   a. Assessment of compliance with national guidance and standards
   b. Staffing, training and workforce arrangements
   c. Involvement and patient feedback
   d. Clinical governance including accountabilities and quality improvement

b) Consideration of strategic models for providing sustainable and compliant neonatal care within the Network catchment. This will include

   a. Review / analysis of workforce projections
   b. Staffing training and job design options
   c. Overview of influencing factors, including geography/access, paediatric and maternity provision
   d. Feasibility and risks of alternative models (e.g. cost, recruitment)
   e. Potential for development of Level 2 (Local Neonatal Unit) provision
   f. Impact of models on configuration of other related services
   g. Examples (where available) of similar working arrangements.
   h. Considerations of timescales for implementation

c) Provision of a report including options and recommendations by June 2015[26] setting out the above from a perspective of clinical safety and quality and compliance with standards.

The review team will be drawn from outside the area and include lay representation, two neonatologists/paediatricians including a reviewer nominated by BAPM, a neonatal nurse and RCPCH reviews manager. Service user representatives will be invited to contribute to the review, as may other experts in relevant areas.

[26] Subject to agreement to proceed by mid-January 2015

Appendix 3 Unit data

The following charts and tables provide selected background data upon which the main report is based.

	Activity (BAPM 2001)					
	2013			2014		
Care Location	IC	HD	SC	IC	HD	SC
RVI Newcastle	3169	2910	5841	2942	3097	5383
Sunderland Royal	966	1103	3092	1028	1154	2830
JCUH	1700	1410	4485	1518	1443	5067
Univ. Hosp North Tees	1171	1129	2931	966	991	3144
Cumberland Infirmary	115	75	2482	110	70	2094
Darlington Memorial	140	101	2502	137	120	2066
Queen Elizabeth Gateshead	108	51	2619	91	48	2591
South Tyneside	34	3	1125	31	28	981
Univ. Hosp North Durham	127	104	2581	143	148	2358
Wansbeck Hospital	128	141	2112	153	126	2126
West Cumberland Hospital	82	182	1983	62	107	1743
Total	7740	7209	31753	7181	7332	30383

Appendix 4 A History of Reconfiguration

Background

Staff working within the service regularly cited previous reviews and strategic plans in which they had been involved, including those for maternity and paediatric reconfiguration. These are summarised below.

These reviews had been initiated by, or certainly involved commissioners and trusts, and had usually run with a consistent format of engagement and dialogue, review of staffing and accessibility and conclusion / recommendations. Despite sometimes significant commitment and involvement of large numbers of local staff, most of the reviews appeared to have had little influence on the overall development or reconfiguration of services in the short term, causing instead a 'blight' to development and disillusionment amongst those who have participated in workshops and events from which no change has resulted.

The relatively frequent reorganisation of commissioning and oversight functions in the last fifteen years, with the rise and fall of Health Authorities, PCGs, PCTs, CCGs, SHAs in two forms and now NHSE, LATs, clinical senates, ODNs and strategic clinical networks has made decision making and follow-through of strategic plans very difficult.

Local picture

Although neonatal care is funded from Specialist Commissioning its provision is interdependent with maternity and paediatric services, which are commissioned by CCGs. Strategic planning support for the CCGs and Trusts is provided by the Maternity and Child Health (Strategic Clinical) Network. .

In the south of the Network area the CCGs and their predecessors have undertaken extensive work to consider reconfiguration over a period of fifteen years. The current SeQIHS project has demonstrated good engagement around important issues in acute services (including maternity and paediatrics) and it is anticipated that this review will align with the area's direction of travel in that the almost unanimous conclusion was centralisation of the NICU service for Teesside and Durham at JCUH.

To the west, Cumbria CCG is working with Northumbria Healthcare around reconfiguring services in the north of the county.

The recently merged CCGs covering Newcastle/Gateshead, and Sunderland CCG do not appear to have any plans for maternity or paediatric review until after the national maternity review is published.

Summary of past reviews

Title (file)	Author - lead	Start – End	Area / units involved	Scope	Driver	Relevant Recommendations	Outcome
Strategy for Improvement NIC services working group report	Dept of Health, National review	2001-April 2003	England	Neonatal care across England	Response to reports of long drives to find cots	Concentrate IC in fewer units – managed clinical networks. Improve transport	Areas worked to designate units and form about 25 networks. £72m government funding over 3 years
The Tees Review	NHS and Social Care	June – November 2003 (interim)	Acute primary community Teesside area	All health incl community and primary	To develop long term strategy	NICU, PICU, inpatient paeds on one main site.	Suggestion of new build site mooted
Report of the Neonatal Intensive care Services Review Group	Expert Working Group building on neonatal Consortium	18th Feb 2004 30pp	RVI, Sunderland, North Tees, JCUH	NICU - 5 options, 4,3,2,1 unit tested against 5- criteria	National Policy. High occupancy nurse and medical staffing to meet guidelines	2 units realistic 3 units with Sunderland OK 1 unit best but high risk 2 unit in long run - Teesside quicker	North Tees expressed reservations about conclusions
South Tees review report Tees review 2004	Northern Specialist Commissioners	March 2004	Co Durham and Tees Valley SHA – report by Feb 2004	Children and maternity services	Compliance with BAPM 2001	Plans to centralise high risk maternity on N Tees site although not compliant and consult on NICU location	Insufficient evidence for recommendations – to look again at unit at NT and ST OR centralise at STees. To invite Prof Wilkinson to lead with Angela Hawkes for PCTs

Title (file)	Author - lead	Start – End	Area / units involved	Scope	Driver	Relevant Recommendations	Outcome
CDTV NIC review	Prof Andrew Wilkinson – Ian Coates – Hartlepool PCT	November 2004	Teesside and Northern area	BAPM 2001 4-Options appraisal	2 previous – needs to be independent	Urgent change needed. Managed Clinical network. Designation of units. Single ICU at JCUH, separate 30-week+ unit at N Tees All PCTs agreed Oct 2004 Specialist commissioning to agree 12th November 2004	Followed by letter from JW to PD seeking decision by commissioners
Acute Services Review – Hartlepool and Teesside	Sir Ara Darzi	July 2005 26 pages	Hartlepool and Teesside	Acute Services	To retain services at Hartlepool and resolve capacity at JCUH	UHH to host new women and children's centre of excellence MLU at NT Not clear about NICU	Consultation Sept-Dec scrutiny c'ttee opposed maternity & paediatric proposals. PCT went ahead but maternity and paeds was referred to IRP by SOS in Sept 2006
Advice on proposals for changes	IRP	Dec 2006	North Tees, Hartlepool	Maternity and Paediatrics	Challenge to Darzi proposals	New Hospital site incl NICU Noted 2004 recommendation - single NICU but not at NT site Interim Hartlepool maternity and paeds to North Tees	Promised before last election it would get the go-ahead.
Caring for Vulnerable Babies	NAO	2007	England	23 networks, 180 neonatal units - by 2009 24 networks and 178 units	Implementation of DH report and networks	Improve nurse staffing. SHAs improve financial management and commission by demand / need. 24hr transport Improve outcomes data	2009 DH Toolkit for high quality neonatal services
Caring for Vulnerable Babies – session 2007-8	Public accounts committee – chair Edward Leigh	May 2008	England	All units	NAO report	National Task Force. PCTs to model demand. SHAs to performance manage, DH clarify costs, Nursing, transport, <70% occupancy	

Title (file)	Author - lead	Start – End	Area / units involved	Scope	Driver	Relevant Recommendations	Outcome
Development of specialist emergency care services	Northumbria Healthcare	Oct 2009	N Tyneside, RVI, Wansbeck	Maternity and paediatrics	Creation of Cramlington Urgent hospital	Approved move of maternity from Wansbeck and paeds from N Tyneside, but midwifery review required	RVI not at the time supportive and concerned about impact on their services
Our Vision Our future – Accelerated Solutions Environment (ASE)	North East SHA Maternity and Newborn Innovation team	June 10 meeting Oct 10 rec's Dec 10 clinical design	NHS NE – whole area	Innovative pathways for sick and injured children	Creation of Network for paediatrics	3-4 Local acute networks in GNCN hosted by 3-4 sites co-ordinating mat/neo/paed care Workforce plan include nurse practitioner model /strategy PAU on non-host sites linked to ED / inpatients. Single POC	Split n-s with Durham in south, 2 networks in each. Little effect on neonates yet Sunderland wrote setting out concerns
Acute Service Quality Legacy Project	NHS Co Durham and Darlington / NHS Tees	May 2012 - March 2013	Durham and Tees	Acute services – 3 trusts	New CCG roles and HSC Act	98/168 obstetric cover unsustainable, so consolidate rotas and introduce MLUs. Reduction of paediatric units to 2 or 1. Two ITUs not sustainable – go to NICU and HDU/SCU	
NT-CCG Review of Maternity Services	North Tyneside CCG	Final report Dec 2013	RVI, Wansbeck and North Tyneside	Maternity services	Cramlington move	No formal recommendations.	Shows shift in deliveries to RVI once North Tyneside became midwifery-led
SeQIHS	Deloitte triggered	2014-5	Southern area	Acute paeds and neonates and transport	Built on ASQLP	Deloittes – March 14 – to one unit	In progress

Appendix 5 Reference documents

Categories of Care (BAPM 2011) sets out the definitions of intensive, high dependency, special and transitional care for neonates.

Specialist Neonatal Care Quality Standard (NICE 2011) addresses care provided for babies in need of specialist neonatal services including transfer services. Specialist neonatal services are those delivering special, high dependency, intensive or surgical care to babies. Compliance will be measured by collection of data against the Neonatal National Quality Dashboards

Service standards for hospitals providing neonatal care 3rd edition (BAPM August 2010) defines medical and nursing staffing levels and links closely with the NICE and DH documents and Quality Standard and Toolkit.

Toolkit for High Quality Neonatal Services (DH 2009) includes eight principles for high quality neonatal services and a framework to assist commissioners. The principles cover the major areas of activity within the neonatal care pathway and aim to provide standardization in neonatal care:

- Organisation of neonatal services
- Staffing of neonatal services
- Care of the baby and family experience
- Transfers
- Professional competence, education and training
- Surgical services
- Clinical governance
- Data requirements

The BLISS Baby Charter and Audit Tool (BLISS 2012) provides a framework for units to examine key aspects of their service provision and to help staff make family centred care a reality

Neonatal Support for Standalone Midwifery Units – a framework for practice (BAPM 2011) refers specifically to the provision of neonatal support for delivery units that are not co-located with obstetric services and where there is no immediate access to neonatal or paediatric staff.

Service Specifications for neonatal critical care and transport for England set out the requirement for services commissioned by NHS England and cover intensive high dependency and special care.

Documents received from the client

In addition to the broad range of material about the network available on the public website, all four units carrying out intensive care provided a comprehensive data pack and detailed, tailored information for the team. The Network officers also provided helpful background information and explanations. All information has been read and recorded by team members and proved immensely helpful in setting context in

advance of and following the review visits. The following types of information were received.

- Annual reports for 2013 and 2014
- Details of previous reviews in the network area going back to 2004
- Directorate meeting minutes
- Parent surveys / audits and action plans
- Guidelines and protocols
- Strategies for children's and maternity services
- Staffing structure and rotas,
- Nursing and doctors' induction pack, training/competency checklists,
- Work plans, visions, business cases and strategies
- Mortality, CDR, HIE and incident reports
- Clinical governance reports, clinical audit summaries, quality assurance frameworks, risk summaries, compliments reports
- Staffing and occupancy data (Badgernet)
- Transport and transfer activity and business case
- Deanery survey
- ANNP papers and information

We also received helpful data from SCUs and other contributors which supported elements of the report.

Appendix 6 Interviewees and contributors

Newcastle, RVI

Dr Janet Berrington – Consultant Neonatologist
Elaine Blair – Head of Midwifery
Claire Campbell – Sister and organiser of Buddy groups
Yve Collingwood – Neonatal Unit Matron
Rhona Collis – Clinical Risk Management Lead
Dr Nick Embleton – Consultant Neonatologist
Dr Alan Fenton – Clinical Lead – Neonatology unit
Dr Sundeep Harigopal – Network Clinical Lead and Consultant Neonatologist
Dr Richard Hearn - Consultant Neonatologist
Moira Hodgson – Matron postnatal/MLU/Community
Mr Bruce Jaffray – Paediatric Surgeon, head of department
Dr Mike McKean Clinical Director Children's Services Speciality Respiratory Team
Helen Lamont, Director of Nursing & Patient Services
Janet McLelland – Associate Medical Director
Claire Pinder - Directorate Manager for Women's Services
Louise Robson – Director for Business Development
Dr Martin Ward Platt – Network Audit lead and Consultant
Lindsay Redmond – Matron, delivery suite,
Dr Stephen Sturgiss – Consultant Paediatricians and Maternity SCN Clinical lead
Jason Waugh Head of Obstetrics and Head of School Northern Deanery
Helen Smith/Angela Warne Neonatal Band 7 nurses
Sarah Stephenson/Karen Matthison Neonatal Band 7 nurses
Pat Dulson - Physiotherapist
Parents and children – Bev, Freya, Amy, Stan, Megan, John and Harry
Trainees - Rachel Coffrey ,Preshet Matthia, Salhta, Claire Keely

Sunderland Royal

Dr Majd Abu-Harb, Neonatologist
Dr Ahmed, Neonatologist
Ken Bremner – Chief Executive
Jackie Burlison, Directorate Manager Paediatrics
Katie Bush – ST2 paediatrician
Sheila Ford, Matron Maternity
Sue Forth and Bernie Taylor – ANNPs
Dr Ruppa Geethanath, Neonatologist
Lisa Gibson- Parent
Dr Lorna Gillespie, Neonatologist
Tracey Gleghorn – Junior Sister
Dr Osama Hamud, Neonatologist
Sue Hindle, Junior Sister
Mr Kim Hinshaw, Consultant Obstetrician

Mrs Judith Hunter, Head of Nursing and Patient Safety
Dr Geoff Lawson, Consultant Paediatrician/ Clinical Director, Paediatrics
Mr Andrew Loughney, Consultant Lead in Maternal Medicine
Mr Ian Martin, Medical Director
Fiona Ottewell, Divisional General Manager, Family Care
Pauline Palmer, Matron Paediatrics
Gillian Reay – Senior ANNP
Natalie Talbot- Staff Nurse

James Cook South Tees
Suzanne Bell - research nurse
Dr Ginny Birrell – Consultant Paediatrician and Clinical Director Paediatrics
Cathy Brammer (Paediatrics)
Maureen Brydon, transport lead nurse
Dr Steve Byrne – Head of School
Dr Helen Chitty, research fellow
Jackie Cooke. Practice Development sister.
Mandy Forster, research nurse
Dr Shalabh Garg, - Consultant Neonatologist, training lead
Dr Jonathan Grimbley – Consultant general /HDU Paediatrician,
Jane Hall – Neonatal Unit Manager
Ruth Holt, Nurse Consultant
Deborah Jenkins - Chair
Dr Hendrik Jongschaap, Consultant Paediatric Radiologist
Mr Kumar Kumarendran – Consultant in Fetal Medicine
Dr Mithilesh Lal Consultant neonatologist and transport lead
Lynne Hunter - Nurse Consultant
Lynne Paterson – Nurse Consultant – Neonatal
Irene Redpath, Community nursing lead Sue Thompson, BLISS network nurse
Alison Russell - Matron, Central Delivery Suite
Yasmin Scott, Nurse Consultant
Dr Helen Simpson – Consultant Obstetrician
Prof.Sunil Sinha, Consultant neonatologist and researcher
Mr Strachan, Mr Mansoor, Mr Bosman, speciality consultants
Dr Simon Taggart – Consultant neurologist
Prof Win Tin - Consultant Neonatologist
Fran Toller – Managing Director
Dr Mike Tremlett – Consultant Paediatric Anaesthetist
Sue Walker, Sian Oldham, Caroline Buckley – ANNPs
Stephanie Worn – Postnatal Ward Manager
Dr Jonathan Wyllie – Consultant Neonatologist

North Tees

Jane Barker – General Manager Women's and Children's Services
Debbie Bryan – Manager NNU
Wendy Cheadle – Research Nurse
Julie Colarossi – Research / NNU
David Emerton – Medical Director
Claire Flanagan – Community
Julie Gillon – Chief Operating Officer / Deputy CEO
Dr Elaine Gouk Clinical Director O & G
Prof Samir Gupta – Consultant Neonatologist
Dr Chidambara Harikumar – Consultant Neonatologist, Clinical lead for Neonatal care
Dr Jagat Jani – Consultant Paediatrician
Janet Mackie - HOM & Children's Services (maternity and neonatal network
Dr Bruce McLain – Clinical Director Paediatrics
Mr Steve Wild consultant Obstetrician

Special Care Units

Lilian Malcolm – Sister, SCU, South Tyneside
Dr Rob Bolton - Associate Specialist Paediatrician, South Tyneside
Dr El-Mehdi Garbash – Consultant Paediatrician and Neonatal Lead, Durham
Angela Price – Clinical Service Manager, paediatrics, Durham and Darlington
Dr Stephen Cronin – Consultant paediatrician, Darlington and Durham
Dr Dennis Bosman – Consultant paediatrician and neonatal lead, QE Gateshead
Clare Barlow – Matron, West Cumberland Hospital
Dr Mithuna Urs – Consultant Paediatrician– West Cumberland Hospital
Dr Mahfud Ben-Hamida – consultant Paediatrician, West Cumberland Hospital
Ann Bowes – Neonatal Service Manager, County Durham and Darlington NHSFT (was transport nurse art RVI for years)
Dr Indra Thakur – Neonatal Lead , Darlington Hospital
Stephanie Morehead, - SCU Senior Sister, Cumberland Infirmary, Carlisle
Dr Khairy Gad – Neonatal lead, Cumberland Infirmary, Carlisle
Lorraine Munro – ANNP & Deputy Ward Manager, Northumbria Healthcare
Alyson Raine – ANNP, Northumbria Healthcare
Debbie Reape – Deputy Director of Nursing, Northumbria Healthcare

Other representatives and individuals

Martyn Boyd – Network manager
Mark Green – Network data manager
Dr David Jones – Children's lead, Newcastle Gateshead CCG
Suzanne Thompson – Maternity and children network manager
Dr Boleslaw Posnyk – CCG chair Hartlepool and lead for SeQiHS reconfiguration programme
Julia Grace – National CRG lead
Various Neonatal Network Managers and administrators

Appendix 7 List of Abbreviations

ANNP – Advanced Neonatal Nurse Practitioner
BAPM – British Association of Perinatal Medicine
BLISS – Charity for neonatal services and families
CCG – Clinical Commissioning Group
CE(O) – Chief Executive (Officer)
CRG – Clinical Reference Group for specialist commissioning
HD(U) – High Dependency (Unit)
HES – Hospital Episode Statistics
HRG – Healthcare Resource Group (a mechanism for costing services)
IC – Intensive Care
JCUH – James Cook University Hospital (part of South Tees NHSFT)
NHSFT – NHS Foundation Trust
NICE – National Institute for Health and Care excellence
NICU- Neonatal Intensive Care Unit
NT – North Tees
ODN – Operational Delivery Network
O&G – Obstetrics and Gynaecology
OT – Occupational Therapy
PICU – Paediatric Intensive Care Unit
RCOG – Royal College of Obstetrics and Gynaecology
RVI – Royal Victoria Infirmary – Newcastle
SALT – Speech and Language Therapy
SC(U) – Special Care (Unit)
SeQIHS – Securing Quality in Health Services review in Teesside, from October 2015
VLBW – Very Low Birthweight
WTE – Whole Time Equivalent