County Durham and Darlington NHS Foundation Trust

Annual Report for the Neonatal Service

2018

Comprising the University Hospital of North Durham Neonatal Unit

and

Darlington Memorial Hospital Neonatal Unit

with you all the way

Contributors

The compilation and production of this report would not be possible without the contribution of the wider team.

Ann Bowes	Neonatal sister
Claire Cooper	Neonatal sister
Nicola Egglestone	Neonatal sister
Mark Green	Northern Neonatal Network Data Manager
Natalie Jarvis	Neonatal sister
Janet Klinke	Neonatal sister
Leanne Lawton	Neonatal sister
Gail McAllister	Neonatal sister
Laura McEwan	Neonatal sister
Michelle Nesbitt	Neonatal sister
Emma Olivier	Neonatal sister
Angela Price	Matron
Julie Sanderson	Service manager, Neonatal sister
Jessica Whitehead	Staff nurse

Service profile

The number of special care cots within our service remained at 20 for the year 2018 – with 8 cots at the Darlington Memorial Hospital (DMH) site and 12 cots at the University Hospital of North Durham (UHND) site. This number of cots has been supported by our transitional care and baby support worker programme enabling us to keep as many babies with their mothers as possible, and reducing any time of separation. This programme has been recognised both locally and nationally for enhancing patient care.

Our 2 sites are over 22 miles apart and because of this the service covers a large geographical area.

Both units provide continuing special care for babies born after 30 weeks gestation, and in addition provide short periods of intensive care and high dependency care when necessary.

Transitional care, where babies remain with their mothers during care delivery, is provided on both sites, in conjunction with our midwifery colleagues, and team of baby support workers.

Early, supported discharge of babies from the units and from transitional care is also made possible as neonatal nurses can offer home visits and telephone support as part of a community outreach package.

The units are staffed by a team of paediatric doctors and neonatal nurses. We have access to physiotherapists, occupational therapists, speech and language therapists, audiology, and other specialties as needed.

We are part of the Northern Neonatal Network and as such we partner with the other providers of neonatal services in our region so that babies are cared for in the most appropriate setting for their needs and as close to home as possible. We are represented at governance, clinical and board meetings.

Details can be found at http://nornet.org.uk/

Philosophy of care

The neonatal services for CDDFT continue to deliver care that is centred around the family and all our staff are aware of the importance of this throughout the families stay. Allowing parental choice and involvement ensures a close working relationship with the family, enabling us to provide the highest standard of care and to promote their baby's growth, learning and development. The inclusion of the family wherever possible will promote care to the upmost.

We promote individualised care and have staff trained in speciality to ensure safe standards of neonatal care are maintained.

UNICEF and Infant feeding

Our neonatal units continue to work closely with the maternity & health visiting services to maintain full UNICEF BFI accreditation, which was achieved in 2015. We are also is in the early stages of working towards the Neonatal award with UNICEF.

Staff members attend an initial 2 day infant feeding & relationship building training course delivered by the Trusts infant feeding co-ordinators, and thereafter receive annual updates.

We continue to see varying initiation rates for breastfeeding and expressing on our neonatal units but continue to strive to highlight the benefit of breast milk for all our admissions to neonatal care.

BLISS and Community Support Groups

We are continuing to work towards gaining Bliss Baby Charter accreditation, which focuses on providing the best possible family-centred care for premature and sick babies - putting our parents at the centre of their babies care.

Developmental care

Across both of our units, we try to create an environment that minimises stress to the infant, while providing a developmentally appropriate experience for the infant and family. We aim to support the developing behaviours of individual infants, enhance their physiological stability and protect the baby's sleep rhythms while promoting growth and maturation.

Family Integrated Care

Family integrated care often goes hand in hand with developmental care and more staff have been trained to FINE 1 level, while four members of staff have successfully completed their FINE 2 level training.

We are also working to streamline different practices across the region in relation to baby's care, ultimately reducing discrepancies in what parents can do for their babies while they are on the unit, making transfers between units smoother.

Development of a specific care plan incorporating family integrated care is almost complete as we aim to empower more families. Parents are actively encouraged to be involved in their baby's care – nappy cares, bathing, feeding – and this will continue as time progresses.

Work with Leo's Neonatal

We are grateful for the support we receive from a newly established charity, Leo's Neonatal.

Over the last 12 months, Leo's have supported us in a number of ways. Special provisions were made for Mother's Day, Father's Day, Christmas and Easter including photographers and chocolate! The charity are helping us to support siblings – providing books and toys to keep them entertained.

"Leo's Library" areas are now established, encouraging parents to read to their babies, supporting the bonding process and parental attachment.

Over the next 12 months, Leo's Neonatal hopes to support the provision of welcome boxes for families whose baby's need our services.

Babybuddy App

Our Trust is working closely with our local Community Trust to embed the Best Beginnings BabyBuddy App. We hope that this will be a good support for families, in particular with our work on infant feeding on the Neonatal unit.

Parent Survey

The Regional Parent Survey is given to all families when discharged from the neonatal units within the Trust, either to home, to another area within the Trust or to another hospital for continuing care.

The general feedback for both units is very positive but there are always things to improve.

In order to improve the special care experience for families we do not ask any families to leave for ward rounds following feedback received.

Looking forward we are hoping to be able to provide more parental facilities on or close by to the units including a parents sitting room.

iPads

Our portable iPad facility remains popular. We strive to reduce separation of the mother and baby but at times this is unavoidable. In order to reduce the impact the mother can use the iPad facility to see and watch her baby when she is unable to visit the unit in person.

Transitional care – keeping mothers and babies together

The neonatal service continues to promote transitional care for as many families as possible, as this enables many babies to remain with their mother on the postnatal ward, while still receiving a higher level of input than would normally be expected following delivery. Care is delivered by a team of neonatal nurses, midwives, paediatricians, and excitingly a new team of vulnerable baby support workers who work solely with this group of babies and their families.

We do not have a limit on the number of babies that can be cared for in this way.

Babies suitable for transitional care arrangements include:

- babies born after 35 weeks gestation weighing at least 1800 grams who have been assessed by the paediatricians as suitable to be nursed on the postnatal ward
- babies born after 35 weeks gestation, weighing at least 2000 grams
- babies requiring regular blood glucose monitoring, such as babies with diabetic mothers
- babies requiring treatment for possible infection
- babies requiring treatment for neonatal abstinence syndrome
- babies recently discharged from special care facilities

This part of our service has allowed us to maintain an impressively low term admission rate to the Neonatal units with a subsequent lesser impact upon our local maternity services, and their ability to deliver women locally.

We were invited to present our work at a **national meeting** in York during the year and have also been cited as an **NHS Improvement case study** for service design, and have provided a number of reference materials to the NHS Improvement team that are being made available nationally.

Baby Support Workers

Our successful Baby Support Worker project has enabled us to make this role permanent on both the UHND and DMH sites. Feedback on their role has been extremely positive and enhanced the level of care we provide to babies and their families following delivery.

We are hopeful that this role might extend to a 24 hour role over the next 12 months and may also allow us to increase the care provided on the postnatal ward, potentially reducing admission rates for our preterm baby population in addition to our term babies.

The Baby Support Workers received the **Enhanced Patient Care Award for 2017** from the Trust in recognition of their role and the positive impact they have had.

Regional stabilisation training days

We currently host 2 neonatal stabilisation study days per year for CDDFT neonatal staff. These days are arranged with the Northern Neonatal Network and the teaching/lectures are provided by clinical staff from across the region.

The aim of these study days is to help maintain standards in the stabilisation of premature babies prior to transfer to intensive care units. The days contain both lectures and simulation/role play, allowing staff to practice the necessary skills for effective stabilisation and transfer. Skill stations are also included covering mask ventilation, umbilical catheterisation and chest drain insertion.

The days are held at our Clinical Simulation Centre and attended by both medical and nursing staff from both units. Feedback from these study days remains positive and staff value them highly.

Human factors training – multidisciplinary immersive simulation

This programme has continued through 2018. The focus is on human factors and the interactions between teams and patients in order to help maintain performance and outcomes across the service.

This training puts staff from obstetrics, maternity, paediatrics and neonates together to explore and participate in deliberately challenging immersive simulated scenarios, making use of our Clinical Simulation Centre and its facilities.

NEST – Neonatal Emergency Simulation Training

Our NEST sessions continue with the aim of highlighting areas of good practice and identify learning needs in all areas of neonatal emergency care.

We aim to provide a rolling programme of 12 scenarios over the year to both medical and nursing staff involved in neonatal care. Feedback continues to be very positive and learning points are carried through to every day practice.

NLS – Newborn Life Support

Most of our nursing staff hold a current NLS qualification. All medical staff must hold a valid NLS certificate before they are allowed to attend deliveries without senior supervision, and many midwives are also accredited. We run 4-5 courses a year supported by our nursing, midwifery and medical instructors, who also support courses across the Network.

Research

Across CDDFT, we have been and continue to be continuing care sites for many research trials and studies. Recent examples include SIFT, ELFIN and the Baby-Oscar trial.

We have been accepted as a Continuing Care site for the FLAMINGO trial (Feeding in Late And Moderately preterm Infants Nutrition and Growth Outcomes) to examine whether different nutrients can alter growth parameters. This study will also see increased collaboration between that neonatal and midwifery research teams.

With a paediatric research nurse in Trust and continuing integration with the other units across the Network, we hope to further develop in this area.

Audits

We regularly participate in national and local audit in order to benchmark good practice and highlight areas for improvement. Some key areas are listed here.

National Neonatal Audit Programme – see later section

Infection Prevention and Control – High Impact Interventions (Department of Health)

Perinatal Morbidity – collaborative review of cases seen within the Trust

National MatNeo collaborative – management and care given to babies at risk of hypoglycaemia, including the “golden hour”.

Clinical Governance

We strive to improve neonatal care and outcomes through the review of babies admitted to the neonatal unit and those that are transferred to other providers within our Network.

Each month all term admissions, transfers out to regional care, and admissions from transitional care are collated and reported back to the multidisciplinary team of Obstetricians, Paediatricians, Midwives and managers. Selected cases are presented for analysis and discussion in order to identify any recommendations or developmental needs.

Health & Safety

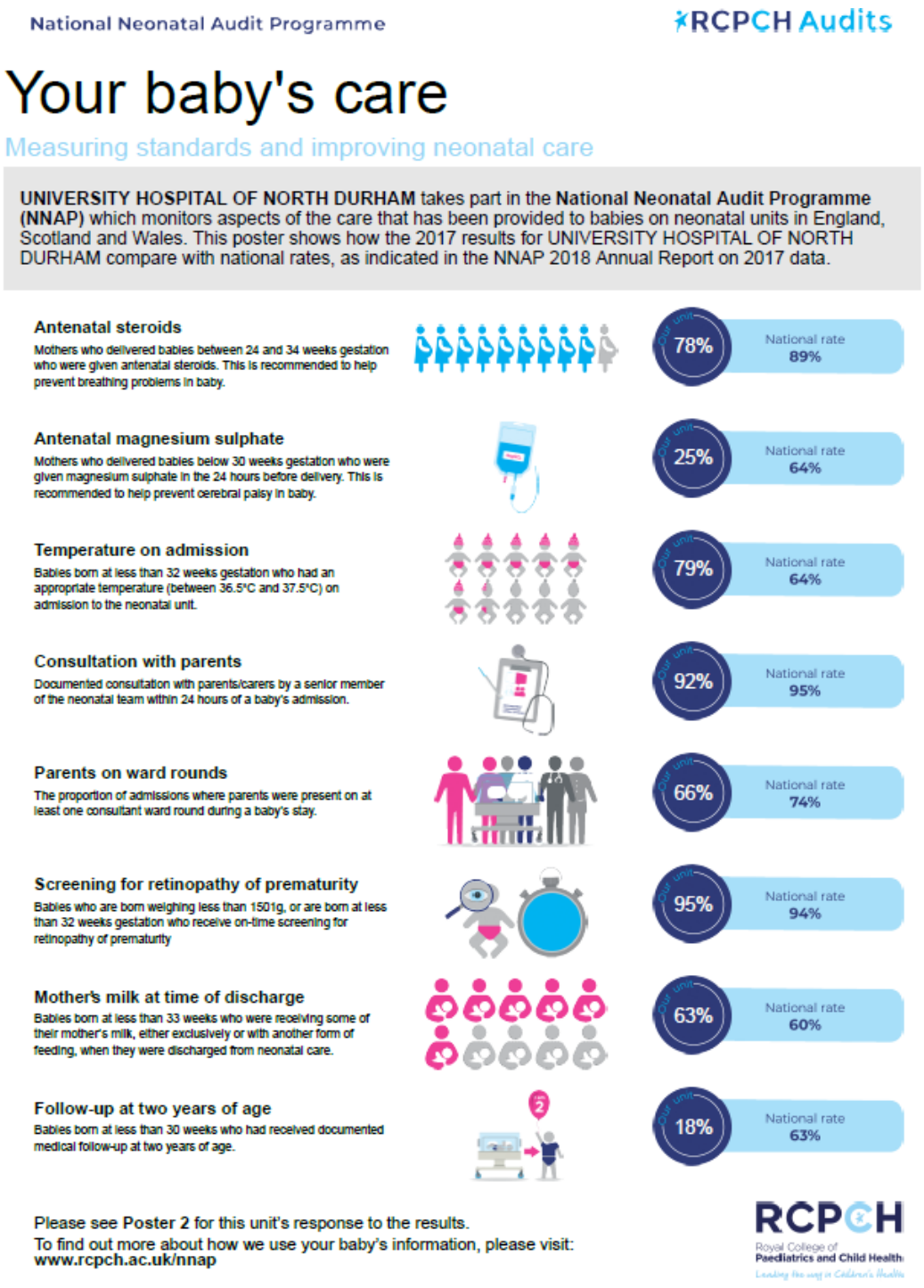
Both of our units successfully passed annual health and safety audits in 2018, both passed with GREEN Status and are due for review in June 2019 and September 2020 respectively.

National Neonatal Audit Programme (NNAP)

The NNAP was established to support professionals, families and commissioners in improving the provision of care provided by neonatal services.

The NNAP measures care based on data provided annually by all levels of neonatal unit. The audit informs action planning at a unit, network and national level.

Our most recent results are show here.



National Neonatal Audit Programme

RCPCH Audits

Your baby's care

Measuring standards and improving neonatal care

DARLINGTON MEMORIAL HOSPITAL takes part in the **National Neonatal Audit Programme (NNAP)** which monitors aspects of the care that has been provided to babies on neonatal units in England, Scotland and Wales. This poster shows how the 2017 results for DARLINGTON MEMORIAL HOSPITAL compare with national rates, as indicated in the NNAP 2018 Annual Report on 2017 data.

Antenatal steroids

Mothers who delivered babies between 24 and 34 weeks gestation who were given antenatal steroids. This is recommended to help prevent breathing problems in baby.

Our unit: 90%

National rate 89%

Antenatal magnesium sulphate

Mothers who delivered babies below 30 weeks gestation who were given magnesium sulphate in the 24 hours before delivery. This is recommended to help prevent cerebral palsy in baby.

Our unit: 0%

National rate 64%

Temperature on admission

Babies born at less than 32 weeks gestation who had an appropriate temperature (between 36.5°C and 37.5°C) on admission to the neonatal unit.

Our unit: 70%

National rate 64%

Consultation with parents

Documented consultation with parents/carers by a senior member of the neonatal team within 24 hours of a baby's admission.

Our unit: 87%

National rate 95%

Parents on ward rounds

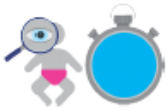
The proportion of admissions where parents were present on at least one consultant ward round during a baby's stay.

Our unit: 79%

National rate 74%

Screening for retinopathy of prematurity

Babies who are born weighing less than 1501g, or are born at less than 32 weeks gestation who receive on-time screening for retinopathy of prematurity



Our unit: 79%

National rate 94%

Mother's milk at time of discharge

Babies born at less than 33 weeks who were receiving some of their mother's milk, either exclusively or with another form of feeding, when they were discharged from neonatal care.

Our unit: 33%

National rate 60%

Follow-up at two years of age

Babies born at less than 30 weeks who had received documented medical follow-up at two years of age.

Our unit: 0%

National rate 63%

Please see **Poster 2** for this unit's response to the results.

To find out more about how we use your baby's information, please visit:
www.rcpch.ac.uk/nnap

RCPCH
Royal College of Paediatrics and Child Health
Leading the way in Children's Health

Key reflections

The results for the NNAP survey for 2018 give an indication of areas within which we have shown improvement and other areas in which we have underperformed.

As a team we have looked at areas where our performance appears surprisingly poor – for example, follow up at 2 years of age – and have identified that we had an issue with data input. We have checked all clinical records and can confirm that all cases were seen appropriately. The same is true for retinopathy of prematurity screening.

Mother's milk at time of discharge continues to show the largest swings in percentage each year despite ongoing efforts to sustain improvement.

New processes have been put in place to help capture data with respect to antenatal magnesium sulphate administration and antenatal steroids.

We are proud that our 'temperatures on admission' data continues to improve, as does initial consultation with parents.

The new parameter – parents on ward rounds – showed reasonable initial results that we aim to build on for next year.

The numbers

The following tables present the data with respect to neonatal service workload. We have included statistics from the last 5 years for comparison purposes, and envisage that over time we will be able to identify any changing trends that are likely to impact service provision.

Data is regularly collated using Badger and we have extracted data from this source for this section of the report.

Regular data is also provided to the Northern Neonatal Network and is available in quarterly and annual report formats. This information can be accessed via the link below:

http://www.nornet.org.uk/Data

We strive to make our data as accurate as possible, although there may be minor discrepancies for which we apologise.

Abbreviations/Definitions	
Badger	The national neonatal dataset collection system
SCBU Special care baby unit	Provides special care facilities for local population, as well as some high dependency and intensive care for shorter periods
DMH	Darlington Memorial Hospital
UHND	University Hospital of North Durham
Live birth	Baby born alive regardless of duration of gestation
Stillbirth	Death before delivery, over 24 weeks gestation
Inborn	Born in or en-route to DMH/UHND
BAPM 2011	British Association of Perinatal Medicine classification
Intensive Care (IC)	In our context, when a baby receives mechanical respiratory support via tracheal tube or any day with an umbilical arterial line, umbilical venous line, peripheral arterial line, insulin infusion, chest drain, prostaglandin infusion, repogle tube or silo for gastroschisis
High Dependency Care (HD)	In our context, when a baby does not fulfil the criteria for intensive care, but receives any form of non-invasive respiratory support or any day receiving continuous infusion of drugs, presence of a central venous or long line, tracheostomy, catheter, nasopharyngeal airway/nasal stent, observation of seizures, barrier nursing, ventricular tap
Special Care (SC)	Where a baby does not fulfil the criteria for intensive or high dependency care, but requires oxygen by nasal cannula, feeding by nasogastric, jejunal tube or gastrostomy, continuous physiological monitoring (excluding apnoea monitors only), care of a stoma, presence of IV cannula, receiving phototherapy, observation of physiological variables at least 4 hourly
Transitional Care (TC)	Special care which occurs alongside the mother but takes place outside a neonatal unit, in a ward setting

SCBU DMH

	2014	2015	2016	2017	2018
Total live births, DMH	2181	2227	2085	1959	1921
Total stillbirths	8	5	8	4	7
Admissions to SCBU	207	219	245	168	185
Transitional care admissions	319	424	462	386	390
% admitted to transitional care	14.6%	19%	22%	19.8%	20.3%
% live births admitted to SCBU	9.5%	9.8%	11.7%	8.6%	9.6%

SCBU UHND

	2014	2015	2016	2017	2018
Total live births, UHND	3145	3082	3077	2931	2735
Total stillbirths	9	11	11	10	13
Admissions to SCBU	267	261	275	249	300
Transitional care admissions	529	608	577	586	570
% admitted to transitional care	16.9%	19.7%	18.7%	20%	20.8%
% live births admitted to SCBU	8.5%	8.5%	8.9%	8.5%	10.9%

Demography of admissions (DMH + UHND)

	2014	2015	2016	2017	2018
Total admissions	474	480	520	417	485
In-born booked	337	371	378	291	347
In-born booked elsewhere	18	9	14	8	10
Postnatal transfer in	45	37	60	50	51
Re-admissions	73	52	68	55	74

Gestation (weeks)	2014		2015		2016		2017		2018	
<26	8	1.7%	9	1.9%	6	1.2%	1	0.2%	1	0.2%
26-30	57	12.0%	53	11.0%	44	8.5%	42	10.1%	52	10.7%
31-36	196	41.4%	210	43.8%	274	52.7%	211	50.6%	229	47.2%
>36	213	44.9%	208	43.3%	196	37.7%	163	39.1%	203	41.9%
Total	474		480		520		417		485	

Activity levels in days (BAPM 2011)

	2014	2015	2016	2017	2018
Intensive Care	95	85	103	56	70
High Dependency Care	466	373	405	217	245
Special Care	7073	5583	4712	3849	4035
Transitional Care	2658	2705	2777	2590	2530
Total	10292	8746	7997	6712	6880

Key points

- The number of births at both units was a little lower than last year, and has now fallen gently for 4 years in a row

- Despite this, the number of admissions to our special care baby units has risen in 2018, after previously falling to a 5 year low

- We continue to experience a fall in the number of extreme preterm deliveries in the Trust, when compared to 2 years ago. This indicates that our agreed referral pathways within the Network are working well – babies are mainly being born in the right place.

- Just over 20% of babies receive transitional care in our Trust, helping to reduce admissions and keep families together wherever possible, making use of our successful Baby Support Worker project.

Term admissions to SCBU (excluding congenital anomalies)

This section of the annual report is included to highlight both the low rate of term admission that we have within our service, and as it is now a national maternity indicator through which units can be benchmarked with each other.

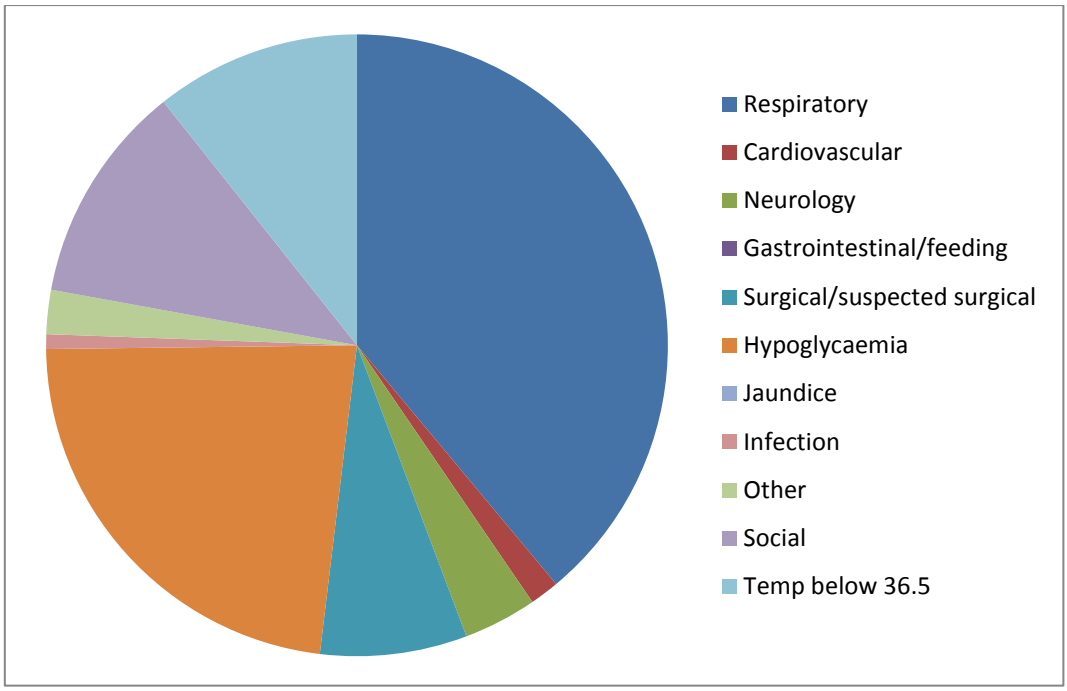
	UHND			DMH			Total		
Year	**2016**	**2017**	**2018**	**2016**	**2017**	**2018**	**2016**	**2017**	**2018**
Total deliveries	3088	2941	2748	2089	1963	1928	5177	4904	4656
Total Term deliveries	2502	2717	2545	1645	1829	1787	4147	4546	4332
Total Term admissions	86	88	124	75	54	80	161	142	204
% of term babies admitted	3.4	3.2	4.9	4.5	3.0	4.5	3.9	3.1	4.7

Reasons for term admission – top 5

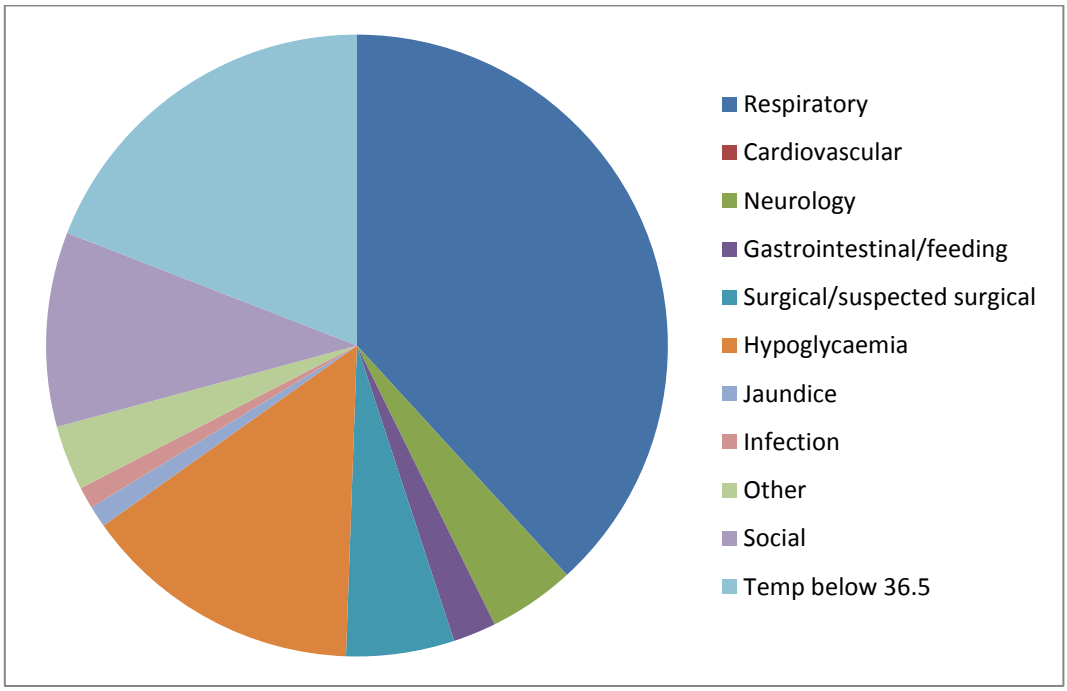
2018	**UHND**			**DMH**	
1	Respiratory	41.1%	1	Respiratory	42.5%
2	Hypoglycaemia	24.0%	2	Temperature below 36.5	21.2%
3	Social	12.0%	3	Hypoglycaemia	16.3%
4	Temperature below 36.5	11.2%	4	Social	11.3%
5	Surgical/suspected surgical	8.0%	5	Surgical/suspected surgical	6.3%

2017	**UHND**			**DMH**	
1	Respiratory	55.7%	1	Respiratory	62.9%
=2	Hypoglycaemia	14.8%	=2	Surgical/suspected surgical	9.2%
=2	Temperature below 36.5	14.8%	=2	Temp below 36.5	9.2%
4	Social	12.5%	=2	Social	9.2%
5	Other	5.7%	5	Hypoglycaemia	7.4%

UHND – all reasons



DMH – all reasons



Respiratory illness - highest level of support needed

	UHND %			DMH %		
	2016	**2017**	**2018**	**2016**	**2017**	**2018**
Ventilated	14	10	8	5	15	8
CPAP/HFO	42	39	22	29	26	15
Oxygen only	29	39	12	31	41	11
Monitored only	15	12	5	35	18	4

Key points

- Our term admission rate remains very low, at 4.7% for 2018. This is below the Network target of 5%

- Reasons for term admissions and how we may avoid them are regularly discussed in our monthly case review meetings

- We appear to be providing a level of consistency both across sites

- We are pleased to see that the percentage of babies admitted to SCBU for monitoring of their respiratory status has reduced (although this simplistic measure does not take into account other presenting concerns)

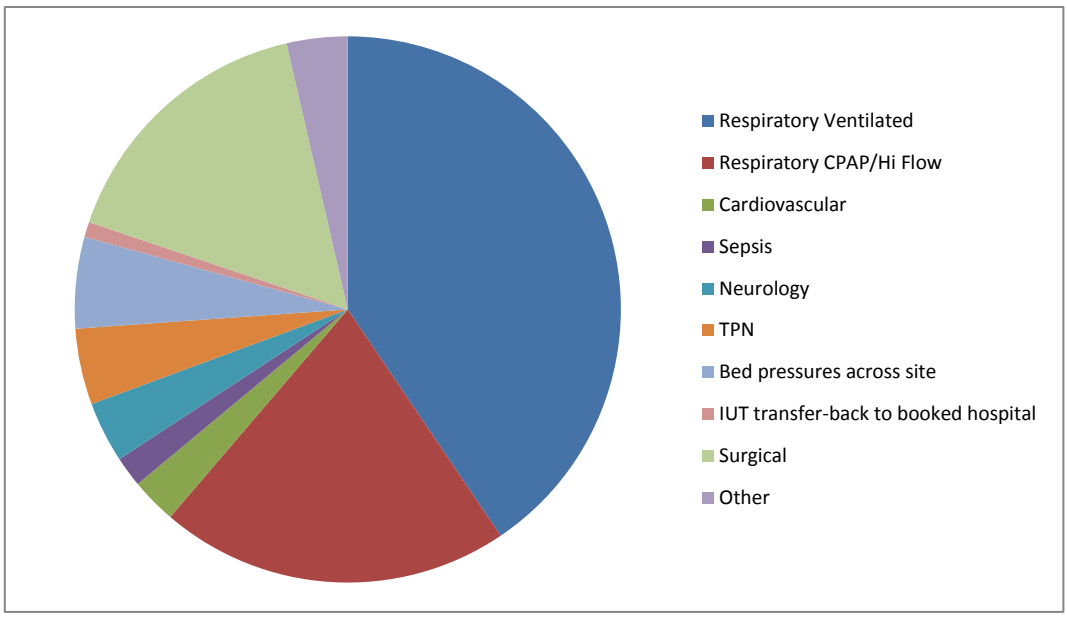
- The awareness of our top 5 reasons for term admissions has helped us to focus education and training where needed – we have been looking at temperature regulation (particularly at the DMH site) and hypoglycaemia management (particularly the UHND site).

- As part of the national MatNeo collaborative we have been looking closely at hypoglycaemia and temperature management to enable all babies to get off to the best start.

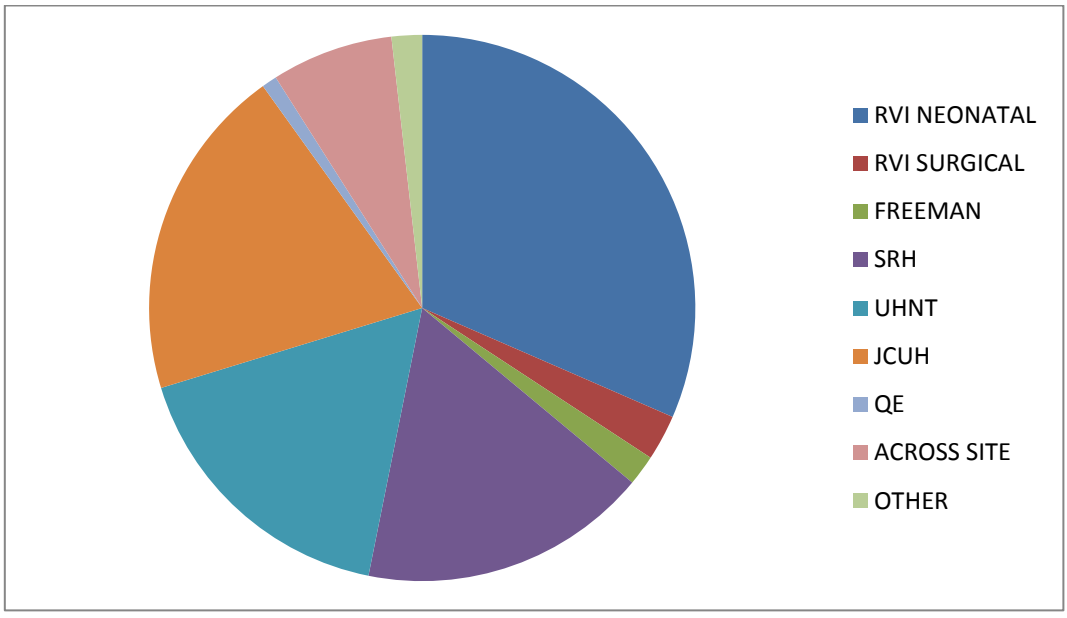
Transfers

	2016	2017	2018
Number of transfers	97	85	111
Percentage of total births	1.8%	1.7%	2.4%
Number preterm	64	52	81
Number term	33	33	30

Primary reason for transfer



Transfer destinations



Key reflections

- For the year 2018 we have seen an increase in the number of babies transferred out of our units in order to receive care elsewhere.

- All transfers were according to our agreed Northern Neonatal Network referral pathways

- We have seen an increase in the number of babies transferred on CPAP/Hi Flow respiratory support. This is in keeping with the newest pathway for referral – that all babies requiring respiratory support for 28 hours need to be discussed with the regional teams. This trend, if replicated across our Network, may need to be monitored to ensure that capacity does not become an issue.

- As you would expect the majority of babies transferred were premature, however, we are reminded here that term babies can unexpectedly require assistance, even to the point of transfer

- Unfortunately we did have to transfer some babies out of our Network for capacity reasons in 2018, something we hope will not be repeated in 2019.

- All cases in which a transfer takes place are reviewed to ensure all care was delivered appropriately

Challenges

Some of the challenges for the next year have already been outlined in the different sections of this report and are particular to a service of our size and configuration.

We strive to continually improve the quality of our data, and try to extract information that we hope will be of interest to the reader. Some of the areas we would like to report on in future reports are:

- the reasons for transitional care admissions to SCBU
- continue to examine the reasons for transfer of babies
- continue to assess the number of term baby admissions and the reasons for their admission
- NEST project feedback and plans
- Human factors training feedback and plans
- We would also like to improve the facilities available to parents and families. Leo's Neonatal have helped us to do this in some areas, but we hope that we can take this further in terms of accommodation, dining and relaxation areas.

If you have any comments or suggestions for future reports please let us know.

Dr Mehdi Garbash, Clinical Lead (mehdi.garbash@nhs.net)

Angela Price, Paediatric & Neonatal Matron

Julie Sanderson, Neonatal manager and Sister