



City Hospitals Sunderland **NHS**
NHS Foundation Trust

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SUNDERLAND NEONATAL UNIT

ANNUAL REPORT

2016



FOREWORD

This is our fourth annual report for the calendar year 2016 in the new format. We continue to demonstrate our unit performance in relation to both regional and national standards.

We are very pleased to welcome new members in the medical and nursing teams this year.

We continue to perform above the national average in several areas in the NNAP report as evidenced by the latest report in 2017 on data from 2016.

In addition this year we present data from the national NIPE SMART (Newborn & Infant Physical Exam) screening tool.

Our mortality data is reported against unique babies by gestational age and weight. Due to small numbers in the extreme preterm and very low birth weight categories we suggest that the results are interpreted with caution.

Also included since last year are MBRRACE report and our analysis of the report. It is important to bear in mind that MBRRACE reports are based on data from 2 years ago i.e. the data presented in this annual report relates to mortality in 2015.

I would like to thank Dr Majd Abu-Harb for giving me this opportunity and his ongoing support in presenting this report in the new layout.

Special thanks to -

Dr Lorna Gillespie (Badger data accuracy and document review)

Dr Geethanath (Term admissions and document review)

Mrs. Aarti Ullal & Sister Julie Harris (Maternity data)

Gillian Reay (NIPE screening data)

Dr Imran Ahmed, October 2017



STAFF

Rachel Patterson	Matron
Kristina Simmons	Neonatal Unit Manager

Consultant Neonatologists:

Dr Majd Abu-Harb	Clinical Lead
Dr Imran Ahmed	
Dr Rупpa Geethanath	
Dr Lorna Gillespie	
Dr Chike Onwuneme	

Advanced Neonatal Nurse Practitioners (ANNP):

Lesley Atkinson, Eileen Cornell, Susan Forth, Amie Luke, Gillian Reay, Ann Smith, Bernadette Taylor, Katherine Marshall, Cheryl Burgess and Beverley McMann

Junior Medical Staff

There are 4 Tier 1 specialist paediatric trainees (ST1-3) and 1 Tier 2 (ST4-8) trainee.

Specialist Nurses:

Lesley Hemmings/Lisa Beuster	Lead for Breast Feeding
Tracey Gleghorn	Lead for Discharge planning
Emily Cameron	Lead for Nurse Education
Natalie Talbot	Research Nurse
Kayleigh Light	Lead for developmental care
Emily Cameron/Kayleigh Light	Bereavement support

Community Nurse Team

This consists of 3 paediatric community liaison nurses who meet with the families prior to discharge and continue with specialist nursing input as required once home.

Specialist Therapies

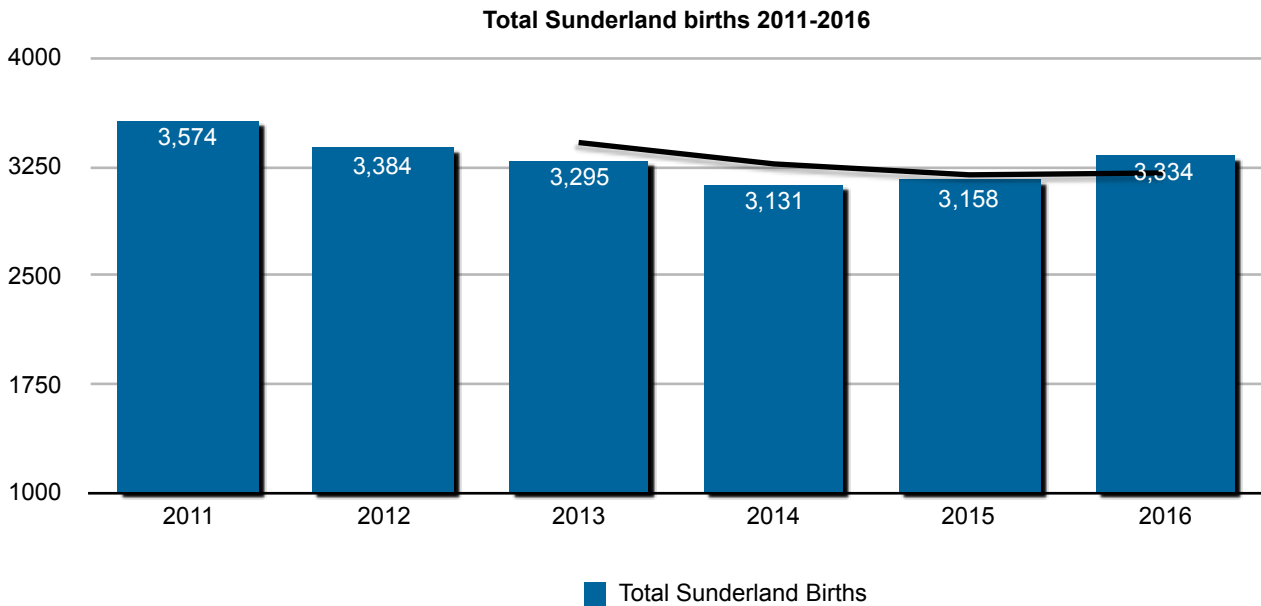
There is input from paediatric Speech and Language Therapists and paediatric Physiotherapists as required. These teams are also part of the developmental care group.

Ophthalmologist:

Mr. Lawrence Consultant Ophthalmologist (Sunderland Eye Infirmary)

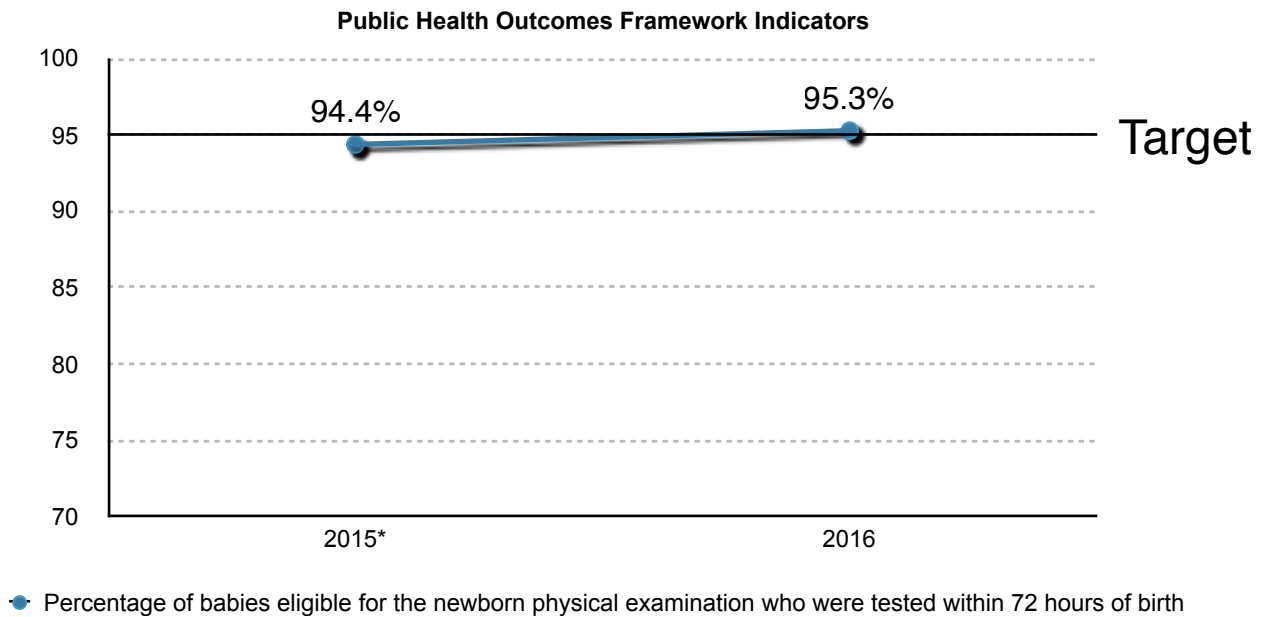
Maternity Statistics

Data was gathered from the maternity services data collection tool and covers the last 6 years. The line shows 3 year rolling averages. Total includes all viable and non-viable births born at SRH.



2016	Total	%
Live Births	3334	
Born Before Arrival to Hosp	29	
Twins	45	1.3%
Triplets	0	
Preterm GA (23 weeks - <37 weeks)	255	8.3%
Breast Feeding initiation rate (Postnatal ward)		49.65%
Mothers intended to breast feed & discharge on breast milk (NNU)		59.46%
Smoking at time of delivery		18%

NIPE - Newborn & Infant Physical Exam



Newborn examination recording on NIPE SMART system went live in May 2015 at City Hospitals Sunderland. 2015* data hence doesn't reflect the whole of the calendar year.

Currently the neonatal team provides the early screening and referrals of newborn infants in postnatal wards with plans in the coming years to expand this to the midwifery team.

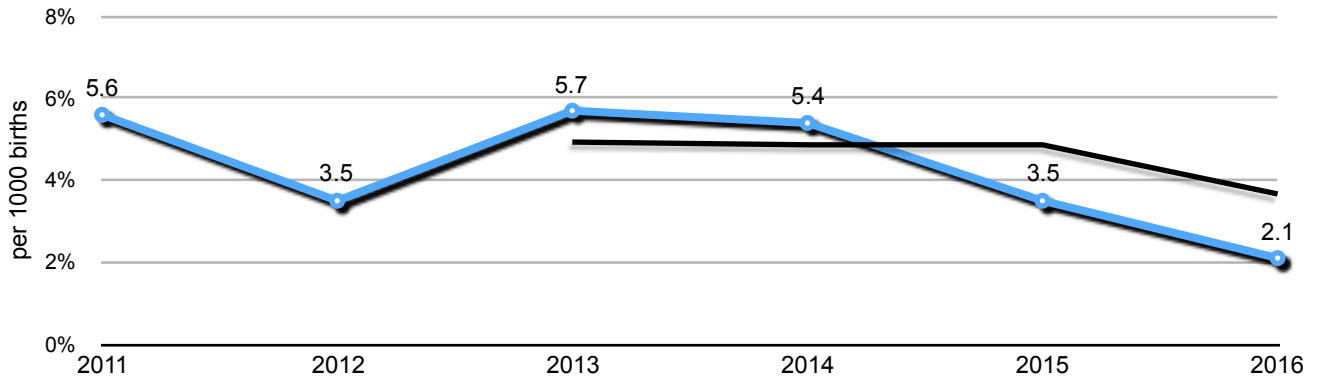
In addition in the subsequent years we will aim to report additional PHE (Public health England) screening performance particularly timely intervention and referrals for examination of the hips, eyes, testes and heart.



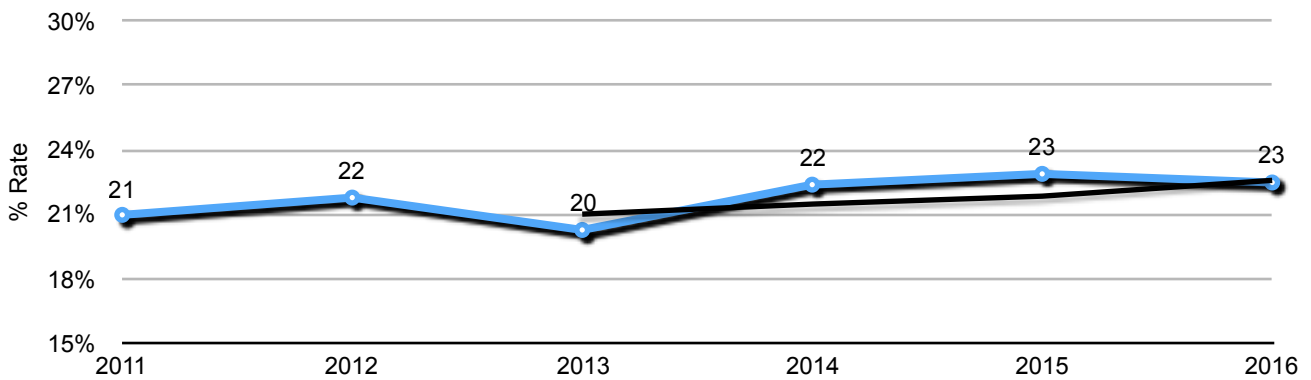
Maternity Statistics

Data is shown below with 3 year rolling averages indicated by the trend line.

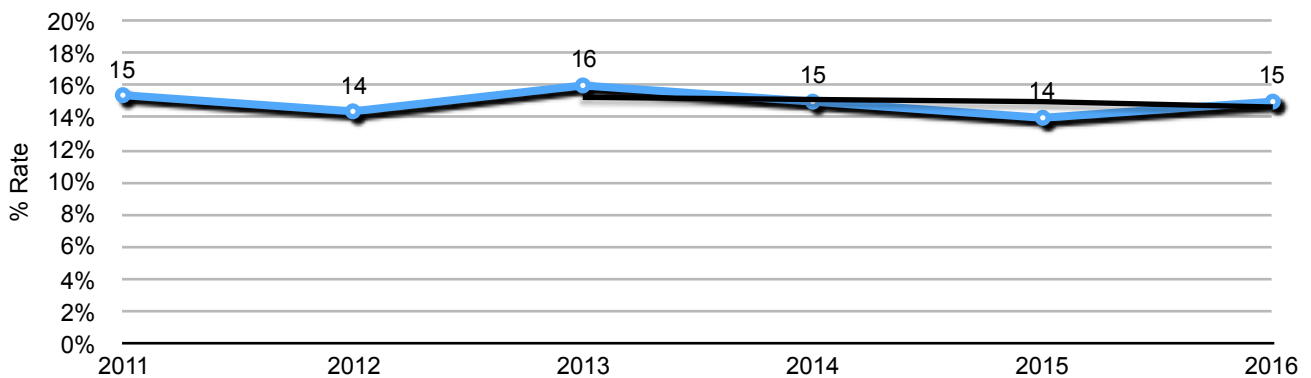
Still births rate per 1000 2011 - 2016



Total LSCS % rate 2011 - 2016



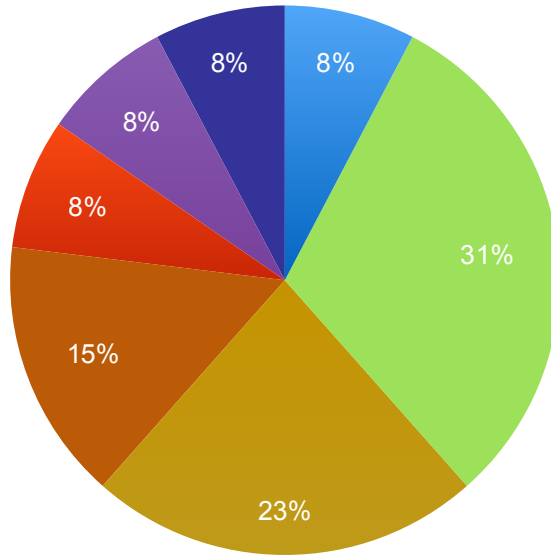
Total Instrumental delivery % rate 2011 - 2016



In Utero Transfers

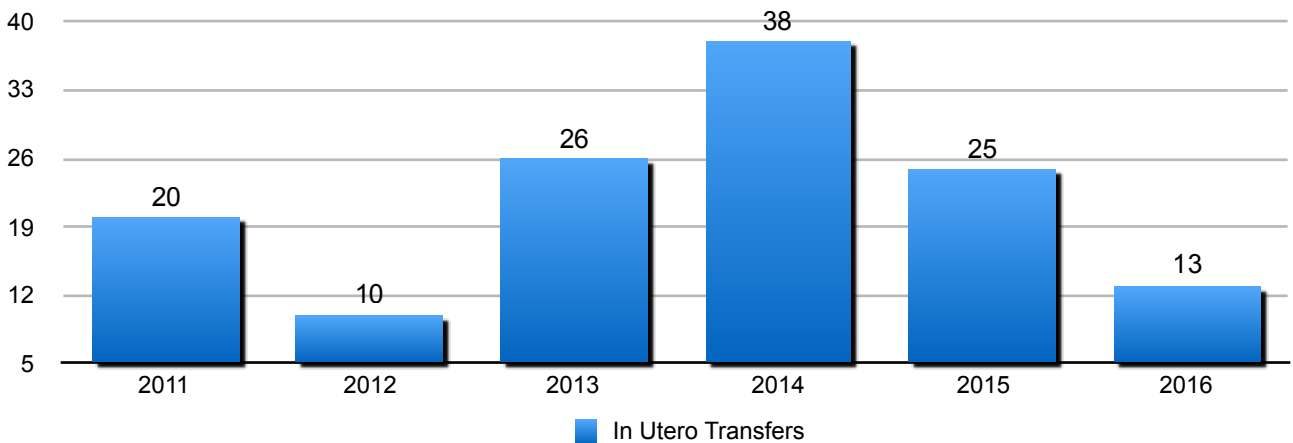
This data was collected using Badgernet and so contains details of only those babies who were transferred in utero and subsequently admitted to the neonatal unit at SRH.

All in-utero transfers that delivered & were admitted by referral hospital in 2016



- Out of Area
- QE Gateshead
- South Tyneside DG
- Cumbria
- RVI
- Univ Hosp North Durham
- Unbooked

All in-utero transfers that delivered & were admitted to neonatal unit between 2011 - 2016

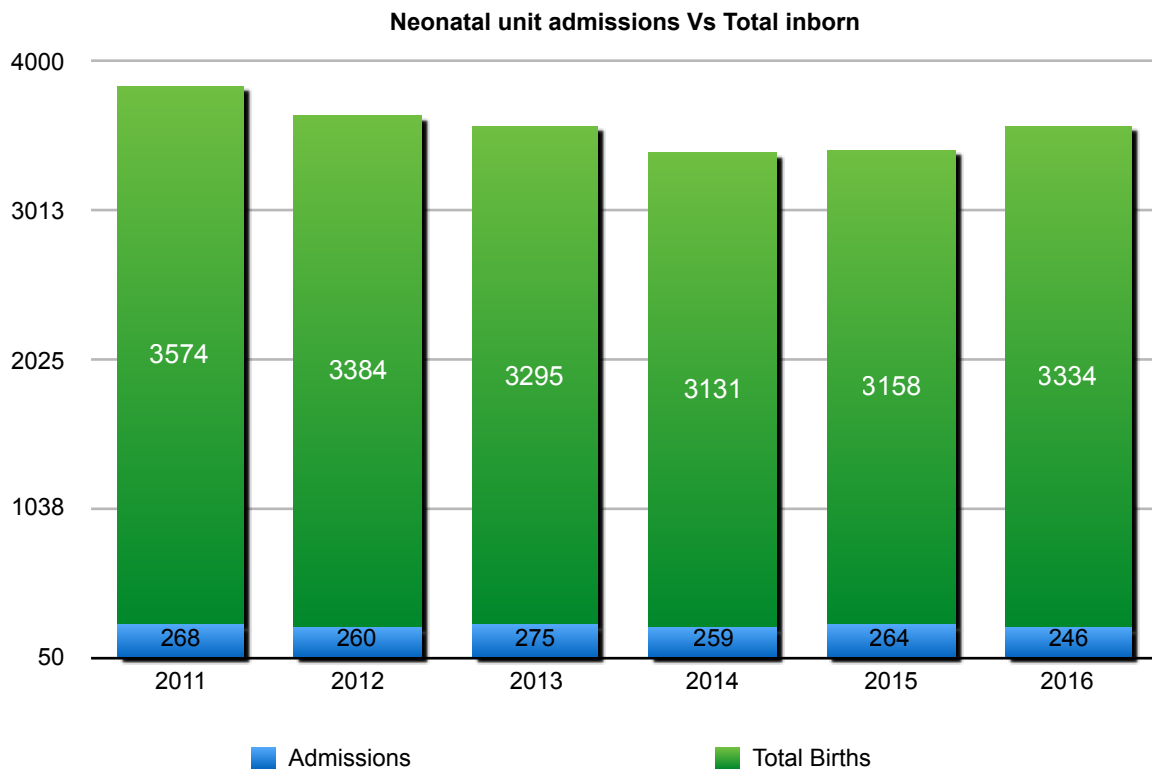
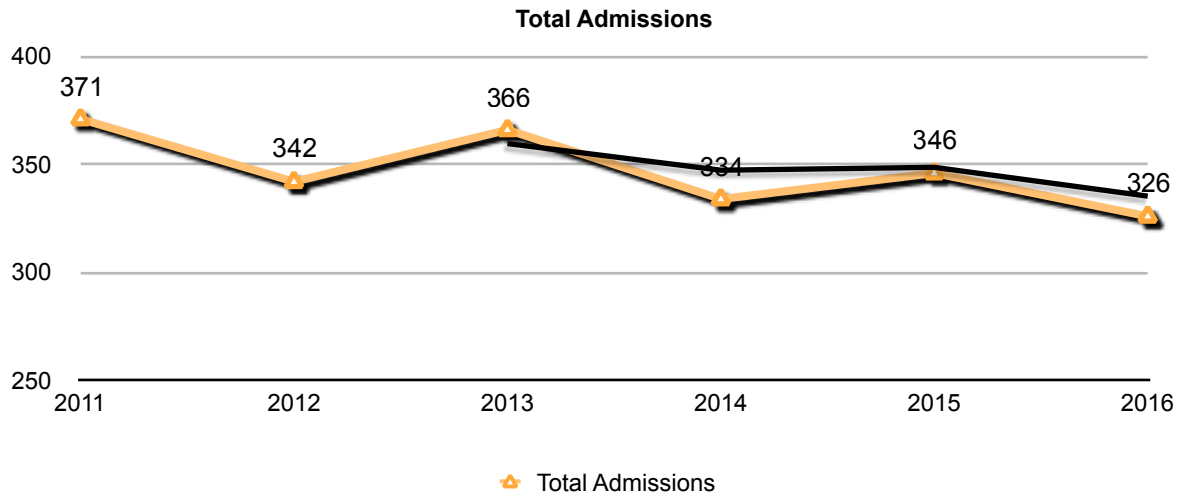


Neonatal Activity

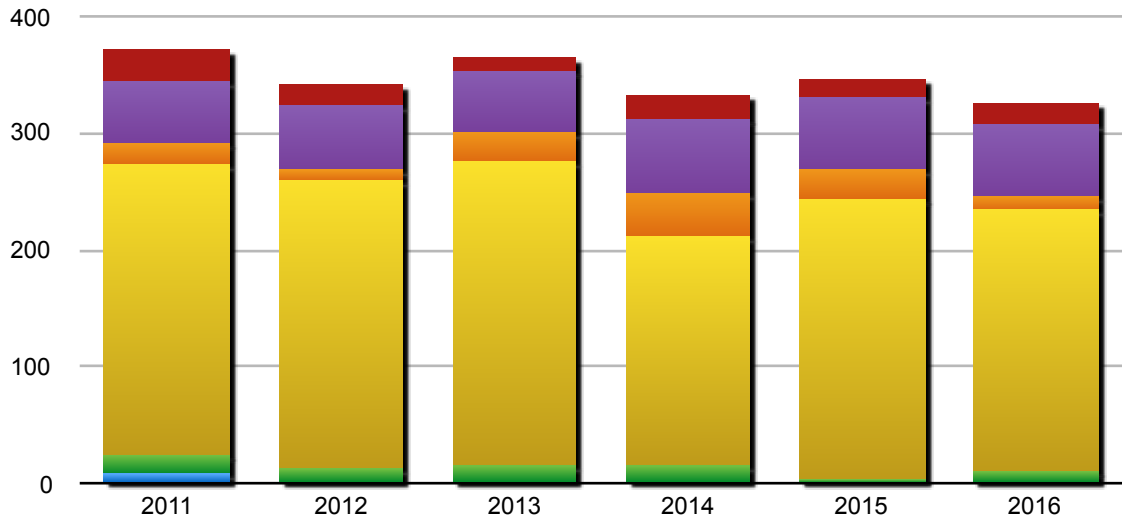
Admissions to NICU, Sunderland Royal Hospital

Badgernet was used to collect the data presented in the following section. All admissions to the NICU at Sunderland Royal Hospital are included (both booked as well as in utero transfers). Readmission data includes babies who were readmitted to the unit following transfer to other sites for specialist care e.g. surgery.

The 1st graph below shows total admissions with a 3 year moving average. The second graph shows proportion of inborn babies admitted to NICU (7.2%).



Admissions by referral type

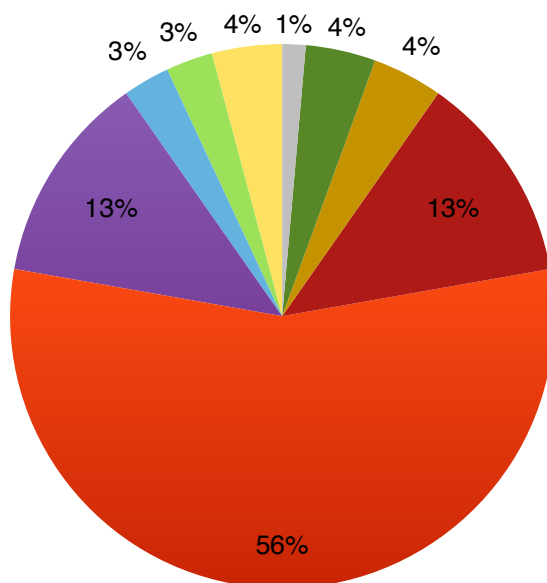


■ Unknown
 ■ Home
 ■ Inborn - Booked
 ■ Inborn - Booked elsewhere
 ■ Inborn - Unbooked
■ Postnatal Transfer In
 ■ Readmission

Both graphs show the distribution of NICU admissions by referral source and booked place of birth. Sunderland upgraded to the latest Badgernet system towards the end of 2014 it is likely that some differences in how data are represented will be apparent in this report.

	2011	2012	2013	2014	2015	2016
Home	16	11	14	15	4	10
Inborn - Booked	250	248	260	195	240	225
Inborn - Booked elsewhere	18	10	25	37	24	11
Inborn - Unbooked	0	0	0	1	0	1
Postnatal Transfer	54	53	54	63	62	60
Readmission	26	19	12	22	16	19
Unknown	7	1	1	1	0	0

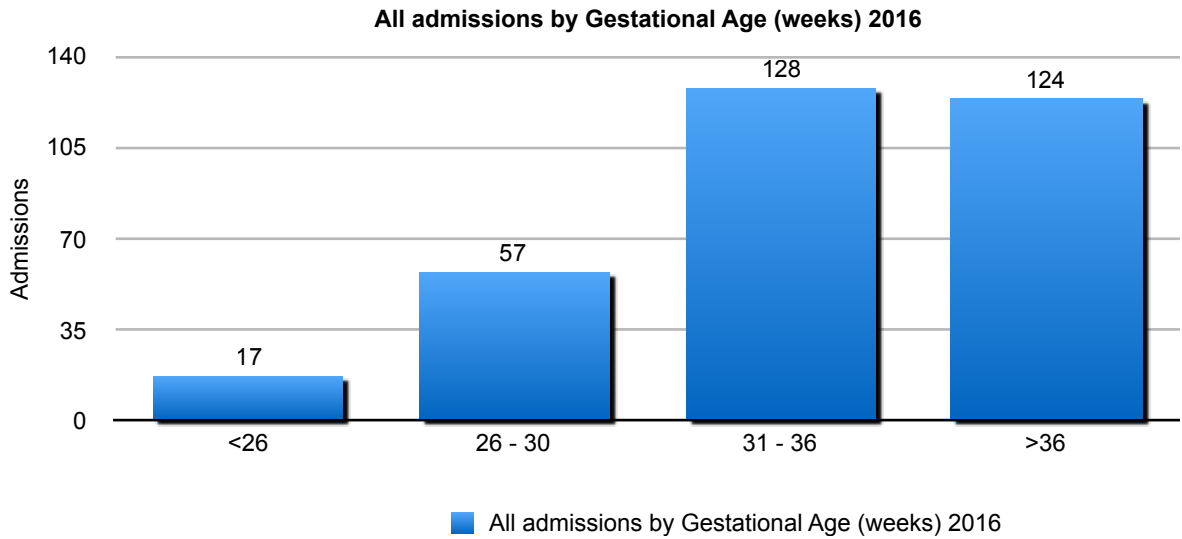
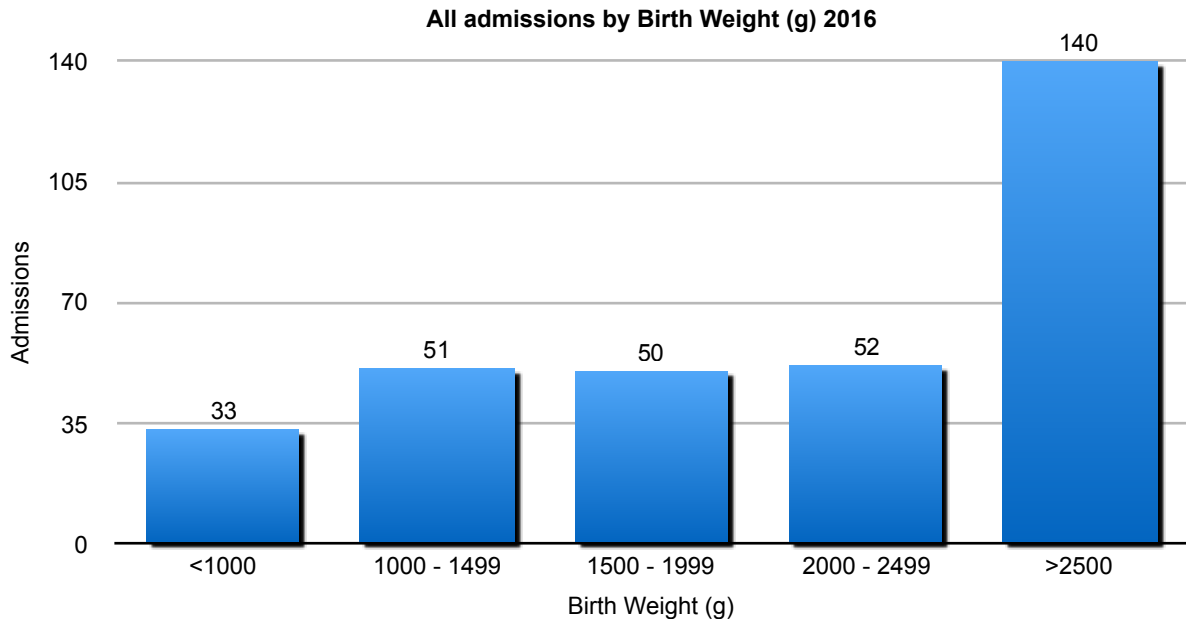
Postnatal transfers into SRH by Hospital (2016)



- Cumberland Infirmary
- QE Gateshead
- JCUH
- South Tyneside
- RVI
- Univ Hosp of North Durham
- Univ Hosp North Tees
- West Cumb Hosp
- Out of network

Postnatal transfers into SRH by Hospital (2011 - 2016)

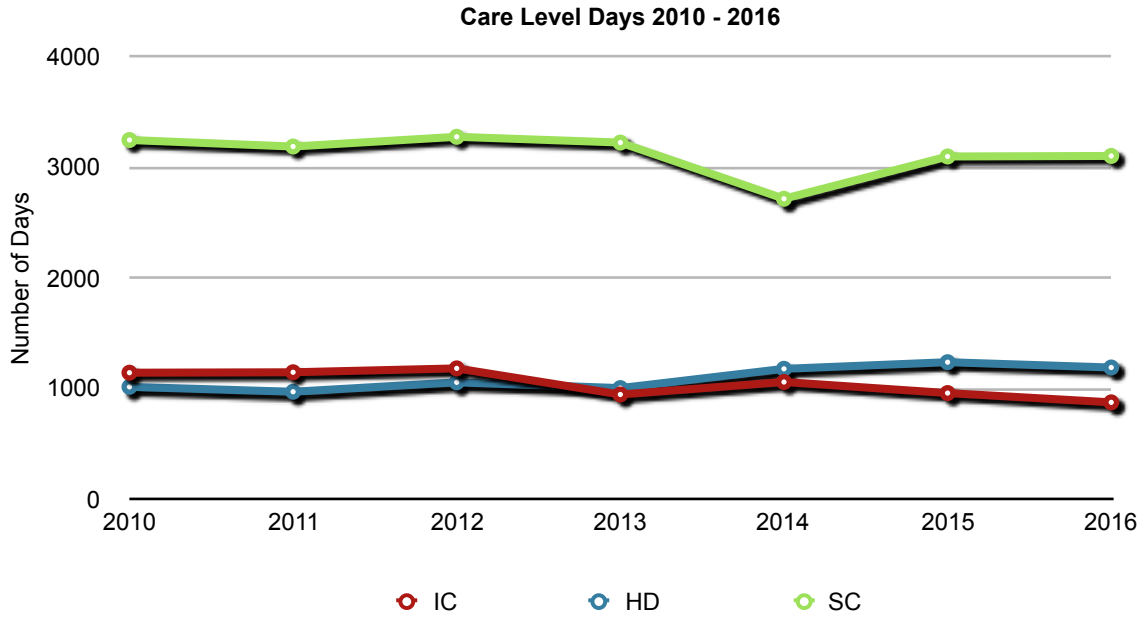
Booking Hospital	2011	2012	2013	2014	2015	2016
Cumberland Infirmary	3	4	3	5	4	1
Darlington Memorial	1	0	1	1	0	0
North Tyne Gen Hosp	1	0	0	0	0	0
QE Gateshead	3	0	3	11	3	3
James Cook Univ Hosp	1	0	3	0	3	3
South Tyneside	7	8	10	4	10	9
RVI	21	18	18	23	28	40
Unbooked	0	2	0	0	0	0
Univ Hosp of North Durham	9	3	7	12	7	9
Univ Hosp of North Tees	1	3	0	3	2	4
Unknown	2	0	1	0	0	0
Wansbeck DGH	2	4	4	9	9	0
West Cumb Hosp	4	3	1	3	2	2
Other Network	0	0	0	0	3	3
Total	55	45	51	71	71	74





Care Level Days and Cot Occupancy

In 2016 (BAPM 2011) activity of 2077 intensive and high dependency days with a total IC and HD cot occupancy of **81%** averaged over the year (IC/HD 7 cots used for calculation).



Since year 2015 IC/HD data is based on BAPM 2011 standards

Care Level in Days 2010 - 2016

Year	IC	HD	IC & HD
2010	1149	1021	2170
2011	1153	977	2130
2012	1188	1062	2250
2013	952	1010	1962
2014	1065	1184	2249
2015	965	1244	2209
2016	881	1196	2077

Refusals of Requests for Cot by type of referral

Demand for Intensive care (IC) and High dependency cots (HD) remains high in the region. Adequate and skilled nurse staffing continues to be the main reason for refusals.

	2011	2012	2013	2014	2015	2016
In Utero (within network)	32	27	39	25	43	44
In Utero (other network)	5	0	1	0	2	2
Ex Utero (within network)	9	8	14	29	44	59
Ex Utero (other network)	0	0	0	2	0	0
Total	46	35	54	56	89	95

Sunderland booked and Transferred out (2014 - 2016)

	2014	2015	2016
In Utero (within network)	8	4	1
In Utero (other network)	0	0	0
Ex Utero (within network)	2	1	3
Ex Utero (other network)	0	0	0

Outcome

National Neonatal Audit Project (NNAP) data 2016

NNAP audit question	Standard	National (average)	National NICU (average)	Northern Network Average	Sunderland NNU
Do all babies <32 weeks gestations have their temperature taken within the first hour after birth?	98% - 100%	96%	96%	96%	98%
What proportion of babies<32 weeks gestation had an admission temperature between 36.5-37.5?	90%	61%	61%	61%	65%
Are all mothers who deliver babies between 24+0 and 34weeks gestation given any dose of antenatal steroids?	85%	86%	87%	87%	88%
Are all babies with a gestational age of <32+0 weeks or <1501g at birth undergoing 1st Retinopathy of Prematurity (ROP) screening in accordance with the current national guideline recommendations?	100%	94%	94%	93%	100%
Is there a documented consultation with parents by a senior member of the neonatal team within 24 hours of admission?	100%	90%	90%	90%	98%
NNAP audit question		National (average)	National NICU (average)	Northern Network Average	Sunderland NNU
What proportion of babies <33+0 weeks gestation at birth are receiving any of their mother's milk when discharged home from a neonatal unit?		59%	56%	40%	53%
What is the proportion of babies born <32 weeks who develop Bronchopulmonary Dysplasia? (year of final discharge 2013-2015)		31%	38%	39%	42%
What proportions of eligible babies have received FU at 2 years corrected age?		60%	64%	66%	69%
How many blood stream infections are there on a NNU per 1000 days of central line care? QISD-CLABSI		5.56	9.27	-	3.18

Outcome

We have additionally provided information for 3 key morbidities: Hypoxic Ischaemic encephalopathy (Grade 2 - 3 and requiring therapeutic hypothermia), Necrotising enterocolitis (suspected and transferred to surgical unit), and retinopathy of prematurity (eligible and screened and those that required treatment).

It is difficult to provide meaningful interpretation for each of the key morbidities due to small numbers as well as problems with accurate denominator data. It will be more useful to report these key morbidities at a network level. This data was extracted from Badgernet using “discharge diagnosis” of suspected or confirmed NEC. All neonatal notes are reviewed on discharge by one assessor to ensure accuracy.

Hypoxic Ischaemic Encephalopathy (HIE) requiring therapeutic hypothermia

	No of Babies	Discharged	Died
2014	4	4	0
2015	2	1	1
2016	4	4	0

Necrotising enterocolitis (NEC)

	Suspected & transferred to Surgical Unit	Outcome at Surgical centre	
		Conservative management	Confirmed (Surgery/Post Mortem)
2014	2	1 survived	1 died
2015	6	4 survived	2 died
2016	5	3 survived	2 survived

ROP for responsible unit, screened and treated 2011 - 2016

	2011	2012	2013	2014	2015	2016	%
Eligible & Screened	57	65	58	53	63	56	100
Threshold ROP Treated	0	2	0	2	3	4	

Survival by admission 2016 (unique babies)

Referral Type	Total Admissions	Total Deaths	<7 days	7 - 28 Days	Neonatal Survival %
Inborn - Booked	225	1	1	0	99.5%
Inborn - Booked elsewhere	11	0	0	0	100%
Postnatal Transfer In	60	2	1	1	96.7%
Other	10	0	0	0	100%
Total	306	3	2	1	99%

Neonatal Mortality

Neonatal mortality in the next few tables is reported against unique babies at specific GA and Birth Weight for calendar year 2016. Data has to be interpreted with caution due to small numbers in both the extremely premature and small babies. Data includes only babies that had neonatal care and died in the unit.

Mortality rate /1000 births (All Births 2010 – 2016)

Year	Total Births	Deaths				Mortality rate/1000 births			
		Still Births	<7 Days	7 - 28 Days	>28 Days	Perinatal	Early Neonatal	Late Neonatal	Post Neonatal
2010	3492	22	5	4	0	7.7	1.4	1.2	0
2011	3574	20	4	2	1	6.7	1.1	0.5	0.3
2012	3384	12	2	0	1	4.1	0.6	0	0.3
2013	3295	19	7	3	1	7.8	2.1	0.9	0.3
2014	3131	17	7	1	0	7.6	2.2	0.3	0
2015	3158	11	3	1	2	5.4	1.3	0.3	0.6
2016	3334	7	2	1	1	2.7	0.6	0.3	0.3

Neonatal Mortality

Survival by Birth Weight 2016 (unique babies)

Birth Weight	Total Admissions	Total Deaths	<7 Days	7 - 28 Days	Neonatal Survival %
<499	0	0	0	0	-
500 - 999	25	3	2	1	88%
1000 - 1499	44	0	0	0	100%
1500 - 1999	49	0	0	0	100%
2000 - 2499	51	0	0	0	100%
2500 - 2999	47	0	0	0	100%
>3000	90	0	0	0	100%
Total	306	3	2	1	99%

Survival by GA 2016 (unique babies)

Gestation	Total Admissions	Total Deaths	<7 Days	7 - 28 Days	Neonatal Survival%
< 26	11	3	2	1	73%
26 - 31	67	0	0	0	100%
32 - 36	106	0	0	0	100%
> 36	122	0	0	0	100%
Total	306	3	2	1	99%

Mortality – MBRRACE 2016 report on 2015 data

MBRRACE - UK : Mothers and Babies Reducing Risk through Audits and Confidential Enquiries across the UK

**ENND: Early neonatal deaths,
LNND: Late neonatal deaths
NNU: Neonatal Unit, Sunderland**

MBRRACE - 2015

GA	Booked	Type	Cause (Place)
27	Sunderland	LNND	Surgical (NNU)
35	Sunderland	LNND	Medical (NNU)
37	Sunderland	ENND	Congenital (NNU)
37	Sunderland	ENND	Congenital (NNU)
38	Sunderland	ENND	Medical (NNU)
40	Sunderland	LNND*	Trauma (A&E)

Small number change makes a significant difference to our stabilised and adjusted mortality rates. Moreover our unit has a smaller birth population and is also a designated unit for intensive care from a wider catchment area. This is an area of concern to us and needs to be closely monitored.

MBRRACE includes deaths irrespective of whether they received neonatal unit care or not, 1 out of the 6 deaths attributed to our neonatal unit did not have any neonatal input. Furthermore 2 babies had fatal congenital anomalies diagnosed antenatally.