Royal College of
Paediatrics and
Child Health

Annual Report 2012 National Neonatal Audit Programme

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National Neonatal Audit Programme

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Royal College of
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Leading the way in Children's Health

Annual Report

National Neonatal Audit Programme

2012

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We would also like to thank the many doctors, nurses and others who have contributed their time and effort to collect information; particular thanks are due to the NNAP leads in each unit, who are listed in Appendix A.

1. Introduction

Welcome to this sixth annual NNAP report covering the calendar year of 2012.

This print report is a briefer version of that on the NNAP website www.rcpch.ac.uk/nnap. The online report contains additional tables, graphs and analyses. The symbol in this report indicates that further analyses are available online.

This year's report includes data from 97.2% (174/179) of English and Welsh neonatal units (NNU) open in 2012. All English and Welsh NNU are contributing data to the NNAP in 2013.

Key messages

- **Temperature**: The proportion of babies <28^{+6} weeks gestation in whom temperature was recorded within an hour of birth remains around 89-90%. Over 40% were hypothermic with a temperature <36.5°C; the incidence of moderate hypothermia (32.0-35.9°C) fell from 18% in 2011 to 16% in 2012 and that of normothermia (36.6-37.5°C) increased from 43% to 46% over the same time period.

- **Antenatal steroids**: The proportion of eligible mothers who were recorded to have received antenatal steroids as prophylaxis prior to preterm delivery rose for the fourth successive year to 80% in 2012.

- **Retinopathy of Prematurity**: 60% of eligible babies had their first ROP screening recorded to have been performed within a week of the time window recommended in the current national guidelines, a fall of 7% from 2011 of 67%. Of the 29% of eligible babies who had no ROP screening whatsoever recorded prior to discharge home, only 28% are recorded as being screened as an outpatient.

- **Breast milk at discharge home**: The proportion of babies <33 weeks gestation discharged home receiving any breast milk rose from 54% in 2011 to 58% in 2012. The proportion fed only on mother's breast milk remained constant at 33-34%.

- **Senior staff consultation**: The proportion of parents recorded as seen by a senior NNU staff member within 24 hours of their baby's first NNU admission rose to 79%, up from 68% in 2011.

- **Two year health status**: Of the 1232 babies <30 weeks gestation born in 2009/10 with health data entered at the two years post term follow up, 46% had no neurodevelopmental impairment, 17% had mild/moderate impairment, 18% had severe impairment, and 19% had insufficient data to determine the impairment category. No major progress has been made in this section of the audit because there was no two year follow up data on 53% of those discharged home compared to 55% in 2011.

- **Outliers:** Two questions are being used to identify outliers from the 2012 data: Question 1 (time of first temperature) and Question 3 (ROP screening). Units that underperform in

these audit areas will be contacted in due course to discuss their outlier status following the algorithm in the NNAP Quality Improvement document to which a link may be found at www.rcpch.ac.uk/nnap

1.1 Background

The National Neonatal Audit Programme (NNAP) is commissioned by the Department of Health through the Healthcare Quality Improvement Partnership (HQIP). It is delivered by the RCPCH Clinical Standards department within the Research and Policy Division. The audit commenced in 2006 and was rolled out throughout England in 2007, with Wales coming on board in 2012.

1.2 Aims of the audit

The key aims of the audit are:

i. To assess whether babies admitted to NNU in England and Wales receive consistent care in relation to the audit questions; and

ii. To identify areas for improvement in NNU units in relation to delivery and outcomes of care.

1.3 What is a Neonatal Unit (NNU)?

NNAP is centred on the outcomes and care of babies admitted to NNU. Data utilised by the NNAP are entered by NHS Trusts in different ways. Some Trusts include babies cared for in 'transitional care' wards; some but not all enter data for babies admitted to a neonatal unit for only a brief stay; some include babies receiving care by neonatal unit staff even though the baby remains by his or her mother's side on a postnatal ward. This inconsistency in the way data is entered has in turn generated the question 'What is a neonatal unit'? The answer to this question has been affected by:

i. the costs of including babies within such a database, and in some Trusts this has meant that babies receiving special care (such as IV antibiotics) on the postnatal wards have not been included in these data.

ii. the position of local commissioners over funding the sort of special care described above or funding only special care 'within the four walls of a NNU'. This variability has in turn led to large differences in the percentages of babies 'admitted to NNU' across the country.

At the combined NNAP/NDAU meeting in January 2012 colleagues from a number of NNUs queried previous NNAP analyses in which all NNU admissions had been analysed for question 5 (consultation by a senior member of the neonatal team within 24 hours of admission) and question 7 (babies born between 32^{+0} to 36^{+6} and $>37^{+0}$ weeks gestation receiving care on a neonatal unit). They pointed out that those NNU recording large numbers of special care admissions were probably reporting large numbers of babies in transitional care units or on the postnatal wards: these babies' parents did not necessarily need be seen by *senior* staff members within 24 hours of admission. Thus, a level 3 NNU with a low number of special care admissions could reasonably

be expected to have a very high percentage of parents seen within 24 hours, but one with 1000 or more special care admissions, many outside the four walls of the NNU, would not achieve such a high percentage and the two should not be compared.

Although the merits of this point (ie that there is less urgency for senior staff to see parents on transitional care or post-natal wards) can be debated, NNAP has since 2011 changed its approach to the analysis of these questions. It has tried to confine it to those babies admitted into what could be physically recognised as a NNU. From the data available the most reliable way to do this was first to select only babies in HRG groups 1, 2 and 3 which corresponded essentially to intensive care, high dependency care and special care*. Babies in groups HRG 4 had their mother resident and caring for them and were therefore receiving either transitional care or were on the postnatal ward with their mothers. Babies in HRG 5 received normal care. Therefore in the NDAU analyses some sections indicate that only data from babies who were in HRG 1, 2 or 3 on specific days of their lives have been used. Finally a further filter was applied of 'location of care = NICU' which excluded small numbers of babies in any unit where this field had not been completed or where infants were marked as being cared for in 'Transitional care' or within a 'Postnatal ward'. This filtering should enable a more like-with-like comparison between the units despite the variations in admission policies and data collections.

*Information related to neonatal HRGs can be found on the Information Centre website - http://www.ic.nhs.uk/services/the-casemix-service/using-this-service/reference/archived--past-groupers-and-documentation/payment/hrg4-2011-12-local-payment-grouper-documentation

2. Methods

2.1 Case ascertainment

Data for the NNAP analyses are extracted from the National Neonatal Research Database held at the Neonatal Data Analysis Unit (NDAU). The National Neonatal Research Database contains a predefined set of variables (the National Neonatal Dataset) obtained from the operational, electronic neonatal patient records of each participating NHS Trust. Data are downloaded from the Badger patient record system used in NNUs (Badger3 and BadgerNet) and transferred to NDAU with Trust approval. Every baby admitted to the NNU is entered on this system, and also eligible for inclusion in NNAP; the audit therefore achieves 100% case ascertainment. Babies receiving special care in transitional care or postnatal wards can also be entered. Data utilised for the NNAP analyses change year on year in keeping with changes to the audit questions.

For this report, the cohort comprises all babies with a final discharge from neonatal care from 1 January to 31 December 2012.

2.2 Audit questions

The questions posed in the audit in 2012 were:

1. Do all babies of ≤28^{+6} weeks gestation have their temperature taken within an hour after birth?

2. Are all mothers who deliver their babies between 24^{+0} and 34^{+6} weeks gestation given any dose of antenatal steroids?

3. Are all babies with a gestational age <32^{+0} weeks or <1501g at birth undergoing first Retinopathy of Prematurity (ROP) screening in accordance with the current national guideline recommendations?

4. What proportion of babies <33^{+0} weeks gestation at birth are receiving any of their mother's milk when discharged from a neonatal unit?

5. Is there a documented consultation with parents by a senior member of the neonatal team within 24 hours of admission?

6. Are all babies accessing neonatal services treated in their own network (except where clinical reasons dictate)?

7. How many babies, born between 32^{+0} to 36^{+6} weeks gestation and >37^{+0} weeks gestation receive transitional care (HRG4), special care on a neonatal unit (HRG3), high dependency care (HRG2) or intensive care (HRG1)?

8. Are rates of normal survival at two years comparable in similar babies from similar neonatal units?

9. What percentage of babies admitted to a neonatal unit have:
   - one or more episodes of a pure growth of a pathogen from blood
   - one or more episodes of a pure growth of a pathogen from CSF
   - and either a pure growth of a skin commensal or a mixed growth with ≥3 clinical signs at the time of blood sampling?

10. What percentage of babies of more than or equal to 35^{+0} weeks gestation have an encephalopathy within the first three calendar days of birth?

11. How many blood stream infections[a] are there on a NNU per 1000 days of central line[b] care?

[a]the growth of a recognised pathogen in pure culture, or in the case of a mixed growth, or growth of skin commensal, the added requirement for 3 or more of 10 predefined clinical signs

[b]central line = UAC, UVC, percutaneous long line or surgically inserted long line.

These questions are addressed by the data items listed at Appendix B.

2.3 Participating units

There were 179 NNU in England and Wales in 2012; 97.2% (174) of these contributed data for the NNAP 2012 analysis in this report (NNU levels SCU, LNU and NICU; Appendix C provides definitions of the different categories of care). The results for James Cook University Hospital, Middlesbrough, include those of Friarage Hospital as these units submit one combined set of data for South Tees Hospitals NHS Trust and the Leeds Neonatal Service covers both Leeds General and St James's Hospitals. Participating units are listed at Appendix D.

Liverpool Women's Hospital, which is using a standalone Badger system, requested that their data be included in selected audit questions only (questions 1, 2, 3, 5 and 6) , as the quality and quantity of the data received for other questions was not representative of data that had been entered locally.

14 NNU started to use the BadgerNet platform part way through 2012 or have asked that only part of their 2012 data be used for the report (Northampton General Hospital, York District Hospital, Cumberland Infirmary and West Cumberland Hospital, and the following Welsh units: Singleton Hospital, Princess of Wales Hospital, Glan Clwyd Hospital, Wrexham Maelor Hospital, Ysbyty Gwynedd, Royal Glamorgan Hospital, Prince Charles Hospital, Glangwili General Hospital, Withybush Hospital, and Bronglais General Hospital) and they are thus represented in this report by less than a full calendar year's data; in addition, one NNU (Fairfield General) closed during 2012 and Constance Green Ward at The Royal London Hospital moved to use the same code as Elizabeth Ward part way through the year. All NNU with less than twelve months data are identified in Appendix D.

Table 1. Neonatal units in England and Wales without data included in this report:

Neonatal unit	Reason NNAP data not submitted/included
Leicester General / Leicester Royal Infirmary	Data for these units was not available in the national neonatal research database format. Both units plan to begin using the BadgerNet system for data entry in June 2013. These units support the audit, and are keen for their data to be included as soon as the practicalities allow
Royal Gwent Hospital and Nevill Hall Hospital (Aneurin Bevan Health Board) University Hospital of Wales	These units have requested that their data be included in the audit from 1 January 2013

2.4 Data completeness and quality

As in previous years, quarterly data completeness reports were produced by the Project Team for the whole of 2012 to provide feedback to NNU on eight of the audit questions (all bar question 6 - 'Are all babies accessing neonatal services treated in their own network pathway?' - and question 7 - 'How many babies born between 32^{+0} and 36^{+6} weeks gestation and more than or equal to 37^{+0} weeks receive care on a neonatal unit?'). These reports encouraged completion of data prior to the whole-year data download for the annual report analysis. Lists of the BadgerIDs of babies with missing NNAP data in these reports were available to NNU on request.

Recent developments for the BadgerNet platform have included the introduction of the NNAP Dashboard. Unlike previous data quality checks, the dashboard indicates the quality of entered data, as well as completeness, and only includes babies who will be eligible for analysis in that question. The dashboard can also be interrogated to find the individual patient data behind the report, making it easier for users to identify or correct missing or inaccurate NNAP data. Currently, the NNAP dashboard covers data related to NNAP questions 1-5.

In previous years, local NNAP clinical leads have expressed concern that the data analysed by NNAP did not match the data inputted by the units, and suggested that therefore the results were erroneous. NNAP commissions NDAU to analyse the data for it; NDAU in turn receives data downloads from Clevermed which runs the Badger systems that neonatal clinicians and nurses are familiar with. The extraction of a large number of specific items from within a live patient data management system on nearly 90000 episodes annually is a complex exercise and far more complex than sending a small spreadsheet or database within one organisation using identical software.

Data management has been further complicated by the fact that Clevermed is in the process of migrating to its latest version of the Badger System. Synchronisation of the two distinct database structures had to be factored into the data extraction process. This resulted in eight data extracts being required before both parties were comfortable with the final set of complete and accurate records for analysis. Clevermed is confident that the final extract sent to NDAU is accurate but continues to do further tests and will immediately report any further issues to NDAU. (These data were also viewed by 74 clinician from 70 units, see below). The data extraction process highlighted areas that could be improved in the area of quality assurance. Clevermed are looking to implement

further improvements to this process and ensure any changes are made before the 2013 data extraction period.

Having listened to the clinicians' concerns, NDAU developed a web-based system to display the data it had received from the Badger annual (2012) download. Each unit's raw anonymised patient data could be confidentially accessed by that NNU for one week prior to the NNAP audit analysis beginning. Thus, this year, for the first time, each NNU had the opportunity to check that the data used for the annual report matched that held on their local Badger system, ie to check that the data were not corrupted in any way by the process of extraction and transfer to NDAU. NNU were able to report any issues or concerns regarding the displayed data directly to NDAU. NNAP is particularly grateful to Dr Hazel Williams from Calderdale Hospital for her observation about the lack of temperature data through this process, but notes that only 74 users, representing perhaps some 70 units, actually checked their data during the time window.

This data viewing facility is an additional safeguard which helps ensure that only the best quality data is used in NNAP reporting. It also means that the responsibility for data accuracy is increasingly held by NNUs, not just at the time of entry, when accuracy and completion are paramount, but again at the time of checking. NDAU/NNAP cannot necessarily tell that a null entry is a fault in electronic transmission: it may appear as though no data was entered on the unit. Similarly, the data provided for analysis may have been inaccurately entered. In both these cases, only a person on the NNU will be able to identify or confirm the issue.

This year, after the data Viewing Window had closed, and work had been undertaken to correct errors noted during that time, the final download contained an additional 760 (0.9%) episodes of care. A decision was taken to include these additional 760 episodes without them being viewed by clinicians. Only one NNU, North Staffs, had $\geq$25 episodes in this group and the Clinical Lead there has been contacted separately. The chances of this group containing errors are no higher than others, and their omission would immediately introduce a 0.9% error into national figures. It is on these data that NDAU has received that the analyses are based.

2.5 Data analysis

The 2012 download included 87416 completed episodes involving 76145 babies discharged in 2012. The number of babies eligible for each audit question varies depending on the gestational age and the episode of care under consideration. In addition, numerators may vary from figures extracted locally; for example, in the analysis of question 5, some babies born, first admitted and discharged in 2012 may not appear in the analysis because the baby had a subsequent episode which continued into 2013. By the same reasoning, there are some episodes which finished during 2011 that were used for the 2012 analysis.

2.6 Denominator data

Perinatal denominator data are required from Trusts to enable audit question 7 ('How many babies born between 32^{+0} and 36^{+6} weeks and >/=37^{+0} weeks gestation receive care on a neonatal unit?') and question 10 ('What percentage of babies more than or equal to 35^{+0} weeks gestation have an encephalopathy within the first three calendar days of birth?') to be answered.

Prior to 2010, NNAP obtained this data in collaboration with the body responsible for the collection of perinatal data nationally, using a shared form. In 2011, due to a delay in transitioning to a new supplier for this work, NNAP collected this data directly from Trusts. This proved to be a time-consuming and a not altogether successful process; 137 Trusts representing 164 neonatal units were contacted and followed up, and a total of 88 Trust returns (representing 104 or 63.4% units) were received by the deadline for use in the analysis.

The Project Board have therefore taken the decision that no unit denominator data will be collected for 2012, affecting the analysis and reporting of questions 7 and 10.

2.7 Neonatal unit designations

In previous reports, NNAP has used the notation Level 1, Level 2, Level 3 when describing neonatal units, but in this report we follow the DoH Toolkit annotation quoted below. This has essentially resulted in us designating Level 1 units as SCUs, Level 2 as LNUs and Level 3 as NICUs. If this has resulted in errors, we apologise and would be pleased to be informed of a unit's correct status.

The Department of Health (2009) Toolkit for High Quality Neonatal Services...
'redefined the names of neonatal units that make up a clinical network so that they are more meaningful and less confusing:

Special care units (SCUs) provide special care for their own local population. Depending on arrangements within their neonatal network, they may also provide some high dependency services. In addition, SCUs provide a stabilisation facility for babies who need to be transferred to a neonatal intensive care unit (NICU) for intensive or high dependency care, and they also receive transfers from other network units for continuing special care.

Local neonatal units (LNUs) provide neonatal care for their own catchment population, except for the sickest babies. They provide all categories of neonatal care, but they transfer babies who require complex or longer-term intensive care to a NICU, as they are not staffed to provide longer-term intensive care. The majority of babies over 27 weeks of gestation will usually receive their full care, including short periods of intensive care, within their LNU. Some networks have agreed variations on this policy, due to local requirements. Some LNUs provide high dependency care and short periods of intensive care for their network population. LNUs may receive transfers from other neonatal services in the network, if these fall within their agreed work pattern.

Neonatal intensive care units (NICUs) are sited alongside specialist obstetric and feto-maternal medicine services, and provide the whole range of medical neonatal care for their local population, along with additional care for babies and their families referred from the neonatal network. Many NICUs in England are co-located with neonatal surgery services and other specialised services. Medical staff in a NICU should have no clinical responsibilities outside the neonatal and maternity services.'

3 Results

Question 1

Do all babies ≤28^{+6} weeks gestation have their temperature taken within an hour after birth?

Standards: 98-100% of babies to have their temperature taken within an hour of birth.

For temperatures taken within an hour of birth:
90% at 36.6°C to 37.4°C
10% at 36.0°C to 36.5°C

Source of Standard: NNAP Board

Results:

There were **3067** babies born at a gestational age of ≤28^{+6} weeks reported by **169** NNU; **51** of these babies were excluded because their temperature value was marked as being non-recordable, leaving **3016** babies eligible for the audit question. Of these babies, **89%** (2687/3016) had their temperature measured within the first hour of birth (Table 1.1). Babies with missing or 'unknown' temperature measurement details accounted for **5%** (145/3016) of data, whilst less than **1%** (16/3016) of eligible babies had no temperature measurement taken after admission. The first temperature measurement was between 36.0°C and 37.5°C for **73%** (1955/2687) of babies who had their temperature measured within an hour of birth (Table 1.4).

Table 1.1
Babies born at a gestational age ≤28^{+6} with their temperature taken within the first hour of birth, infants are assigned to their place of birth.

Unit Level	Eligible babies	Time of temperature measurement (from birth)			
		Within an hour (as % of eligible babies)	After an hour	Not taken after admission	Missing/ Unknown data
Other*	33	27 (82%)	1	2	3
SCU	179	150 (84%)	7	3	19
LNU	1006	905 (90%)	50	3	48
NICU	1798	1605 (89%)	110	8	75
Total	**3016**	**2687 (89%)**	**168**	**16**	**145**

NNAP, 1 January - 31 December 2012

**Babies are assigned to 'Other' if they were born at home, in transit, in an unknown location or in a non NNAP unit.*

Table 1.2

Babies born at a gestational age ≤28^{+6} with their temperature taken within the first hour of birth, by Neonatal Network of birth.

Neonatal Network of Birth	Eligible babies	Time of temperature measurement (from birth)			
		Within an hour (as % of eligible babies)	After an hour	Not taken after admission	Missing/ Unknown data
Other*	33	27 (82%)	1	2	3
Bedfordshire and Hertfordshire	94	92 (98%)	0	1	1
Cheshire and Merseyside	139	131 (94%)	6	0	2
Eastern	162	139 (86%)	9	4	10
Greater Manchester	192	168 (88%)	14	0	10
Kent	99	89 (90%)	6	1	3
Lancashire and South Cumbria	81	75 (93%)	1	0	5
London - North Central	100	91 (91%)	6	1	2
London - North East	191	163 (85%)	14	0	14
London - North West	172	132 (77%)	22	1	17
London - South East	119	110 (92%)	8	0	1
London - South West	98	90 (92%)	5	0	3
Midlands - Central	68	58 (85%)	5	0	5
Midlands - South West	158	135 (85%)	15	1	7
North Trent	143	132 (92%)	11	0	0
Northern	161	147 (91%)	5	0	9
Peninsula - South West	63	54 (86%)	3	1	5
South Central (North)	121	119 (98%)	2	0	0
South Central (South)	134	128 (96%)	4	0	2
Staffordshire, Shropshire and Black Country Newborn Network	156	145 (93%)	6	0	5
Surrey and Sussex	121	103 (85%)	7	1	10
Trent	90	80 (89%)	2	2	6
Wales	15	12 (80%)	0	0	3
Western	153	124 (81%)	10	0	19
Yorkshire	153	143 (93%)	6	1	3
Total	**3016**	**2687 (89%)**	**168**	**16**	**145**

NNAP, 1 January - 31 December 2012

**Babies are assigned to 'Other' if they were born at home, in transit, in an unknown location or in a non NNAP unit.*

Table 1.3
Comparison to temperature audit results in previous NNAP reports.

NNAP reporting year	Eligible babies	Percentage with temperature taken within an hour of birth
2008	**2647**	**78%**
2009	**3230**	**63%**
2010	**3380**	**83%**
2011	**2786**	**90%**
2012	**3016**	**89%**

NNAP, 1 January - 31 December 2012

Table 1.4
Temperature values for babies born at a gestational age of ≤28^{+6} weeks who had their temperature taken within an hour of birth. Infants are assigned to their place of birth.

Unit level	Eligible babies	Temperature values (°C)				
		< 32.0	32.0-35.9 (as % of eligible babies)	36.0-36.5 (as % of eligible babies)	36.6-37.4	>=37.5
Other*	27	2	16 (59%)	5 (19%)	3 (11%)	1
SCU	150	0	23 (15%)	57 (38%)	57 (38%)	13
LNU	905	1	153 (17%)	228 (25%)	422 (47%)	101
NICU	1605	0	225 (14%)	441 (27%)	742 (46%)	197
Total	**2687**	**3**	**417 (16%)**	**731 (27%)**	**1224 (46%)**	**312**

NNAP, 1 January - 31 December 2012

**Babies are assigned to 'Other' if they were born at home, in transit, in an unknown location or in a non NNAP unit.*

For the results by NNU, please see Appendix E.

Identification of outlier NNUs

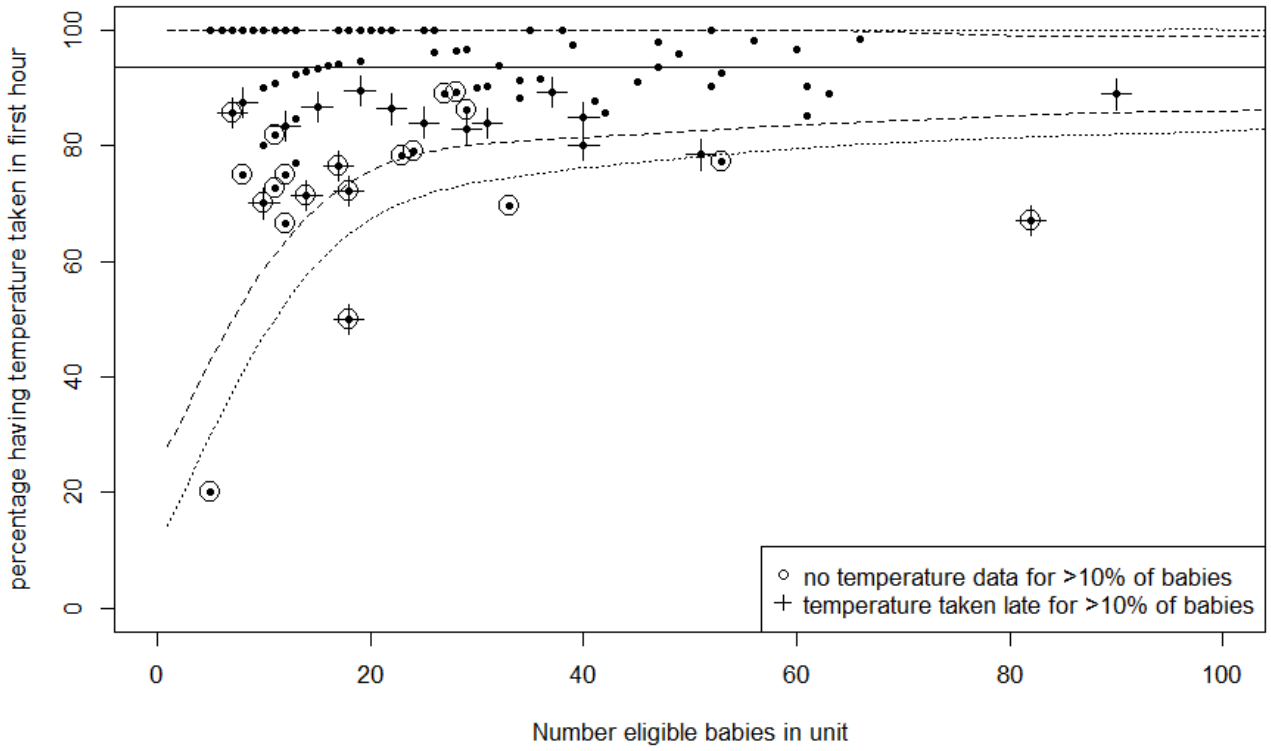
We identified NNUs where there was strong evidence that the percentage of babies born at ≤28^{+6} weeks whose temperature was taken within the first hour of birth was below the average in the population of eligible babies. We based calculations of the population average on the 158 NNUs with eligible babies that had submitted 12 months of data. There were 2963 eligible babies in the 158 units; 2644 had their temperature taken within the first hour, 166 had their temperature taken late and 139 had missing temperature data. The population average in complete data was

94%. We constructed a funnel plot (Figure 1.1) including the 120 NNUs that had more than four babies born ≤28^{+6} weeks (all units with fewer than five eligible babies fall within the funnel limits). To calculate the percentage for each NNU, a missing value was considered to indicate that the temperature had not been taken within the first hour. We calculated 'alert' (95%) and 'alarm' (99.8%)* limits based on a model that allows for dependencies due to multiple births. The funnel plot limits also adjust for testing of multiple NNUs. This plot also indicates NNUs that have >10% missing temperature data, or >10% babies with temperature taken late, showing that all the NNUs lying below the 'alarm' threshold had notable levels of missing and/or late temperature data.

The funnel plot for 'temperature taken within an hour of birth' shows five NNUs below the 'alarm' level and a further three units below the 'alert' level. These eight units are outliers when compared with other NNUs and will be contacted in due course about their underperformance according to algorithm listed in the NNAP Quality Improvement Document, where further clarification about 'alert' and 'alarm' status can also be found. There is a link to this document at www.rcpch.ac.uk/nnap.

Figure 1.1 Funnel plot comparing unit results for the 'temperature taken within an hour of birth' standard

Percentage of babies ≤28+6 weeks in each NNU whose temperature was taken within one hour of birth, compared with the national average of 94% (population percentage in complete data), with funnel limits (95% and 99.8% CI) adjusted for multiple births and multiple testing. Units with >10% missing temperature data are represented as open circles, and units with >10% babies whose temperature was taken late are represented as crosses.



Question 2

Are all mothers who deliver babies between 24^{+0} and 34^{+6} weeks gestation given any dose of antenatal steroids?

Standard: 85% of mothers receive any dose of antenatal steroids.

Source of Standard: NNAP Board

Results:
There were **16538** eligible mothers identified from data submitted by **173** neonatal units. Mothers who gave birth to twins were excluded if they could not be identified by their NHS number.
At least one dose of antenatal steroids was administered to **80%** (13285/16538) of mothers who delivered babies between 24^{+0} and 34^{+6} weeks gestation (Table 2.1). Antenatal steroids were not administered in **18%** (2908/16538) of cases and steroid data was missing or unknown for **2%** (343/16538) of babies.

Table 2.1
Mothers who delivered their babies between 24^{+0} and 34^{+6} weeks and received ANY dose of antenatal steroids; mothers are assigned to the place of birth.

Unit level	Eligible mothers	Steroids given (as % of all eligible mothers)	Steroids not given	Missing/ Unknown data
Other*	189	63 (33%)	118	8
SCU	2217	1670 (75%)	454	93
LNU	7139	5716 (80%)	1297	126
NICU	6993	5836 (83%)	1039	118
Total	**16538**	**13285 (80%)**	**2908**	**345**

NNAP, 1 January - 31 December 2012

**Responses are assigned to 'Other' if the mother delivered at home, in transit, in an unknown location or in a non NNAP unit.*

Table 2.2

Mothers who delivered their babies between 24^{+0} and 34^{+6} weeks and received ANY dose of antenatal steroids by neonatal network of birth.

Neonatal network of birth	Eligible mothers	Steroids given (as % of all eligible babies)	Steroids not given	Missing/ Unknown data
Other*	189	63 (33%)	118	8
Bedfordshire and Hertfordshire	445	362 (81%)	75	8
Cheshire and Merseyside	771	671 (87%)	94	6
Eastern	985	789 (80%)	183	13
Greater Manchester	1002	822 (82%)	158	22
Kent	569	481 (85%)	76	12
Lancashire and South Cumbria	473	389 (82%)	73	11
London - North Central	484	417 (86%)	59	8
London - North East	962	789 (82%)	136	37
London - North West	760	669 (88%)	88	3
London - South East	550	468 (85%)	74	8
London - South West	478	374 (78%)	98	6
Midlands - Central	549	428 (78%)	107	14
Midlands - South West	915	675 (74%)	209	31
North Trent	673	534 (79%)	132	7
Northern	830	698 (84%)	107	25
Peninsula - South West	404	316 (78%)	84	4
South Central (North)	680	565 (83%)	110	5
South Central (South)	797	681 (85%)	110	6
Staffordshire, Shropshire and Black Country Newborn Network	679	534 (79%)	139	6
Surrey and Sussex	705	574 (81%)	109	22
Trent	574	417 (73%)	133	24
Wales	194	151 (78%)	27	16
Western	814	612 (75%)	170	32
Yorkshire	1056	806 (76%)	239	11
Total	**16538**	**13285 (80%)**	**2908**	**345**

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**Responses are assigned to 'Other' if the mother delivered at home, in transit, in an unknown location or in a non NNAP unit.*

Table 2.3
Comparison to antenatal steroid audit results in previous NNAP reports.

NNAP reporting year	Eligible mothers	Percentage with any antenatal steroids given
2008	9066	63%
2009	16031	70%
2010	16895	75%
2011	15716	76%
2012	16531	80%

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For the results by NNU, please see Appendix E.

Summary of results by NNU

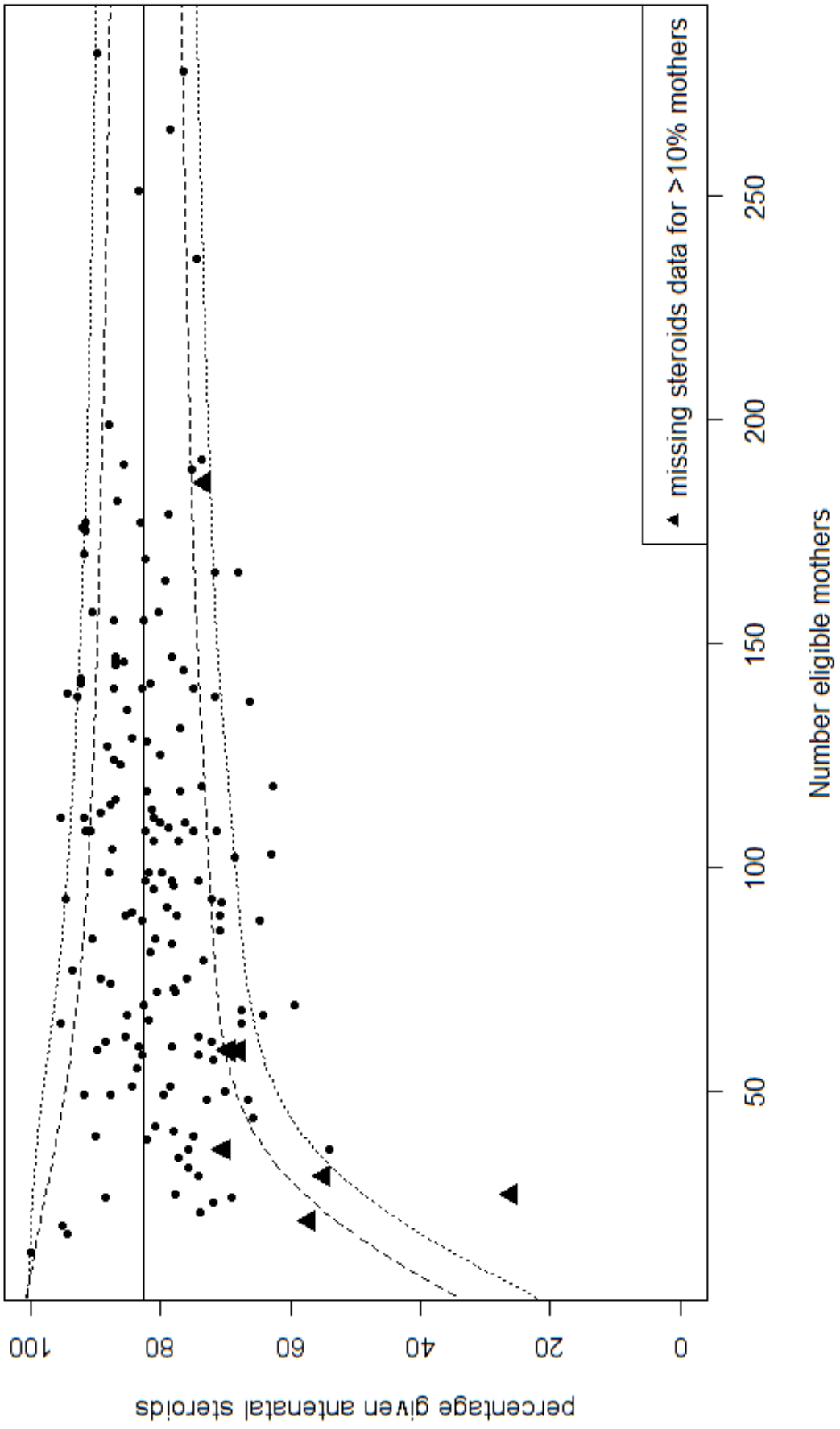
We illustrate the pattern of antenatal steroids for eligible mothers by NNU using a funnel plot. We included 159 NNU that had submitted 12 months of data. There were 15997 mothers; 12954 (81%) were given antenatal steroids and 320 had missing steroid data. For calculating percentages for individual NNU, a missing response was considered to indicate no antenatal steroids. We constructed a funnel plot for the average in the population of mothers with complete steroid data with 'alert' (95%) and 'alarm' (99.8%) limits (Figure 2.1). The funnel limits also adjust for testing many NNU. This plot also shows the NNU with >10% missing antenatal steroids data, and for which better data completeness for the steroids question would improve the NNU outcome.

We also calculated the percentages and 95% confidence intervals of antenatal steroids for mothers by NNU level, excluding mothers with missing responses. Overall, for SCU the level was 79% (77%, 80%), for LNU the level was 82% (81%, 83%) and for NICU the level was 85% (84%, 87%). Thus there is evidence that for mothers who should be given antenatal steroids, NICU have the highest rate, followed by LNU and then SCU.

There was some evidence of a small increase in the overall percentage of mothers given antenatal steroids from 2011 to 2012, of 3.1%, with 95% confidence.

Figure 2.1 Funnel plot comparing unit results for the 'administration of antenatal steroids' standard

Percentage of antenatal steroids by number of eligible mothers for each NNU, compared with the national average of 81% (population percentage in complete data) with funnel limits (95% and 99.8% CI) adjusted for multiple testing. NNU with >10% eligible mothers having missing steroids data are represented as triangles.



Question 3

Are all babies with a gestational age of <32^{+0} weeks or <1501g at birth undergoing first Retinopathy of Prematurity (ROP) screening in accordance with the current national guideline recommendations?

Standards: 100% of eligible babies should receive ROP screening within the time windows for first screening recommended in the guidelines;

- If the infant's gestational age at birth is <27^{+0}, the first screening should be between 30 and 31 weeks corrected gestation

- If the infant's gestational age at birth is ≥27^{+0} and <32^{+0} weeks, ROP screening should take place between four and five weeks of age

- If the infant's gestational age is ≥32^{+0} weeks but with a birth weight <1501g, ROP screening should take place between four to five weeks of age

- All babies <32^{+0} weeks gestational age or birth weight <1501 grams should have their first ROP screening examination prior to discharge

Source of Standard: National standard (RCPCH, RCOphth, BAPM and Bliss, *Guideline for the Screening and Treatment of Retinopathy of Prematurity*, 2008*)*

Note: an additional two-week screening window was designated by the Project Board for this analysis as follows:

- If the baby's gestational age at birth is <27^{+0} weeks, the first screening should be between 29 and 32 weeks corrected gestation.

- If the baby's gestational age at birth is ≥27 and <32^{+0} weeks, ROP screening should take place between three and six weeks of age.

- If the infant's gestational age is ≥32^{+0} weeks but with a birth weight <1501g, ROP screening should take place between three to six weeks of age

Results:
There were **8764** babies born with a birth weight <1501g or with a gestational age at birth <32^{+0} weeks in NNAP contributing NNU. Of these babies, **16** were excluded because they did not have a recorded episode of care in an NNAP unit until after the closure of the ROP screening window. A further **86** babies were excluded because they were transferred to non-neonatal units before, or during, the ROP screening window. Finally, **666** babies were excluded because they died before the closure of the screening window and had not been screened. This left **7996** babies eligible for ROP screening from **173** NNU.

Including post-discharge screenings, **79%** (6312/7996) of eligible babies had at least one screening for ROP recorded. In total, **61%** (4842/7996) of babies were screened 'on time' in accordance with current screening guidelines and **6%** (477/7996) were screened within the screening window but after discharge from neonatal care. Of the remaining babies, **11%** (871/7996) were only screened after the screening window had closed, and **2%** (122/7996) were screened before the screening window opened. There were no screening data available for **21%** (1684/8005) of eligible babies.

Table 3.1

ROP screening status for babies born <1501g or gestational age at birth <32^{+0} weeks and present in an NNAP unit at the time of eligibility for ROP screening.

Unit Level	Eligible babies	Number of babies with a known ROP screening (as % of eligible babies)	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
			Screened on time (NNAP Standard)	Screened early	Screened late	Within Screening window	Before screening window opened	After screening window closed	Outpatient follow up rate for babies not screened on the unit (%)	
SCU	1035	636 (61%)	458 (44%)	20	73	62	1	22	85 (18%)	399 (39%)
LNU	3354	2690 (80%)	2019 (60%)	48	301	242	1	79	322 (33%)	664 (20%)
NICU	3607	2986 (83%)	2365 (66%)	50	339	173	2	57	232 (27%)	621 (17%)
Total	**7996**	**6312 (79%)**	**4842 (61%)**	**118**	**713**	**477**	**4**	**158**	**639 (28%)**	**1684 (21%)**

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Table 3.2

ROP screening status for babies born <1501g or gestational age at birth <32^{+0} weeks and present in an NNAP unit at the time of eligibility for ROP screening by neonatal network.

Neonatal Network	Eligible babies	Number of babies with a known ROP screening (as % of eligible babies)	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
			Screened on time (NNAP Standard)	Screened early	Screened late	Within Screening window	Before screening window opened	After screening window closed	Outpatient follow up rate for babies not screened on the unit (%)	
Bedfordshire and Hertfordshire	227	174 (77%)	151 (67%)	4	14	5	0	0	5 (9%)	53 (23%)
Cheshire and Merseyside	343	306 (89%)	220 (64%)	2	33	39	0	12	51 (58%)	37 (11%)
Eastern	436	315 (72%)	270 (62%)	4	20	18	0	3	21 (15%)	121 (28%)
Greater Manchester	483	451 (93%)	371 (77%)	3	23	51	0	3	54 (63%)	32 (7%)
Kent	254	208 (82%)	145 (57%)	1	30	23	0	9	32 (41%)	46 (18%)
Lancashire and South Cumbria	223	125 (56%)	89 (40%)	11	19	4	0	2	6 (6%)	98 (44%)
London - North Central	233	204 (88%)	168 (72%)	2	19	13	0	2	15 (34%)	29 (12%)
London - North East	546	398 (73%)	235 (43%)	9	123	25	0	6	31 (17%)	148 (27%)
London - North West	434	245 (56%)	189 (44%)	3	34	17	0	2	19 (9%)	189 (44%)
London - South East	353	277 (78%)	208 (59%)	12	35	15	1	6	22 (22%)	76 (22%)
London - South West	256	208 (81%)	166 (65%)	4	29	9	0	0	9 (16%)	48 (19%)
Midlands - Central	271	208 (77%)	175 (65%)	0	8	15	1	9	25 (28%)	63 (23%)

Neonatal Network	Eligible babies	Number of babies with a known ROP screening (as % of eligible babies)	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
			Screened on time (NNAP Standard)	Screened early	Screened late	Within Screening window	Before screening window opened	After screening window closed	Outpatient follow up rate for babies not screened on the unit (%)	
Midlands - South West	439	366 (83%)	298 (68%)	2	23	26	0	17	43 (37%)	73 (17%)
North Trent	344	304 (88%)	272 (79%)	2	25	5	0	0	5 (11%)	40 (12%)
Northern	424	300 (71%)	214 (50%)	5	49	24	1	7	32 (21%)	124 (29%)
Peninsula - South West	174	140 (80%)	103 (59%)	2	12	20	0	3	23 (40%)	34 (20%)
South Central (North)	336	327 (97%)	235 (70%)	4	46	27	0	15	42 (82%)	9 (3%)
South Central (South)	343	315 (92%)	220 (64%)	7	33	24	0	31	55 (66%)	28 (8%)
Staffordshire, Shropshire and Black Country Newborn Network	358	315 (88%)	276 (77%)	8	13	13	0	5	18 (30%)	43 (12%)
Surrey and Sussex	331	236 (71%)	145 (44%)	17	37	24	0	13	37 (28%)	95 (29%)
Trent	263	150 (57%)	89 (34%)	5	32	14	0	10	24 (18%)	113 (43%)
Wales	76	43 (57%)	23 (30%)	1	7	11	0	1	12 (27%)	33 (43%)
Western	361	244 (68%)	194 (54%)	3	34	11	0	2	13 (10%)	117 (32%)
Yorkshire	488	453 (93%)	386 (79%)	7	15	44	1	0	45 (56%)	35 (7%)
Total	**7996**	**6312 (79%)**	**4842 (61%)**	**118**	**713**	**477**	**4**	**158**	**639 (28%)**	**1684 (21%)**

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Table 3.3
Comparison to ROP audit results in previous NNAP audits.

NNAP reporting year	Eligible Babies	Number of babies with a known ROP screening	ROP Screening known		
			On time (% of eligible babies)	Early (% of eligible babies)	Late* (% of eligible babies)
2008	3414	1936 (57%)			
2009	7913	5336 (67%)	2098 (27%)	1859 (23%)	1379 (17%)
2010	8235	5853 (71%)	4777 (48%)	308 (4%)	768 (9%)
2011	7887	6460 (82%)	5310 (67%)	233 (3%)	917 (13%)
2012	7996	6312 (79%)	4842 (60%)	118 (2%)	1352 (17%)

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**For the purpose of comparison with previous years, all babies screened after discharge in the 2012 data are categorised as 'Late'.*

For the results by unit, please see Appendix E.

Comparison of individual units' screening rates with the percentage of babies appropriately screened for ROP in the population

The aim of this analysis was to identify neonatal units where a) ROP screening was below average, and b) where there was a particularly high proportion of missing data; and also c) to summarise the gestational age characteristics of infants failing screen recommendations.

We included the 160 (of 173) NNUs that had submitted data covering the full 12 month period. This comprised 7855 babies of whom 4774 (61%) had a recorded ROP screen before discharge in the required time interval, 704 (9%) a ROP screen before discharge but later than required, 117 (1%) a ROP screen before discharge but earlier than required and 1641 (21%) had no screening data. Of the babies screened after discharge, 461 were screened within the required time, 4 early, and 154 late.

We identified 29 NNUs with a very high proportion of missing data by a funnel plot. Full details of this analysis are provided online. In the remaining 131 NNUs 78% of eligible screened babies were screened appropriately. We constructed a funnel plot for appropriate ROP screening based on a population average of 78%, and with funnel limits that allow for multiple births and multiple testing (Figure 3.1). We did not include the 29 NNU with a very high proportion of missing data in the population average calculation as to do so would shift the population average downwards and risk failing to identify NNUs with relatively complete data but high levels of inappropriate screening.

All 160 NNUs that submitted a complete year of data for analysis are included in Fig 3.1. NNUs with a very high proportion of missing data are shown in colour; all lie at or below the lower funnel limits. The plot also indicates the NNUs where >10% of babies were screened late before discharge

(screen late pre-discharge), or screened after discharge (screen post-discharge); as can be seen some of these NNUs lie above, and some below the lower funnel limits. This highlights the necessity for complete data entry if reliable inferences about screening performance are to be drawn.

To allow some further insight into the process of ROP screening, we tabulated responses by gestational age band (Table 3.4). This shows that missing data and discharge before the start of the ROP screening window are more likely for babies in the '≥32^{+0} weeks and <1501g' band. Full details of this analysis are provided on line.

The funnel plot for 'screening for retinopathy of prematurity' shows 51 NNUs below the 'alarm' level and a further 22 units below the 'alert' level. These 73 units are outliers compared with other NNUs and will be contacted in due course about their underperformance according to algorithm listed in the NNAP Quality Improvement Document, where further clarification about 'alert' and 'alarm' status can also be found. There is a link to this document at www.rcpch.ac.uk/nnap.

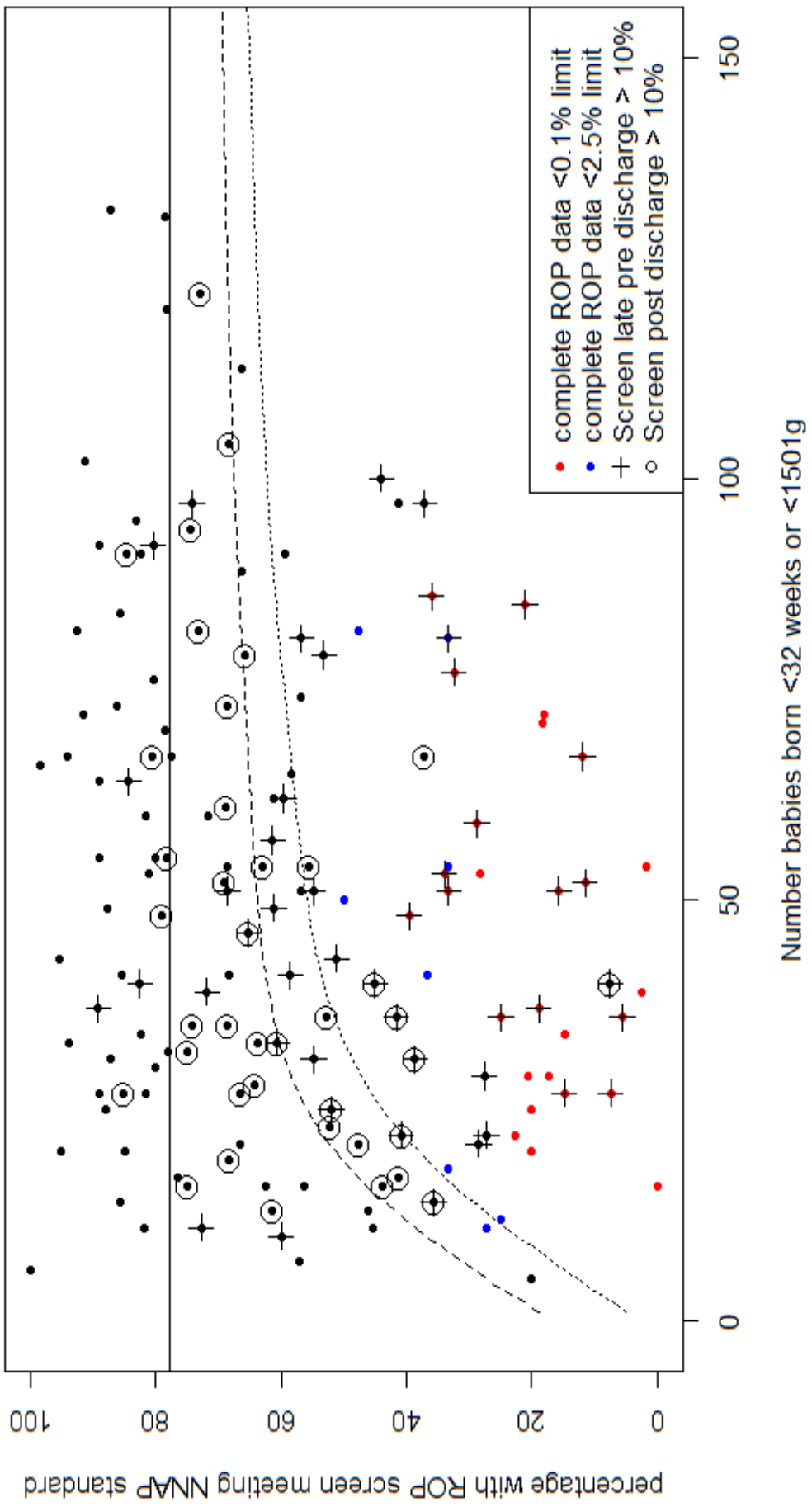


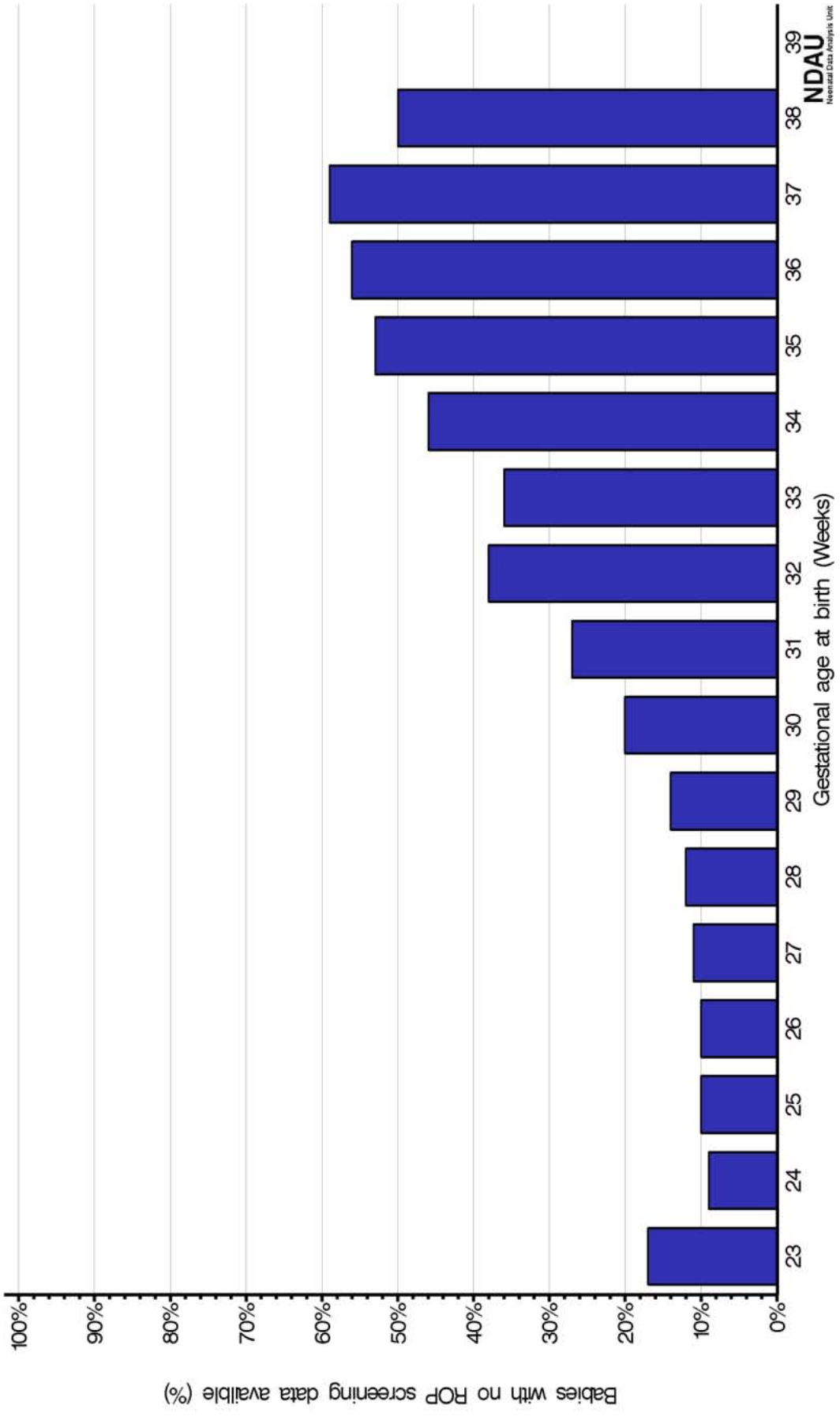
Figure 3.1 Funnel plot comparing unit results for the 'screening for retinopathy of prematurity' standard

Percentages of babies <32^{+0} weeks or <1501g at birth who had a ROP screen in accordance with RCPCH/RCOphth guidelines, by NNU, compared to the average (population percentage) of 78% in 131 units with adequate data, with 95% and 99.8% funnel limits adjusted for multiple births and multiple testing. NNUs with high levels of missing screening data are coloured red or blue ('alarm' and 'alert' respectively for proportion of missing data within all 160 NNUs). NNUs with >10% babies having a late ROP screen before discharge are represented by crosses, and NNUs with >10% babies screened on time but after discharge, by open circles.

Table 3.4
ROP screening by gestational age

Gestation (weeks)	Eligible	Discharged home pre start ROP window (as % of all eligible)	No screening data (as % of all eligible)	Screened per NNAP (as % of all eligible)	Screened early pre discharge	Screened late pre-discharge (as % of all eligible)	Screened on time post discharge (as % of all eligible)	Screened early post discharge	Screened late post discharge
23^{+0}-31^{+6}	6619	135(2%)	1168(18%)	4302(65%)	60(0.9%)	692(10%)	278(4%)	2	117(2%)
≥32^{+0} and <1501g	1236	292(24%)	473(38%)	472(38%)	57(5%)	12(1%)	183(15%)	2	37(3%)

Figure 3.2
Proportion of eligible babies with no ROP screening data by gestational age at birth (completed weeks).
All babies >32 weeks weighed <1501g at birth. Note in addition that 10% and more of the most at risk preterm babies had no record of screening.



Question 4

What proportion of babies <33^{+0} weeks gestation at birth are receiving any of their mother's milk when discharged from a neonatal unit?

Standard: Benchmarking

Source of Standard: NNAP Board

Results:
Only babies who had a final discharge to 'home' at the end of their first episode of care are included in this analysis, ie all the babies included in this question were admitted to and stayed on only one NNU before going home.

There were **5683** babies born <33^{+0} weeks reported by **169** NNU who met the criteria for inclusion in this question. Of these babies, **5** were excluded due to concern regarding the accuracy of data, for example a mismatch between birth weight and gestation.

Data summaries from the last or penultimate day of care indicated that **58%** (3271/5678) of eligible babies were receiving mother's milk, exclusively or with another form of feed, at the time of their discharge from neonatal care. Of the remaining babies, **42%** (2371/5678) were recorded as receiving other types of feeding* at discharge and **1%** (36/5678) had no feeding data available from the last or penultimate day of care.

Table 4.1
Babies born <33^{+0} weeks and receiving any of their mother's milk when discharged from a neonatal unit by unit level

Unit Level	Eligible Babies	Enteral feeds at the time of discharge			
		Mother's milk only (% of eligible babies)	Mixed feeds* including Mother's milk (% of eligible babies	Feeding/Mixed Feeds* without Mother's milk (% of eligible babies)	Missing Data (% of eligible babies)
SCU	500	180 (36%)	130 (26%)	186 (37%)	4 (1%)
LNU	2742	879 (32%)	727 (27%)	1113 (41%)	23 (1%)
NICU	2436	825 (34%)	530 (22%)	1072 (44%)	9(0%)
Total	**5678**	**1884 (33%)**	**1387 (24%)**	**2371 (42%)**	**36 (1%)**

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**Other types of enteral feeds that could be selected were; 'Formula', 'Donor expressed breast milk' and 'Nil by mouth'.*

Table 4.2

Babies born <33^{+0} weeks and receiving any of their mother's milk when discharged from a neonatal unit by neonatal network.

Neonatal Network	Eligible Babies	Enteral feeds at the time of discharge			
		Mother's milk only (% of eligible babies)	Mixed feeds* including Mother's milk (% of eligible babies	Feeding/ Mixed feeds* without Mother's milk (% of eligible babies)	Missing Data (% of eligible babies)
Bedfordshire and Hertfordshire	159	45 (28%)	46 (29%)	68 (43%)	0 (0%)
Cheshire and Merseyside	159	36 (23%)	32 (20%)	91 (57%)	0 (0%)
Eastern	326	127 (39%)	90 (28%)	107 (33%)	2 (1%)
Greater Manchester	356	112 (31%)	82 (23%)	162 (46%)	0 (0%)
Kent	191	69 (36%)	39 (20%)	83 (43%)	0 (0%)
Lancashire and South Cumbria	202	52 (26%)	23 (11%)	125 (62%)	2 (1%)
London - North Central	105	44 (42%)	48 (46%)	13 (12%)	0 (0%)
London - North East	319	83 (26%)	123 (39%)	111 (35%)	2 (1%)
London - North West	294	113 (38%)	117 (40%)	64 (22%)	0 (0%)
London - South East	243	103 (42%)	87 (36%)	53 (22%)	0 (0%)
London - South West	194	83 (43%)	52 (27%)	59 (30%)	0 (0%)
Midlands - Central	193	58 (30%)	34 (18%)	101 (52%)	0 (0%)
Midlands - South West	292	119 (41%)	58 (20%)	106 (36%)	9 (3%)
North Trent	248	59 (24%)	63 (25%)	126 (51%)	0 (0%)
Northern	276	65 (24%)	37 (13%)	173 (63%)	1 (0%)
Peninsula - South West	125	47 (38%)	23 (18%)	55 (44%)	0 (0%)
South Central (North)	242	87 (36%)	63 (26%)	91 (38%)	1 (0%)
South Central (South)	298	111 (37%)	75 (25%)	112 (38%)	0 (0%)
Staffordshire, Shropshire and Black Country Newborn Network	305	73 (24%)	69 (23%)	162 (53%)	1 (0%)
Surrey and Sussex	226	105 (46%)	53 (23%)	68 (30%)	0 (0%)
Trent	173	51 (29%)	29 (17%)	86 (50%)	7 (4%)
Wales	57	6 (11%)	6 (11%)	39 (68%)	6 (11%)
Western	288	112 (39%)	56 (19%)	116 (40%)	4 (1%)
Yorkshire	407	124 (30%)	82 (20%)	200 (49%)	1 (0%)
Total	**5678**	**1884 (33%)**	**1387 (24%)**	**2371 (42%)**	**36 (1%)**

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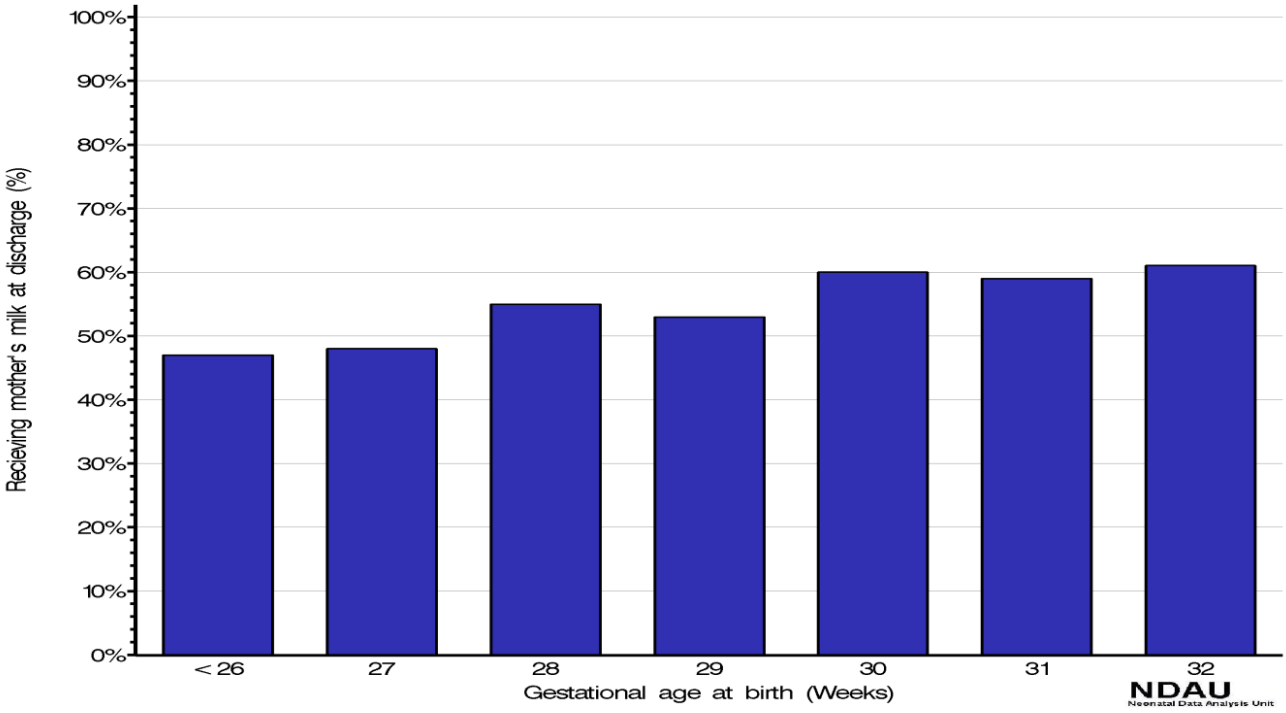
**Other types of enteral feeds that could be selected were; 'Formula', 'Donor expressed breast milk' and 'Nil by mouth'.*

Figure 4.1

The proportion of babies receiving any of their mother's milk when discharged from a neonatal unit, by gestational age at birth (completed weeks).



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Case-mix adjustment and pattern of breastfeeding by NNU

We used a funnel plot (Figure 4.2) to illustrate the pattern of breast feeding by NNU. We included 147 NNUs that had submitted 12 months of data, and had more than four eligible babies. The average proportion of babies receiving breast milk at discharge from these units was 58%, based on babies with complete feeding data on the last, or if missing the penultimate, day in the neonatal unit. Adjustment was made for socio-demographic factors known to be associated with breast-feeding (mother's age, smoking during pregnancy, Index of Multiple Deprivation, first pregnancy, mother's marital status). We constructed the funnel plot with 'alarm' (95%) and 'alert' (99.8%) limits, allowing for multiple births and multiple testing. This indicated one NNU below the 'alarm' threshold and six further NNUs below the 'alert' threshold.

Further details of the analysis are available in the extended web version of the report.

For the results by unit, please see Appendix E.

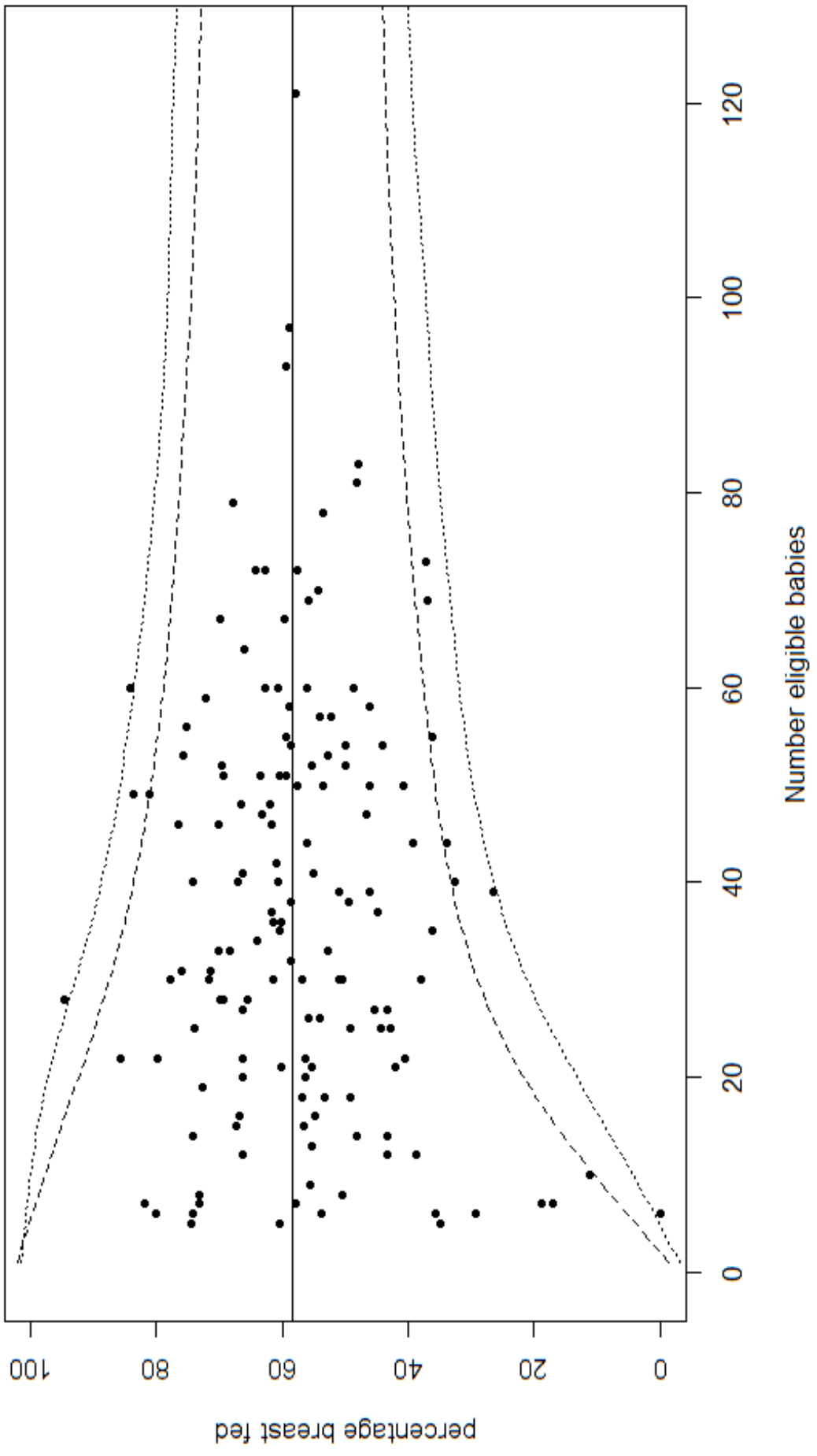

Figure 4.2 Funnel plot showing percentage of infants <33weeks gestation receiving maternal breast milk at time of discharge home. Adjusted percentage of babies <33^{+0} weeks gestation at birth breast fed at discharge from each NNU, with 95% and 99.8% funnel limits adjusted for multiple births and testing of multiple NNUs, compared with the national average (population percentage) of 58%. NNU-level percentages adjusted for maternal age, smoking, IMD, marital status and first pregnancy.

Question 5

Is there a documented consultation with parents by a senior member of the neonatal team within 24 hours of admission?

Standard: 100%

Source of Standard: NNAP Board

Results:
There were **75939** first episodes reported by **174** NNU that were considered for this question. A further check was then applied to remove 'transitional care' babies from the analysis. Babies who were not categorised as receiving HRG 1,2,3 on a NNU during their first day of care were excluded from the analysis; this left **54409** episodes eligible for the audit question.

A senior member of the neonatal team consulted parents or carers within 24 hours of admission for **79%** (42788/54409) of eligible episodes. Consultations that occurred before admission, or more than 24 hours after admission, accounted for **11%** (5919/54409) of eligible episodes. No consultation occurred for **4%** (2144/54409) of eligible episodes, and data on consultations was either missing or 'unknown' for **6%** (3508/54409) of eligible episodes (Table 5.1).

Table 5.1
Number of parents and/or carers of babies seen by a senior member of the neonatal team within 24 hours of admission by unit level.

Unit Level	Eligible episodes	Time of First Consultation with parents and/or carers (from admission)				
		Within 24 hours (% of eligible episodes)	After 24 hours (% of eligible episodes)	Before admission (% of eligible episodes)	No Consultation (% of eligible episodes)	Missing/ Unknown Data (% of eligible episodes)
SCU	8942	6516 (73%)	206 (2%)	875 (10%)	381 (4%)	964 (11%)
LNU	24587	20260 (82%)	666 (3%)	1660 (7%)	815 (3%)	1186 (5%)
NICU	20880	16016 (77%)	882 (4%)	1630 (8%)	950 (5%)	1402 (7%)
Total	54409	42792 (79%)	1754 (3%)	4165 (8%)	2146 (4%)	3552 (7%)

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Table 5.2

Number of parents and/or carers of babies seen by a senior member of the neonatal team within 24 hours of admission by neonatal network.

Neonatal Network	Eligible babies	Time of First Consultation with parents and/or carers (from admission)				
		Within 24 hours (% of eligible episodes)	After 24 hours (% of eligible episodes)	Before admission (% of eligible episodes)	No Consultation (% of eligible episodes)	Missing/ Unknown Data (% of eligible episodes)
Bedfordshire and Hertfordshire	2268	1969 (87%)	45 (2%)	120 (5%)	131 (6%)	3 (0%)
Cheshire and Merseyside	2765	2097 (76%)	274 (10%)	136 (5%)	204 (7%)	54 (2%)
Eastern	3687	2667 (72%)	63 (2%)	518 (14%)	140 (4%)	299 (8%)
Greater Manchester	3069	2441 (80%)	169 (6%)	192 (6%)	79 (3%)	188 (6%)
Kent	1865	1573 (84%)	41 (2%)	107 (6%)	119 (6%)	25 (1%)
Lancashire and South Cumbria	1427	1046 (73%)	57 (4%)	163 (11%)	33 (2%)	128 (9%)
London - North Central	1564	1357 (87%)	15 (1%)	102 (7%)	33 (2%)	57 (4%)
London - North East	3467	2593 (75%)	113 (3%)	305 (9%)	169 (5%)	287 (8%)
London - North West	2350	1783 (76%)	110 (5%)	245 (10%)	54 (2%)	158 (7%)
London - South East	2073	1757 (85%)	65 (3%)	76 (4%)	45 (2%)	130 (6%)
London - South West	1690	1431 (85%)	37 (2%)	101 (6%)	53 (3%)	68 (4%)
Midlands - Central	1702	1410 (83%)	76 (4%)	64 (4%)	102 (6%)	50 (3%)
Midlands - South West	2694	1965 (73%)	120 (4%)	357 (13%)	96 (4%)	156 (6%)
North Trent	2045	1766 (86%)	40 (2%)	72 (4%)	148 (7%)	19 (1%)
Northern	2591	1910 (74%)	26 (1%)	221 (9%)	106 (4%)	328 (13%)
Peninsula - South West	1473	1137 (77%)	101 (7%)	105 (7%)	43 (3%)	87 (6%)
South Central (North)	2397	2341 (98%)	12 (1%)	42 (2%)	2 (0%)	0 (0%)
South Central (South)	2699	2627 (97%)	12 (0%)	23 (1%)	12 (0%)	25 (1%)

Neonatal Network	Eligible babies	Time of First Consultation with parents and/or carers (from admission)				
		Within 24 hours (% of eligible episodes)	After 24 hours (% of eligible episodes)	Before admission (% of eligible episodes)	No Consultation (% of eligible episodes)	Missing/ Unknown Data (% of eligible episodes)
Staffordshire, Shropshire and Black Country Newborn Network	1938	1668 (86%)	66 (3%)	84 (4%)	63 (3%)	57 (3%)
Surrey and Sussex	2340	1707 (73%)	58 (2%)	270 (12%)	78 (3%)	227 (10%)
Trent	1926	1414 (73%)	51 (3%)	141 (7%)	121 (6%)	199 (10%)
Wales	569	199 (35%)	5 (1%)	66 (12%)	42 (7%)	257 (45%)
Western	2629	1763 (67%)	67 (3%)	294 (11%)	118 (4%)	387 (15%)
Yorkshire	3181	2171 (68%)	131 (4%)	361 (11%)	155 (5%)	363 (11%)
Total	**54409**	**42792 (79%)**	**1754 (3%)**	**4165 (8%)**	**2146 (4%)**	**3552 (7%)**

Table 5.3
Comparison to first consultation audit results in previous NNAP audits.

Year	Eligible episodes	Time of first consultation with parents and/or carers (from admission)			
		Within 24 hours (as % of eligible episodes)	After 24 hours (as % of eligible episodes)	Before admission (as % of eligible episodes)	Missing Data* (as % of eligible episodes)
2008	29438	16358 (56%)	-	-	11859 (40%)
2009	57203	25704 (45%)	6254 (11%)	Excluded from analysis	10599 (19%)
2010	60183	40199 (67%)	2514 (4%)	Excluded from analysis	17470 (29%)
2011	50469	34450 (68%)	2289 (5%)	5858 (11%)	7872 (16%)
2012	54409	42792 (79%)	1754 (3%)	4165 (8%)	5698 (10%)

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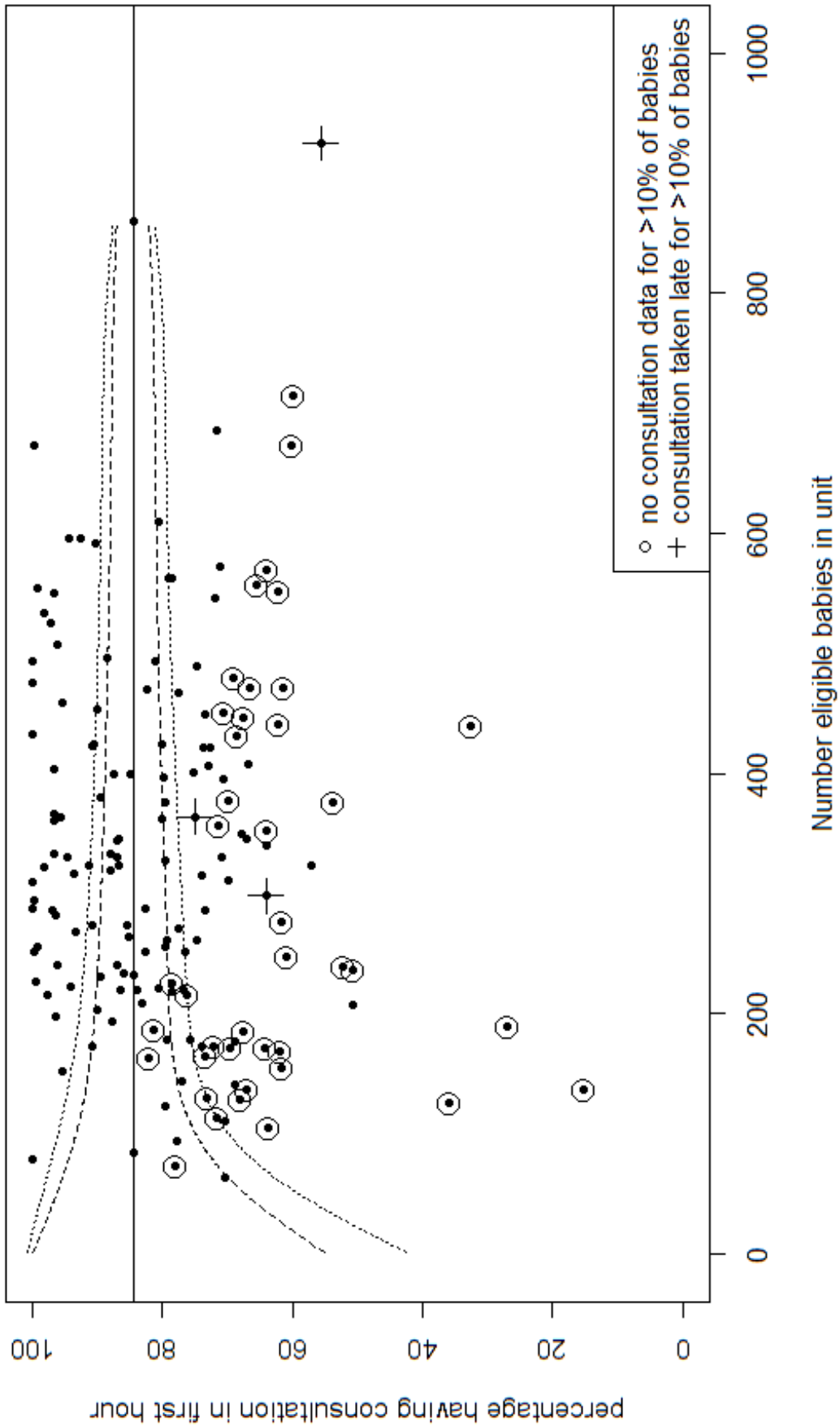
**For the purpose of comparison with previous years, all episodes categorised as 'no consultation' in the 2012 data are included under the 'Missing Data' heading.*

For the results by NNU, please see Appendix E.

Figure 5.1

Percentage of babies whose parents had a first consultation within 24 hours of admission, by neonatal unit, with funnel limits adjusted for multiple births and multiple testing. NNU with >10% missing consultation time data are shown as open circles, and NNU with >10% babies who had a first consultation after 24 hours are shown as crosses. The population average is 84% in the babies with non-missing records. Note that high rates of missing data occur in many units below the 'alarm' limit.



Question 6

Are all babies accessing neonatal services treated in their own network (except where clinical reasons dictate)?

Standard: >90% if the neonatal transfers

Source of Standard: NNAP Board

Results:
There were a total of **76145** babies eligible for inclusion in the NNAP 2012 audit. Of these babies, **307** have been excluded from this question as their complete episodic data, including their first episode of care, was not available for analysis. This analysis was conducted using the remaining **75838** babies who had complete episodic data.

From these **75838** babies, there were a total of **10996** transfers involving **7437** babies. This means that **10%** (7437/76092) of babies experienced at least one transfer during their time in neonatal care. Of these transfers, **81%** (8944/10996) were within the first known network of care and **19%** (2052/10996) were to another neonatal network. Please note that NNAP have not determined which babies were born within 'their own' network. Instead the analysis was based on the number of babies who were transferred between different neonatal units, and the neonatal networks to which those NNU belonged. A transfer within network is one where the baby is transferred to a hospital within the first known network of care. Conversely, a transfer outside a neonatal network is one where a baby is transferred to a NNU that did not belong to the first network of care.

Table 6.1

Transfer of babies out of network by network provider of first admission for babies discharged in 2012

Neonatal Network	Eligible babies	Number of eligible babies transferred (as % of eligible babies)	Total number of transfers for these babies	Transfers within network (as % of all transfers)	Transfers outside of network (as % of all transfers)	Reason for transfer out of network				
						Continuing care	Specialist care	Cardiac care	Surgical care	Other reason
Bedfordshire and Hertfordshire	3010	190 (6%)	286	194 (68%)	92 (32%)	47	11	0	32	2
Cheshire and Merseyside	3219	284 (9%)	362	276 (76%)	86 (24%)	78	2	0	4	2
Eastern	5711	449 (8%)	660	554 (84%)	106 (16%)	58	35	1	11	1
Greater Manchester	3150	420 (13%)	596	536 (90%)	60 (10%)	57	1	0	1	1
Kent	2505	258 (10%)	430	300 (70%)	130 (30%)	47	30	4	46	3
Lancashire and South Cumbria	1538	147 (10%)	235	154 (66%)	81 (34%)	36	14	0	31	0
London - North Central	3666	416 (11%)	616	479 (78%)	137 (22%)	105	16	5	7	4
London - North East	3919	605 (15%)	918	786 (86%)	132 (14%)	54	60	1	15	2
London - North West	2410	323 (13%)	475	357 (75%)	118 (25%)	95	10	2	9	2
London - South East	2115	258 (12%)	386	305 (79%)	81 (21%)	65	10	1	4	1
London - South West	2557	215 (8%)	309	234 (76%)	75 (24%)	40	25	6	3	1
Midlands - Central	1762	242 (14%)	364	270 (74%)	94 (26%)	66	20	1	7	0

Neonatal Network	Eligible babies	Number of eligible babies transferred (as % of eligible babies)	Total number of transfers for these babies	Transfers within network (as % of all transfers)	Transfers outside of network (as % of all transfers)	Reason for transfer out of network				
						Continuing care	Specialist care	Cardiac care	Surgical care	Other reason
Midlands - South West	4206	343 (8%)	466	382 (82%)	84 (18%)	73	9	0	2	0
North Trent	3112	336 (11%)	467	348 (75%)	119 (25%)	86	20	2	10	1
Northern	2918	409 (14%)	648	604 (93%)	44 (7%)	33	3	0	8	0
Peninsula - South West	2733	218 (8%)	301	239 (79%)	62 (21%)	15	18	1	28	0
South Central (North)	2419	329 (14%)	473	410 (87%)	63 (13%)	49	7	1	6	0
South Central (South)	3699	367 (10%)	518	436 (84%)	82 (16%)	73	2	0	5	2
Staffordshire, Shropshire and Black Country Newborn Network	3513	150 (4%)	217	160 (74%)	57 (26%)	36	14	0	6	1
Surrey and Sussex	3775	389 (10%)	597	465 (78%)	132 (22%)	73	16	5	36	2
Trent	2394	293 (12%)	489	401 (82%)	88 (18%)	67	17	1	3	0
Wales*	712	29 (4%)	33	29 (88%)	4 (12%)	4	0	0	0	0
Western	6537	419 (6%)	650	580 (89%)	70 (11%)	64	1	1	1	3
Yorkshire	4258	348 (8%)	500	445 (89%)	55 (11%)	49	2	0	2	2
Total	**75838**	**7437 (10%)**	**10996**	**8944 (81%)**	**2052 (19%)**	**1370**	**343**	**32**	**277**	**30**

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Question 7

How many babies, born between 32^{+0} to 36^{+6} weeks gestation and $>37^{+0}$ weeks gestation received transitional care (HRG4), special care on a neonatal unit (HRG3), high dependency care (HRG2) or intensive care (HRG1)?

As outlined in Section 2.6, due to difficulties in obtaining denominator data in 2011, the Project Board took the decision that no unit denominator data would be collected for 2012, affecting the analysis and reporting of this question. A solution is being explored which will allow the analysis of data for this audit question in future.

Question 8

Are rates of normal survival at two years comparable in similar babies from similar neonatal units?

Standard: 100% of babies with data entered

Analysis:
- (a) number of babies with some/all health data entered
- (b) number of babies lost to follow up
- (c) number of babies who died after discharge
- (d) number of babies with no data entered
- (e) number of babies classified as mildly/moderately/severely impaired

Source of Standard: NNAP Board

NNAP audited the numbers of eligible babies for whom a two year (corrected post term) health status follow-up has been partially or completely reported. Follow up data were available up to the end of 2012 and babies are usually screened at two years corrected age. Therefore to allow for gestational age correction and for some leeway around the two years, only babies born during the 12 month period between July 2009 and June 2010 were selected, as these babies should have had their follow up appointment by the end of 2012. Eligible babies were those who were born at $<30^{+0}$ weeks gestation, who survived to discharge from neonatal care. For this analysis, two year health status is assigned to the neonatal network of birth. For some birth locations (non-NHS, home, in transit or unknown) attribution to a neonatal network was not possible; these babies are shown separately.

Results:

Table 8.1 shows that there were 2967 babies <30^{+0} weeks gestation born between July 2009 and June 2010 who survived to discharged from neonatal care.

(a) **42%** (1232/2967) had any health data entered.
(b) **6%** (166/2967) were lost to follow up or were not assessed for other reasons.
(c) **10** babies were reported to have died after discharge.
(d) **53%** (1559/2967) of babies had no follow up data entered.
(e) Of the 1232 babies with health data entered, 46% (568/1232) had no neurodevelopmental impairment, 17% (215/1232) had mild/moderate impairment, **18%** (221/1232) had severe impairment, and 19% (228/1232) had insufficient data to determine the impairment category.

Table 8.2 shows a large variation between neonatal networks in the completeness of reporting of two year post term outcomes. The worst network entered data on only 10% of babies, and the best on 94%, with a national average of 42%. It would seem reasonable that all networks reach the national average by the end of 2015. This would require six NNU to improve their performance by <10%, seven NNU by rather more.

Table 8.1
Final discharge status of babies born <30^{+0} weeks gestation between July 2009 and June 2010 who were admitted to neonatal care.

Discharge Status	Number of babies <30^{+0} weeks	As % of all <30^{+0} weeks
Discharged to home, ward or foster care	2967	78%
Died	609	16%
Transferred	180	5%
Unknown	60	2%

NNAP, infants born 1 July 2009 – 30 June 2010

Table 8.2

Neurodevelopmental outcomes and health data completeness from two year (corrected post term) health follow-up recorded by neonatal network, babies born <30^{+0} weeks gestation who survived to discharge from neonatal care between July 2009 and June 2010.

Neonatal network of birth	Eligible babies	Some health data entered				No health data entered			
		Impairment not determinable	No impairment	Mild/ moderate impairment	Severe impairment	Lost to follow-up	Not assessed for other reason	Died post discharge	No data entered at all (% of eligible babies)
Bedfordshire and Hertfordshire	110	17	23	12	14	1	2	0	41 (37%)
Cheshire and Merseyside	98	10	22	9	10	5	7	1	34 (35%)
Eastern	191	21	37	16	12	6	2	0	97 (51%)
Greater Manchester	188	15	39	17	25	5	11	1	75 (40%)
Kent	101	4	32	10	4	3	4	0	44 (44%)
Lancashire and South Cumbria	88	7	8	4	4	1	1	0	63 (72%)
London - North Central	90	2	45	16	10	3	8	1	5 (6%)
London - North East	247	13	30	14	14	3	9	1	163 (66%)
London - North West	132	13	29	12	8	0	3	0	67 (51%)
London - South East	147	9	42	13	19	4	21	2	37 (25%)
London - South West	130	19	23	16	15	2	10	1	44 (34%)
Midlands - Central	18	2	2	0	2	1	0	0	11 (61%)
Midlands - South West	194	15	55	17	18	9	12	1	67 (35%)
North Trent	65	6	9	0	5	0	1	.	44 (68%)

Neonatal network of birth	Eligible babies	Some health data entered				No health data entered			
		Impairment not determinable	No impairment	Mild/ moderate impairment	Severe impairment	Lost to follow-up	Not assessed for other reason	Died post discharge	No data entered at all (% of eligible babies)
Northern	192	13	24	8	14	0	7	1	125 (65%)
Peninsula - South West	77	2	8	10	2	0	0	0	55 (71%)
South Central (North)	134	4	10	1	2	0	3	0	114 (85%)
South Central (South)	189	14	52	13	17	2	4	0	87 (46%)
Staffordshire, Shropshire and Black Country Newborn Network	73	20	8	5	7	1	2	0	30 (41%)
Surrey and Sussex	146	3	21	6	10	0	3	0	103 (71%)
Trent	104	5	22	5	2	0	2	0	68 (65%)
Western	160	9	22	9	2	0	8	0	110 (69%)
Yorkshire	60	2	2	1	1	0	0	0	54 (90%)
Home	17	2	2	1	2	0	0	0	10 (59%)
Non NHS England	9	1	0	0	1	0	0	0	7 (78%)
Unknown	7	0	1	0	1	0	0	1	4 (57%)
Total	**2967**	**228**	**568**	**215**	**221**	**46**	**120**	**10**	**1559 (53%)**

NNAP, infants born 1 July 2009 – 30 June 2010

Table 8.3

Respiratory and gastro-intestinal outcomes from two year (corrected post term) health follow-up recorded by neonatal network, babies born <30^{+0} weeks gestation who survived to discharge from neonatal care between July 2009 and June 2010.

Neonatal network of birth	Eligible babies	Respiratory				Gastro-intestinal				No data entered at all
		Impairment not determinable	No impairment	Mild/ moderate disability	Severe disability	Impairment not determinable	No impairment	Mild/ moderate disability	Severe disability	
Bedfordshire and Hertfordshire	110	13	51	0	2	14	50	0	2	41 (37%)
Cheshire and Merseyside	98	3	41	5	2	3	44	3	1	34 (35%)
Eastern	191	3	80	1	2	3	76	4	3	97 (51%)
Greater Manchester	188	7	85	2	2	7	82	4	3	75 (40%)
Kent	101	2	46	1	1	3	45	2	0	44 (44%)
Lancashire and South Cumbria	88	7	16	0	0	7	15	0	1	63 (72%)
London - North Central	90	1	70	0	2	2	68	1	2	5 (6%)
London - North East	247	7	59	0	5	4	62	2	3	163 (66%)
London - North West	132	1	60	0	1	4	56	2	0	67 (51%)
London - South East	147	6	75	1	1	1	76	3	3	37 (25%)
London - South West	130	12	59	2	0	11	60	2	0	44 (34%)
Midlands - Central	18	0	6	0	0	0	5	.	1	11 (61%)

Neonatal network of birth	Eligible babies	Respiratory				Gastro-intestinal				No data entered at all
		Impairment not determinable	No impairment	Mild/ moderate disability	Severe disability	Impairment not determinable	No impairment	Mild/ moderate disability	Severe disability	
Midlands - South West	194	4	99	0	2	5	97	3	0	67 (35%)
North Trent	65	1	18	0	1	1	19	0	0	44 (68%)
Northern	192	1	54	2	2	0	56	3	0	125 (65%)
Peninsula - South West	77	0	22	0	0	0	20	1	1	55 (71%)
South Central (North)	134	0	17	0	0	1	16	0	0	114 (85%)
South Central (South)	189	4	90	1	1	4	86	5	1	87 (46%)
Staffordshire, Shropshire and Black Country Newborn Network	73	4	35	0	1	3	36	0	1	30 (41%)
Surrey and Sussex	146	3	37	0	0	1	38	0	1	103 (71%)
Trent	104	0	33	1	0	1	33	0	0	68 (65%)
Western	160	0	42	0	0	6	36	0	0	110 (69%)
Yorkshire	60	0	6	0	0	0	6	0	0	54 (90%)
Home	17	2	3	1	1	1	6	0	0	10 (59%)
Non NHS England	9	0	2	0	0	0	2	0	0	7 (78%)
Unknown	7	0	2	0	0	0	1	0	1	4 (57%)
Total	**2967**	**81**	**1108**	**17**	**26**	**82**	**1091**	**35**	**24**	**1559 (53%)**

NNAP, infants born 1 July 2009 – 30 June 2010

Question 9

What percentage of babies admitted to a neonatal unit have:

(a) **one or more episodes of a pure growth of a pathogen from blood;**
(b) **one or more episode of a pure growth of a pathogen from cerebrospinal fluid (CSF);**
(c) **and either a pure growth of a skin commensal or a mixed growth with ≥3 clinical signs at the time of blood sampling?**

Standard: Standard not set, benchmarking at present.

Source of Standard: NNAP Board

There were **87416** admissions and **76145** babies in **174** units eligible for the audit. There were **22463** blood and CSF cultures for eligible babies; pathogen results, including 'no growth', were entered for **85%** (19055/22463) of cultures (table 9.1).

Table 9.2 shows blood culture results and table 9.3 shows CSF culture results; results are presented by gestational age band and neonatal unit level.

A list of organisms can be found in Appendix H in which pure growths are listed as 'Recognised pathogens' and skin commensal organisms are listed as 'Other organisms (including skin commensals).' The difference in terminology is necessary to apply a case definition for analysis.

Overall the results were:

(a) **Less than 1%** (496/76415) of all babies had a positive blood culture result with **0.5%** (410/76415) pure growths;

(b) **0.01%** (10/76415) of all babies had a positive CSF culture result with a pure growth;

(c) for blood cultures, **0.1%** (77/76415) of babies had a growth of a skin commensal with three or more predefined clinical signs, and **0.01%** (9/76415) a mixed growth with three or more predefined clinical signs.

Table 9.1

Completeness of available culture data by gestational age

Gestational age group	Blood cultures		CSF cultures	
	Number of blood cultures	Number of blood cultures with pathogen results entered (% of blood cultures)	Number of CSF cultures	Number of CSF cultures with pathogen results entered (% of CSF cultures)
Missing	1	0 (0%)	0	0
<=27 weeks	3909	3535 (90%)	374	336 (90%)
28-31 weeks	3248	2838 (87%)	264	235 (89%)
32-36 weeks	5524	4662 (84%)	460	383 (83%)
>=37 weeks	7074	5735 (81%)	1609	1331 (83%)
Total	**19756**	**16770 (85%)**	**2707**	**2285 (84%)**

Table 9.2

Blood cultures taken by neonatal unit level and gestational age.

Unit Level	Gestational age group	Number of babies	Number of admissions	Number of babies with a pure growth	Number of babies with a skin commensal and ≥3 clinical signs	Number of babies with a mixed growth and ≥3 clinical signs
SCU	Missing	11	11	0	0	0
	<=27 weeks	181	505	1	0	0
	28-31 weeks	530	1233	3	0	0
	32-36 weeks	4407	5359	8	0	0
	>=37 weeks	7848	8326	13	0	0
LNU	Missing	6	6	0	0	0
	<=27 weeks	703	1640	30	3	0
	28-31 weeks	2274	3157	34	5	0
	32-36 weeks	10976	12066	28	1	0
	>=37 weeks	19198	20140	37	1	0
NICU	Missing	11	13	0	0	0
	<=27 weeks	1540	2962	154	41	6
	28-31 weeks	2269	3132	49	13	1
	32-36 weeks	9002	10104	28	8	1
	>=37 weeks	17189	18762	27	5	1
Total	Missing	28	30	0	0	0
	<=27 weeks	2424	5107	183	44	6
	28-31 weeks	5073	7522	86	18	1
	32-36 weeks	24385	27529	64	9	1
	>=37 weeks	44235	47228	77	6	1

Table 9.3
CSF cultures taken by neonatal unit level and gestational age.

Unit Level	Gestational age group	Number of babies	Number of CSF cultures with recorded results	Number of babies with a pure growth
SCU	Missing	11	0	
	<=27 weeks	181	9	0
	28-31 weeks	530	5	0
	32-36 weeks	4407	43	0
	>=37 weeks	7848	180	1
LNU	Missing	6	0	0
	<=27 weeks	703	54	0
	28-31 weeks	2274	93	0
	32-36 weeks	10976	174	3
	>=37 weeks	19198	645	2
NICU	Missing	11	0	0
	<=27 weeks	1540	273	0
	28-31 weeks	2269	137	1
	32-36 weeks	9002	166	1
	>=37 weeks	17189	506	2
Total	Missing	28	0	0
	<=27 weeks	2424	336	0
	28-31 weeks	5073	235	1
	32-36 weeks	24385	383	4
	>=37 weeks	44235	1331	6

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Only 19756 blood cultures were reported to be taken on 76415 of the country's sickest babies in 2012. This suggests very significant under-reporting. Of the 19756 cultures, 410 (2.1%) grew a pure pathogen and further 77 a mixed growth. In contrast, a single UK NNU recently reported a 10-12% positive culture rate[1]. Furthermore, in the 26 months from January 2006 to March 2008 the Health Protection Agency's voluntary surveillance scheme in England and Wales received 1516 reports of bacteraemia in neonates <48 hours old and 3482 reports for neonates 2–28 days old, equivalent to 2306 bacteraemias per annum in neonates.[2]

1 Blackburn RM et al. Neonatal sepsis – many blood samples, few positive cultures: implications for improving antibiotic prescribing. *Arch Dis Child Fetal Neonatal Ed* doi:10.1136/archdischild-2012-302261 viewed 19/05/2013

2 Muller-Pebody B et al. Empirical treatment of neonatal sepsis: are the current guidelines adequate? Arch Dis Child Fetal Neonatal Ed 2011;***96:***F4-F8

We might estimate a minimum number of blood cultures on the basis that on average every baby under 32 weeks gestation will have at least two blood cultures during his/her stay on a NNU; however in 2012, <1 culture per baby (7157 cultures in 7497 babies) was reported and only 85% of recorded blood cultures and 84% of CSF cultures had a pathology result entered.

Thus these NNAP data must be viewed with great caution. Similarly the number of catheter associated blood stream infections (CABSI) provided below is almost certainly misleadingly low at 2.5 per 1000 catheter days. A large Australian study in a single NNU reported a figure of 3.82 per 1000 catheter days, ie affecting 5.3% of catheters inserted.[3]

Greater effort from all involved in neonatal care for complete and accurate data is needed to achieve improvements comparable to those in other areas of the audit.

Therefore, for the year 2014 NNAP is setting a standard that each neonatal unit is expected to report **on average** two blood cultures for each baby admitted at <32 weeks who stays on the unit. Furthermore from 2014, 90% of all cultures in every unit are expected to be reported, rising to 95% in 2015.

3 Cartwright DW. Central venous lines in neonates: a study of 2186 catheters. Arch Dis Child Fetal Neonatal Ed 2004;**89**:F504–F508.

Question 10

What percentage of babies of more than or equal to 35^{+0} weeks gestation have an encephalopathy within the first three calendar days of birth?

As outlined in Section 2.6, due to difficulties in obtaining denominator data in 2011, the Project Board took the decision that no denominator data would be collected for 2012. A solution is being explored which will allow the analysis of data for this audit question in future.

Question 11

How many blood stream infections[a] are there on a NNU per 1000 days of central line[b] care?

a: the growth of a recognised pathogen in pure culture, or in the case of a mixed growth, or growth of skin commensal, the added requirement for 3 or more of 10 predefined clinical signs

b: central line = UAC, UVC, percutaneous long line or surgically inserted long line.

Standard: Standard not set, benchmarking at present.

Source of Standard: NNAP Board

This year **76415** babies in 174 NNU received **992682** days of care. In total **13%** (125698/992682) of all care days included a central line and **308** blood stream infections were reported for these central line days; 2.5 blood stream infections per 1000 central line days.

Results are reported for this audit question in table 11.1 by gestational age band and NNU level.

Table 11.1

Number of CABSI by neonatal unit level and gestational age group.

Unit Level	Gestational age group	Number of babies	Number of line days	Number of Central line associated blood stream infections	CABSI per 1000
SCU	Missing	11	0	0	0
	<=27 weeks	181	640	0	0
	28-31 weeks	530	1105	0	0
	32-36 weeks	4407	905	1	1.2
	>=37 weeks	7848	743	3	4.6
LNU	Missing	6	0	0	0
	<=27 weeks	703	6694	18	2.7
	28-31 weeks	2274	14130	15	1.1
	32-36 weeks	10976	6401	5	0.8
	>=37 weeks	19198	3803	9	2.4
NICU	Missing	11	5	0	0
	<=27 weeks	1540	44110	176	4.1
	28-31 weeks	2269	21720	40	1.9
	32-36 weeks	9002	12151	21	1.8
	>=37 weeks	17189	13291	20	1.6
Total	Missing	28	5	0	0
	<=27 weeks	2424	51444	194	3.8
	28-31 weeks	5073	36955	55	1.5
	32-36 weeks	24385	19457	27	1.4
	>=37 weeks	44235	17837	32	1.8

NNAP, 1 January - 31 December 2012

4. Audit developments in 2012

4.1 Changes to the audit questions

One new question was added to the audit from January 2012:

How many blood stream infections[a] are there on a NNU per 1000 days of central line[b] care?

[a]the growth of a recognised pathogen in pure culture, or in the case of a mixed growth, or growth of skin commensal, the added requirement for 3 or more of 10 predefined clinical signs.

[b]central line = UAC, UVC, percutaneous long line or surgically inserted long line.

No existing audit questions were discontinued.

4.2 Improved online reporting: NNAP Dashboard

The NNAP Dashboard, created and managed by Clevermed, was available to BadgerNet users who wished to check the quality and completeness of their data utilised for NNAP analyses. The NNAP Dashboard currently covers data relating to NNAP questions 1-5 and aggregates results on a monthly basis. The dashboard aims to use the same selection criteria as the NNAP analyses. The aim is to assist NNUs to obtain an indication of the quality of data entered, and to find, check and amend data more easily. The data on the dashboard will not always have the same number of eligible babies for a NNU as the NNAP report for a year, but should help NNUs to improve data completeness and quality.

BadgerNet users can find the NNAP Dashboard in the parameters for 'Dashboards', under the 'Unit Reports' tab.

4.3 Expansion of the audit

Fourteen additional NNUs, of which 10 were in Wales, started to submit data on the Badger system during 2012; their data are now included in the audit. This is the first year that any Welsh NNU has submitted data to the audit. A list of these NNUs can be found in section 2.3.

4.4 Identification of outliers

The 2012 NNAP report on 2011 neonatal data was the first in which NNAP followed the recommendations of the Department of Health/Healthcare Quality Improvement Partnership's Best Practice Guidance 'Detection and Management of Outliers' prepared by the then National Clinical Audit Advisory Group and published in January 2011. A summary of the necessary steps is found in Appendix 2 of that document: (Process for the management and investigation of identified outlier performance of healthcare providers). This was slightly modified and reproduced in the NNAP Quality Improvement Document for 2011 data found on the NNAP web page (www.rcpch.ac.uk/nnap), and this section of the report describes the steps NNAP and the units with outlying data followed.

Four audit questions were selected to be used to in the recognition of outliers.

1. Do all babies of ≤28^{+6} weeks gestation have their temperature taken within the first hour after birth?
2. Do all babies <1501g or gestational age at birth <32^{+0} weeks and still an inpatient undergo first ROP screening in accordance with the current guideline recommendations?
3. What proportion of babies <33^{+0} weeks gestation at birth are receiving their mother's milk when discharged from a neonatal unit?
4. Is there a documented consultation with parents/carers by a senior member of the neonatal team within 24 hours of admission?

The initial results and funnel plots were published in last year's report.

In 2011, many NNUs had a significant amount of incomplete data. This contributed to a wide dispersion of points on the funnel plots in a non-parametric distribution and consequently many more NNUs than anticipated were outliers. Had the data been complete and binomially distributed, only 5% of NNUs (approximately eight NNUs) would have been expected to fall outside the 95% confidence intervals for each question. As it was, the numbers were much higher.

A decision was made to approach NNUs whose data were ≥95% complete with the message that they were probably 'true underperformers'. Those whose data were <95% complete were told that they were 'possible underperformers' with the recommendation that they improve their data collection. No case mix adjustments were undertaken. It remains important to remember that 5% of NNU will be outliers by statistical chance.

This section deals with the outcome of the action steps listed in the Quality Improvement Document.

High outliers

Some NNU did consistently well in the audit. They were sent congratulations from NNAP and a certificate of commendation. The criterion for receiving this certificate was that they were high outliers in at least two of the four questions analysed. Table 3 shows NNUs that achieved this and their number of high performances. Congratulations to them once again.

Table 3: High outlier units (2011 data)

Unit name	Total high performances
King's College Hospital	3
Queen Charlotte's Hospital	3
Royal Devon and Exeter Hospital	3
University College Hospital	3
Wexham Park Hospital, Slough	3
Bedford Hospital	2
Chelsea and Westminster Hospital	2
Chesterfield and North Derbyshire Royal Hospital	2
City Hospital, Birmingham	2
Hillingdon Hospital	2
Leighton Hospital, Crewe	2
Medway Maritime	2
Royal Shrewsbury Hospital	2
St Mary's Hospital, London	2
Stepping Hill Hospital, Stockport	2
The Jessop Wing, Sheffield	2
University Hospital Of North Staffordshire	2
Whittington Hospital	2
William Harvey Hospital, Ashford	2
Worcestershire Royal Hospital	2

Low outliers

Originally 83 NNU appeared to have one or more results in an outlying position. After re-examination, six NNU no longer had any outlying data. One of these NNU has closed. Thus 76 NNU were approached as outlined in the NNAP Quality Improvement Document. Their responses are shown in Table 4.

Both the NNAP clinical lead and the chief executive replied in 49 (64%) of the hospitals; the clinical lead alone replied from 14 hospitals, and the chief executive alone from eight hospitals. Thirty-four clinical leads drew up detailed action plans based on the template in the Quality Improvement Document or described the plan in detail in their letters.

Neither the NNAP clinical lead nor the chief executive responded from the two hospitals at the bottom of Table 4 despite reminders from NNAP. Direct phone contact with clinicians in these hospitals indicates that local difficulties have now been overcome and, should the NNUs be outliers in 2012, full reports and action plans will be received.

Table 4: Low outlier units (2011 data)

	Clinical lead letter / email to NNAP	CEO letter received by NNAP	Action Plan seen by NNAP*	**Consultation**: all possible alarms/alertS		**Feeding:** all probably true alerts/alarms		**ROP:** all but one* possible alarms/ alerts		**Temperature:** all possible alarms/alerts	
Birmingham Women's Hospital	+	+	+	1							
Broomfield Hospital	+	+	+					1			
Darlington Memorial Hospital	+	+	+		1						
Epsom General Hospital	+	+	+						1		
Frimley Park Hospital	+	+	+		1						
George Eliot Hospital	+	+	+					1			
Homerton Hospital	+	+	+		1					1	
Lancashire Women and Newborn Centre	+	+	+		1	1					
New Cross Hospital	+	+	+			1					
North Manchester General Hospital	+	+	+	1							
Nottingham City Hospital	+	+	+		1				1		
Princess Royal University Hospital	+	+	+		1			1			
Queen Elizabeth Hospital, Woolwich	+	+	+		1				1		
Queen's Hospital, Burton On Trent	+	+	+		1						
Queen's Hospital, Romford	+	+	+						1		
Royal Oldham Hospital	+	+	+				1				
Royal Sussex County Hospital	+	+	+					1			
Royal United Hospital, Bath	+	+	+	1							
St Michael's Hospital	+	+	+		1						
St Peter's Hospital	+	+	+		1						
Sunderland Royal Hospital	+	+	+			1					
Tameside General Hospital	+	+	+		1						
University Hospital Lewisham	+	+	+		1						
University Hospital Of North Durham	+	+	+		1			1			
University Hospital Of North Tees	+	+	+				1		1		

	Clinical lead letter / email to NNAP	CEO letter received by NNAP	Action Plan seen by NNAP*	**Consultation:** all possible alarms/alerts		**Feeding:** all probably true alerts/alarms		**ROP:** all but one* possible alarms/ alerts		**Temperature:** all possible alarms/alerts	
Whipps Cross University Hospital	+	+	+	1					1		
Whiston Hospital	+	+	+			1		1			
Airedale General Hospital	+	+			1	1					
Arrowe Park Hospital	+	+					1				
Bradford Royal Infirmary	+	+			1						
Countess Of Chester Hospital	+	+			1						
Dorset County Hospital	+	+		1							
Ealing Hospital	+	+			1			1			
Eastbourne District General Hospital	+	+			1						
Gloucestershire Royal Hospital	+	+			1						
Guy's and St Thomas' Hospital	+	+		1							
Hinchingbrooke Hospital	+	+		1							
Horton Hospital	+	+			1						
Milton Keynes Foundation Trust Hospital	+	+			1						
Newham General Hospital	+	+		1					1	1	
Princess Anne Hospital, Southampton	+	+			1						
Royal Victoria Infirmary	+	+						1*			
Southmead Hospital	+	+			1					1	
St Helier Hospital	+	+						1			
The Royal London Hospital - Constance Green	+	+			1						
The Royal London Hospital - Elizabeth Ward	+	+			1						
Warrington Hospital	+	+							1		
Warwick Hospital	+	+		1							
West Suffolk Hospital	+	+						1			
Derriford	+										1

	Clinical lead letter / email to NNAP	CEO letter received by NNAP	Action Plan seen by NNAP*	**Consultation:** all possible alarms/alerts		**Feeding:** all probably true alerts/alarms		**ROP:** all but one* possible alarms/ alerts		**Temperature:** all possible alarms/alerts	
Doncaster Royal Infirmary	+		+				1				
Ormskirk District General Hospital	+								1		
Pilgrim Hospital	+		+						1		
Royal Berkshire Hospital	+		+		1						
Royal Lancaster Infirmary	+		+						1		
Royal Preston Hospital	+		+			1					
Stoke Mandeville Hospital	+		+		1			1			
The Royal Free Hospital	+		+		1						
Basildon Hospital	+				1			1			
East Surrey Hospital	+							1			
Leeds Neonatal Service	+				1						
Lincoln County Hospital	+					1			1		
Rosie Maternity, Addenbrookes	+				1						
Royal Cornwall Hospital	+			1							
Torbay Hospital	+				1						
Great Western Hospital		+			1						
Ipswich Hospital		+		1							
James Cook University Hospital		+				1			1		
King George Hospital		+							1		
Manor Hospital											1
Nottingham University Hospital (Qmc)		+			1				1		
Princess Alexandra Hospital		+			1						
Scarborough General Hospital		+			1						
Southend Hospital		+			1			1			
Furness General Hospital	NO	NO						1			
Kingston Hospital	NO	NO			1			1			

4.5 Parent Reported Experience Measure (PREM) pilot

Capturing the patient/parent experience is an essential part of the assessment of the overall quality of a clinical service. NNAP are required by contract with HQIP to collect a Parent Reported Experience Measure (PREM) in the form of a questionnaire to parents or carers of infants admitted to NNU participating in the audit.

A PREM Working Group was convened, including representation from Bliss, the national UK charity and parent advocacy organisation, and the Neonatal Networks. Bliss engaged with their well-established parent forums to advise on the outcomes they consider of principal importance, and the Working Group also drew on the results of the report 'Parents' experiences of neonatal care: a report on the findings from a national survey' (November 2011) carried out by the Picker Institute and championed by Bliss. A PREM pilot was undertaken to test the chosen methodology.

Questionnaire:

The PREM Working Group designed a questionnaire including the following questions:

1. Did you have as much Kangaroo Care (skin-to-skin) with your baby as you wanted?
    - Yes definitely
    - Yes to some extent
    - No not as much as I wanted
    - I did not know about skin-to-skin care
    - No but this was not possible for medical reasons

2. Did staff arrange your baby's care (such as weighing, bathing) to fit in with your usual visiting times?
    - Yes always or nearly always
    - Yes sometimes
    - No

3. Were you involved as much as you wanted in the day-to-day care of your baby, such as nappy changing and feeding?
    - Yes definitely
    - Yes to some extent
    - No I was not involved as much as I wanted
    - No my baby was too ill

4. Did the doctors and nurses include you in discussions about your baby's care and treatment?
    - Yes always or nearly always
    - Yes to some extent
    - No, I was not included
    - Not sure/can't remember

5. Were you told about any changes in your baby's condition or care?
    - Yes always or nearly always
    - Yes to some extent
    - No, I was not told about changes
    - Not sure/can't remember

Pilot units

A pilot was carried out in the month of January 2013 in ten neonatal units, covering a range of unit levels and using the BadgerNet system.

Unit	Level
Alexandra Hospital	SCU
Calderdale Royal Hospital	LNU
Dewsbury and District	LNU
George Eliot Hospital	SCU
Harrogate District Hospital	SCU
Leeds Neonatal Service	NICU
Pinderfields General Hospital	LNU
Scarborough General Hospital	SCU
Worcestershire Royal	LNU
York District Hospital	LNU

Table 4: Units which participated in PREM pilot, January 2013

Methods

The cohort comprised all babies discharged from the NNU during the calendar month of January to any destination (eg home, ward, another unit). NNU were provided with an information poster for staff. The PREM questionnaire was available for download from the BadgerNet system in six languages (English, Bengali, Lithuanian, Polish, Punjabi and Urdu) at the time of discharge; parents/carers were asked for their preferred language. After the first week, a system upgrade enabled the questionnaire to be coded automatically with the NHS code of the discharging NNU and also the baby's BadgerID number.

This questionnaire was printed out and given to the parents/carers along with an explanatory leaflet (outlining the reasons this feedback is being sought) and a postage-paid envelope for return direct to the NNAP team at the RCPCH. This methodology ensured that parents could answer the questionnaire honestly, without concerns that the answers would be accessed by the NNU treating their baby.

Results:

As at 26 March, 70 forms had been returned from eight NNU (22 forms with no identifying NNU code were also received). NNU were asked to estimate how many babies they would have discharged during the pilot period. The total was approximately 276 giving a return rate of 28%.

The results from the PREM pilot are presented below:

Figure 1: Did you have as much Kangaroo Care (skin-to-skin) with your baby as you wanted?

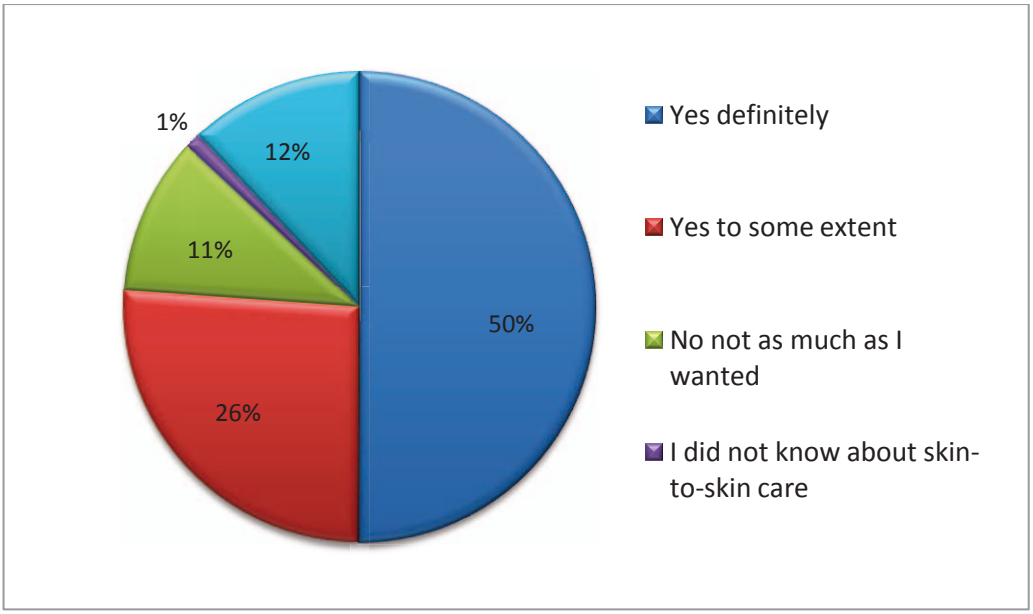


Figure 2: Did staff arrange your baby's care (such as weighing, bathing) to fit in with your usual visiting times?

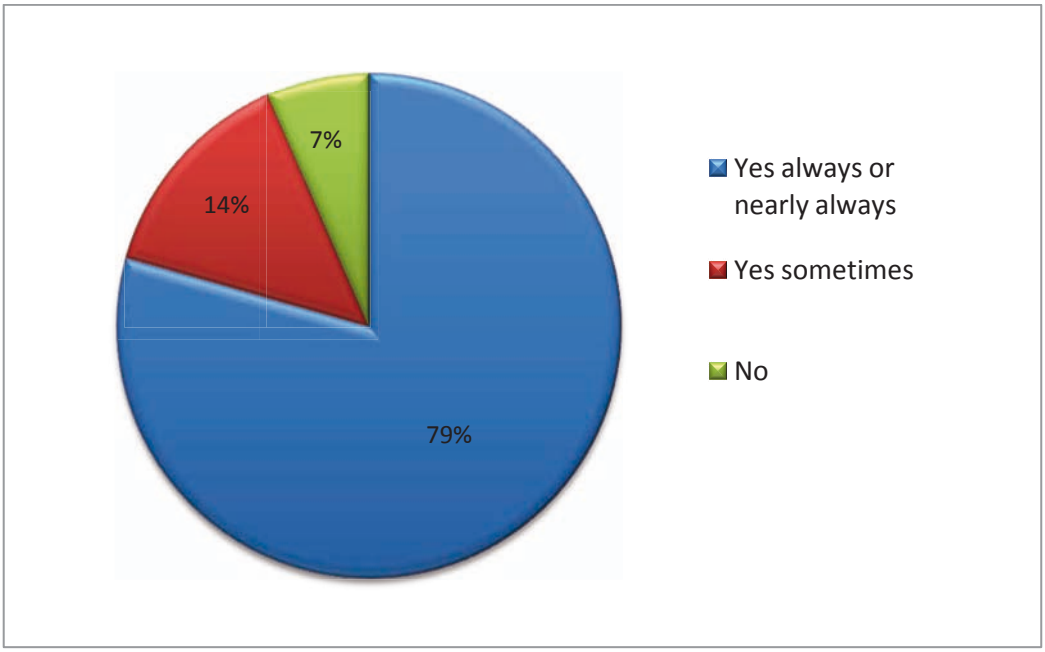


Figure 3: Were you involved as much as you wanted in the day-to-day care of your baby, such as nappy changing and feeding?

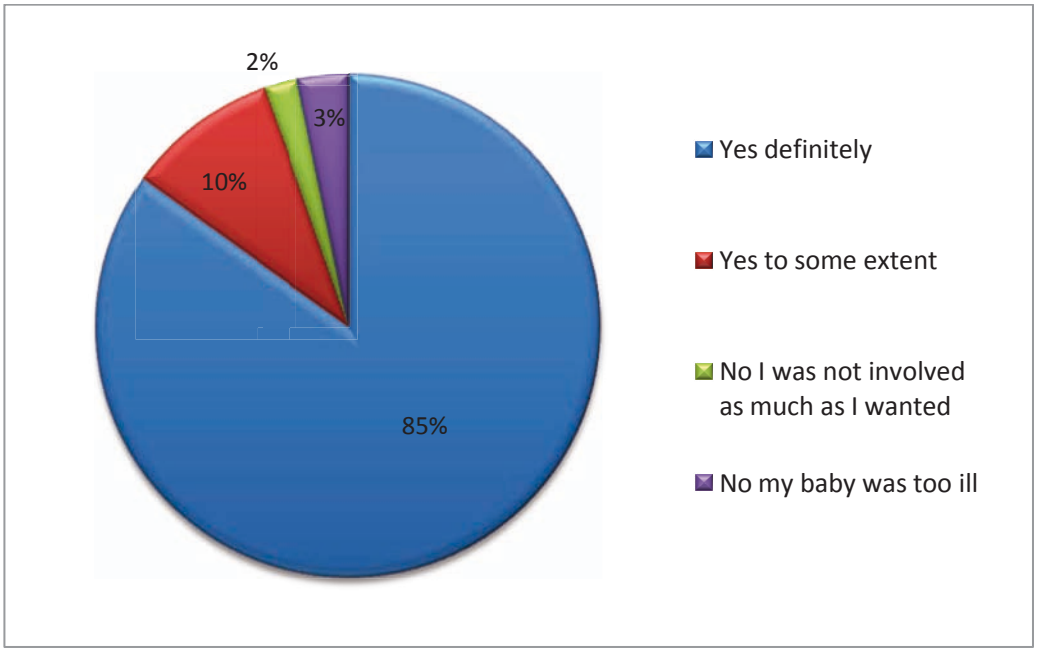


Figure 4: Did the doctors and nurses include you in discussions about your baby's care and treatment?

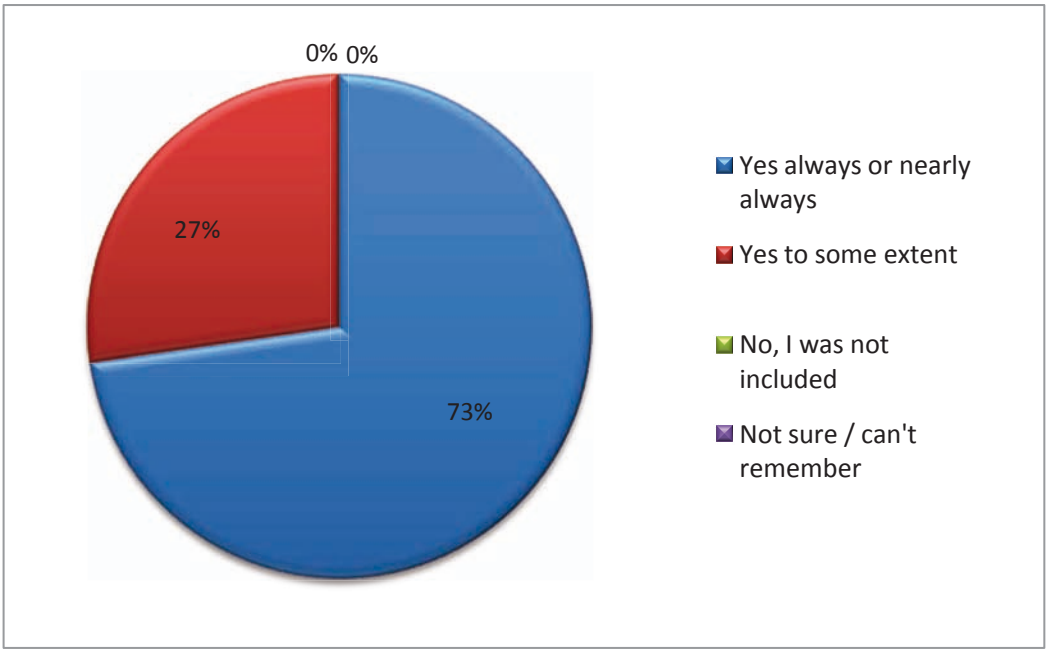
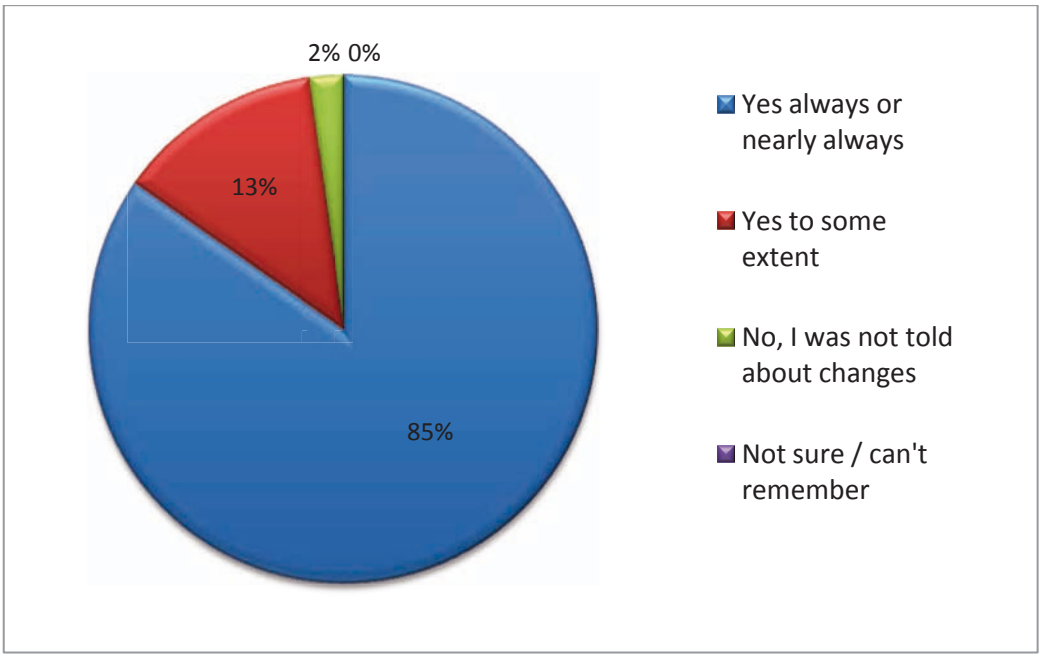
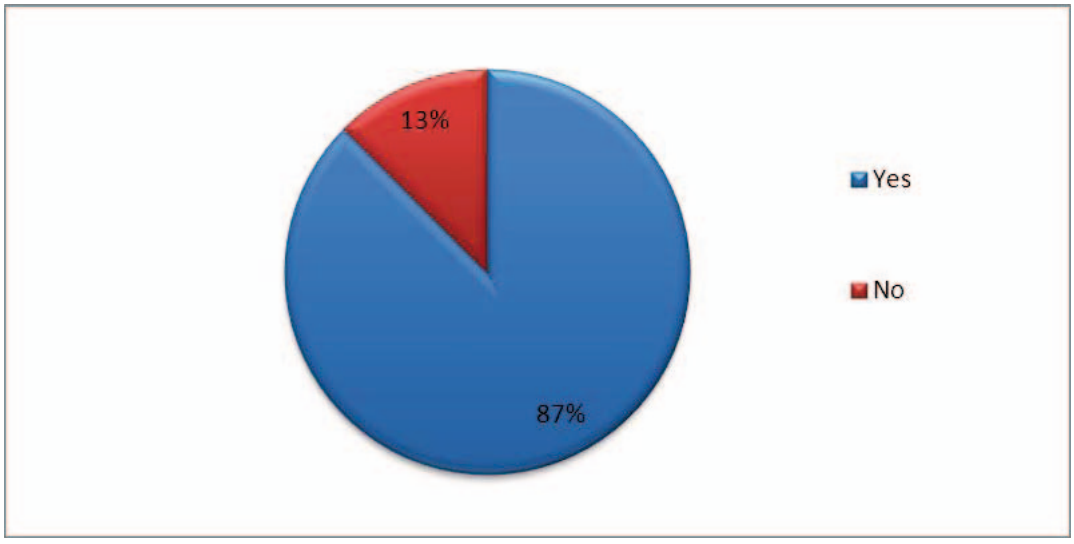


Figure 5: Were you told about any changes in your baby's condition or care?



NNAP contacts at the participating NNU were asked to complete an online survey to feed back their experiences of the pilot methodology. The results from the survey are presented below:

Figure 6: Do you think that producing the forms in different languages was beneficial?



One NNU went on to say that a significant proportion of their patients did not speak or write English so it is vital that the forms are available in other languages.

Table 4: What measures did your unit put in place to remind staff to download the questionnaire?

- In the communication book, copies of letter were left in the front of the Kardex.
- We ended up with ward clerks sending them out by post as was not available to download until mid-January.
- Already printed off a number of questionnaires and stored them in a specified place for staff to use. However badger ID and hospital ID not always included as had to manually input them.
- Notice on notes trolley but as it was a trial limited the role to one person.
- We printed off the questionnaires and put them in the discharge packs made up on the ward and when the parents were going home we added the badger ID number.
- We had a discharge reminder on our own planned discharge sheet.

4.6 NNAP Data Entry Guidelines

A NNAP Data Entry Guideline has been produced which outlines the location of each data item the audit included. Versions of the guide can be found for both Badger3 and BadgerNet systems on the NNAP website (www.rcpch.ac.uk/nnap).

4.7 NNAP and the National Neonatal Research Database

Neonatal data held in the National Neonatal Research Database (NNRD) are used for NNAP audit analyses. The NNRD is created at the NDAU using operational electronic patient records which are generated as part of routine clinical care in neonatal units across England and Wales. Data are extracted to the NDAU by Clevermed Ltd for all neonatal units that have granted approval via their Caldicott Guardians. By obtaining data from NNRD, the NNAP has reduced the burden of data recording to a once only process.

Watch out for updates from the NDAU and visit their website (www.imperial.ac.uk/ndau).

5. Future developments

5.1 Dealing with problems

Some sections of the audit are now starting to show consistent results, such as temperature, antenatal steroid administration, first consultation and breast feeding at discharge.

- Each year >40% of babies $\leq 28^{+6}$ weeks are hypothermic within an hour of birth.
- Nationally, 54% of babies $<33^{+0}$ weeks gestation go home on some breast milk, but in many units this figure is over 70%, and in some over 80% - and not necessarily the units one might expect based purely on the case mix.

These are areas in which individual NNUs can improve to raise the national averages.

- There is controversy over ROP screening before/after hospital discharge. Some NNUs say that the recent practice of sending stable preterm babies home early and tube fed means they 'cannot' be screened prior to discharge, but nationally 72% of those who are discharged with no screening recorded have no record of outpatient screening, figures similar to those in the references quoted in the national guidelines that recommend all babies are screened prior to discharge. It is the larger older babies who are not being screened [4,5]. Non-attendance rates for ROP screening are reported internationally; the NNAP board retains the standard of screening prior to discharge.
- This year greater problems occurred with the questions relating to infection. These can only be dealt with by more complete and accurate data entry as discussed under Question 9.
- A lack of denominator data has affected the questions on encephalopathy and admission rates for older babies in 2012. It is hoped that joint working with MBRRACE-UK will resolve this issue for babies born in 2013.

Raising standards

The disappointing results for ROP screening, for blood and CSF cultures and the variable results on data for the two year outcome present challenges for us all including the NNAP Board.

So far these questions have not had standards and have been seen as 'benchmarking' exercises. In view of the results, the NNAP Board will need to consider whether it would be helpful to:

1. Set a standard for the minimum number of expected blood cultures in the most preterm babies who are admitted at birth to a NNU and stay on that unit until discharge home.
2. Start auditing numbers of babies who undergo treatment for ROP.
3. Propose that all networks reach the current national average of 42% follow up (= some data entry) at two years post term within three years.

The results of these deliberations will be shared by newsletter and through meetings.

4 NNAP Annual Report 2009 page 64

5 Bain LC et al. Factors Associated with Failure to Screen Newborns for Retinopathy of Prematurity. J Pediatr 2012: **161**; 819-823

5.2 Quality Improvement – setting standards for the detection and management of outliers for 2012 and 2013 babies.

Working through the steps of the algorithm for the management of outliers found in NNAP's *Quality Improvement Document*, itself based on the *Department of Health's Guidance on the Detection and Management of Outliers* took until mid-2012 for babies born in 2011. We would like to record our thanks to those clinicians and chief executives who corresponded with us, often in great detail, in response to our letters.

As the process was so long, it was unrealistic, six months into the next calendar year, to expect all units to have implemented plans in all four areas – time of first temperature, time of first consultation, ROP screening and breast milk feeding at discharge – in time for significant changes to occur in 2012. Therefore only two areas were chosen for 2012: time of first temperature and ROP screening. For 2013 NNAP anticipates using all four questions again to look at outlier status. The same algorithm as used for 2011 data will be used for 2012 and 2013 data.

5.3 Changes to the audit questions

The Project Board agreed that the audit questions should remain unchanged in 2013. This will allow the new questions introduced in 2011 and 2012 to become embedded, and allow NNU to concentrate on improvements in data completeness and quality for these questions (9, 10 and 11). The possibility of introducing a question on severe chronic lung disease in 2014 will be discussed with NNUs.

5.4 Parent Reported Experience Measure (PREM)

Following the successful completion of the PREM pilot (see section 4.5) the Project Board would like to thank the units who took part. Pending further discussion, there is the possibility to go ahead with a national rollout on all BadgerNet units for a period of four months.

The questionnaire and methodology are anticipated to remain the same as those used in the pilot, and the questionnaire will be available for download to all NNUs using the latest BadgerNet system in the five languages used in the pilot, and also in Welsh. If they so wish, NNUs using the older Badger3 system will be able to take part by printing off a PDF version of the questionnaire provided by the Project Team and adding their unit code and the baby's BadgerID by hand prior to passing the paperwork to the parents/carers; several NNU have asked to take part using this method.

At the end of the four months, there will be a six-week period for the return of completed forms to the Project Team before analysis of the data. The results of a national PREM will be published in next year's NNAP Annual Report.

5.5 Denominator data

NNAP has in previous years worked in collaboration with other bodies to collect the denominator data needed to answer audit certain questions; currently question 7 and question 10 cannot be analysed without denominator data and, due to the audit reporting schedule, this data needs to be available to NNAP within three months of the calendar year covered. Due to a delay in awarding the contract for the national Maternity, Perinatal and Infant Clinical Outcome Review Programme, involving collection of perinatal data, NNAP collected this data directly from Trusts in 2011. This had limited success, hence for 2012 no denominator data was collected directly or accessed from elsewhere (see section 2.6).

MBRRACE-UK, the new consortium led by the National Perinatal Epidemiology Unit appointed by HQIP to continue the national programme of confidential enquiries in maternal, perinatal and infant care, are in future expected to collect the denominator data NNAP require to answer these two audit questions. NNAP could potentially have timely access to denominator data for analysis by working jointly with MBRRACE-UK, and communications are underway to investigate this possibility.

Appendix A: NNAP Unit Leads

Everyone who works on a NNU can contribute to NNAP but we would particularly like to thank the NNAP unit leads for their hard work and hours of data checking to improve the accuracy and completeness of NNAP data.

Hospital	NNAP unit lead
Airedale General Hospital	Dr Matthew Babirecki
Alexandra Hospital (Redditch)	Dr Andrew Short
Arrowe Park Hospital	Dr Oliver Rackham
Barnet Hospital	Dr Tim Wickham
Barnsley District General Hospital	Dr Sana Hamdan
Basildon Hospital	Dr Khorshed Khalifa
Basingstoke and North Hampshire Hospital	Dr Ruth Wigfield
Bassetlaw District General Hospital	Dr Lai-Men Wong
Bedford Hospital	Dr Raghavan Kadalraja
Birmingham City Hospital	Dr Julie Nycyk
Birmingham Heartlands Hospital	Dr Philip Simmons
Birmingham Women's Hospital	Dr Andrew Ewer
Bradford Royal Infirmary	Dr Sam Oddie
Bronglais General Hospital	Dr Prem Pitchaikani
Broomfield Hospital	Dr Ahmed Hassan
Calderdale Royal Hospital	Ms Kath Barnes
Chase Farm Hospital	Dr Tim Wickham
Chelsea and Westminster Hospital	Dr Shu-Ling Chuang
Chesterfield Royal Hospital	Dr Aiwyne Foo
Colchester General Hospital	Dr Sarah Dalton
Conquest Hospital	Dr Graham Whincup
Countess of Chester Hospital	Dr Stephen Brearey
Croydon University Hospital	Dr John Chang
Cumberland Infirmary	Dr John Storr
Darent Valley Hospital	Dr Selywn D'Costa
Darlington Memorial Hospital	Ms Janice Ratcliffe
Derriford Hospital	Dr Alex Allwood
Dewsbury and District Hospital	Dr Kallinath Shyamanur
Diana Princess of Wales Hospital (Grimsby)	Dr Pauline Adiotomre
Doncaster Royal Infirmary	Dr Sayed Ahmad
Dorset County Hospital	Dr Phil Wylie
Ealing Hospital	Dr Ramnik Mathur
East Surrey Hospital	Dr Abdul Khader
Eastbourne District General Hospital	Dr Imad Boles
Epsom General Hospital	Dr Kirsty Watts
Fairfield General Hospital	Dr Ruth Wakefield
Friarage Hospital	Dr Nil Sabrine

Hospital	NNAP unit lead
Frimley Park Hospital	Ms Jennifer Lomas
Furness General Hospital	Dr Anas Olabi
George Eliot Hospital	Dr Richard de Boer
Glan Clwyd Hospital	Dr Ian Barnard
Glangwili General Hospital	Dr Vinay Saxena
Gloucestershire Royal Hospital	Dr Jennifer Holman
Good Hope Hospital	Ms Sheena Lewis
Great Western Hospital	Dr Stanley Zengeya
Guy's and St Thomas' Hospital	Dr Karen Turnock
Harrogate District Hospital	Dr Chandra Jampala
Hereford County Hospital	Dr Helen Underhill
Hillingdon Hospital	Dr Michele Cruwys
Hinchingbrooke Hospital	Dr Hilary Dixon
Homerton Hospital	Dr Manigandan Chandrasekaran
Horton Hospital	Dr Naveen Shettihalli
Hull Royal Infirmary	Dr Chris Wood
Ipswich Hospital	Dr Matthew James
James Cook University Hospital	Dr Mithilesh Lal
James Paget Hospital	Dr Vasantha Jayalal
John Radcliffe Hospital	Dr Eleri Adams
Kettering General Hospital	Dr Harsha Bilolikar
King George Hospital	Dr Balkrishna Sharma
King's College Hospital	Dr Abhi Lall
King's Mill Hospital	Dr Vibert Noble
Kingston Hospital	Dr Jonathan Filkin
Lancashire Women and Newborn Centre, Burnley	Dr Meera Lama
Leeds General Infirmary	Dr Bryan Gill
Leeds Neonatal Service	Dr Lawrence Miall
Leicester General Hospital	Dr Jonathan Cusack
Leicester Royal Infirmary	Dr Venkatesh Kairamkonda
Leighton Hospital	Dr Arumugavelu Thirumurugan
Lincoln County Hospital	Dr Sudhakar Rao
Lister Hospital (Stevenage)	Dr Jonathan Kefas
Liverpool Women's Hospital	Dr Hafis Ibrahim
Luton and Dunstable Hospital	Dr Sateeshkumar Somisetty
Macclesfield District General Hospital	Dr Gail Whitehead
Manor Hospital	Dr Bangalore Satish
Medway Maritime Hospital	Dr Ghada Ramadan
Milton Keynes Foundation Trust Hospital	Dr Indranil Misra
Neville Hall	Dr Siddartha Sen
New Cross Hospital	Ms Bernie Williams
Newham General Hospital	Dr Imdad Ali

Hospital	NNAP unit lead
Norfolk and Norwich University Hospital	Dr David Booth
North Bristol Trust (Southmead)	Dr Paul Mannix
North Devon District Hospital	Dr Michael Selter
North Manchester General Hospital	Dr Nagesh Panasa
North Middlesex University Hospital	Dr Lesley Alsford
Northampton General Hospital	Dr Fiona Thompson
Northwick Park Hospital	Dr Ezam Mat-Ali
Nottingham City Hospital	Dr Lleona Lee
Nottingham University Hospital	Dr Stephen Wardle
Ormskirk District General Hospital	Dr Tim McBride
Peterborough City Hospital	Dr Seif Babiker
Pilgrim Hospital	Dr Margaret Crawford
Pinderfields General Hospital	Dr David Gibson
Poole Hospital NHS Foundation Trust	Dr Minesh Khashu
Prince Charles Hospital	Dr Iyad Al-Muzaffar
Princess Alexandra Hospital	Dr Elmo Thambapillai
Princess Anne Hospital	Dr Mike Hall
Princess of Wales Hospital	Dr Kate Creese
Princess Royal Hospital (Haywards Heath)	Dr Philip Amess
Princess Royal University Hospital	Dr Ali Bokhari
Queen Alexandra Hospital	Dr Huw Jones
Queen Charlotte's Hospital	Dr Lidia Tyszczuk
Queen Elizabeth Hospital (Woolwich)	Dr Olutoyin Banjoko
Queen Elizabeth Hospital (King's Lynn)	Dr Susan Rubin
Queen Elizabeth Hospital (Gateshead)	Dr Anne Dale
Queen Elizabeth the Queen Mother Hospital	Dr Niraj Kumar
Queen's Hospital (Romford)	Dr Khalid Mannan
Queen's Hospital (Burton-on-Trent)	Dr Azhar Manzoor
Rosie Maternity Hospital	Dr Anna Curley
Rotherham District General Hospital	Dr Christine Harrison
Royal Albert Edward Infirmary	Dr Christos Zipitis
Royal Berkshire Hospital	Dr Peter DeHalpert
Royal Bolton Hospital	Ms Cath Turner
Royal Cornwall Hospital	Dr Paul Munyard
Royal Derby Hospital	Dr Mal Ratnayaka
Royal Devon and Exeter Hospital	Dr Vaughan Lewis
Royal Glamorgan Hospital	Dr Iyad Al-Muzaffar
Royal Gwent Hospital	Dr Siddartha Sen
Royal Hampshire County Hospital	Dr Simon Struthers
Royal Lancaster Infirmary	Dr Joanne Fedee
Royal Oldham Hospital	Dr Natasha Maddock
Royal Preston Hospital	Dr Richa Gupta

Hospital	NNAP unit lead
Royal Shrewsbury Hospital	Dr Alison Moore
Royal Surrey County Hospital	Ms Giezl Pulanco
Royal Sussex County Hospital	Dr Philip Amess
Royal United Hospital (Bath)	Dr Steve Jones
Royal Victoria Infirmary (Newcastle upon Tyne)	Dr Alan Fenton
Russells Hall Hospital	Dr Anand Mohite
Salisbury District Hospital	Dr Shirley Kinsey
Scarborough General Hospital	Dr Mazen Qunibi
Scunthorpe General Hospital	Dr James Devlin
Sheffield Children's Hospital	Dr Jenny Walker
Singleton Hospital	Dr Arun Ramachandran
South Tyneside District Hospital	Dr Rob Bolton
Southend Hospital	Ms Maureen Barnes
St George's Hospital (Tooting)	Dr Sandra Calvert
St Helier Hospital	Dr Salim Yasin
St Mary's Hospital (Paddington)	Dr Peter Chow
St Mary's Hospital (Manchester)	Dr Aditya Rakhecha
St Mary's Hospital (Isle of Wight)	Dr Sian Butterworth
St Michael's Hospital (Bristol)	Dr Pamela Cairns
St Peter's Hospital (Chertsey)	Dr Peter Reynolds
St Richard's Hospital (Chichester)	Dr Timothy Taylor
Staffordshire General Hospital	Mrs Gina Hartwell
Stepping Hill Hospital	Dr Carrie Heal
Stoke Mandeville Hospital	Dr Sanjay Salgia
Sunderland Royal Hospital	Dr Geoffrey Lawson
Tameside General Hospital	Dr Jacqueline Birch
Taunton and Somerset Hospital	Dr Rebecca Mann
The Jessop Wing	Dr Alan Gibson
The Royal Free Hospital	Dr Vivienne van Someren
The Royal London Hospital	Dr Rainer Ebel
Torbay Hospital	Dr Mala Raman
Trafford General Hospital	Dr Dorothy Ridgway
Tunbridge Wells Hospital	Dr Hamudi Kisat
University College Hospital	Dr Giles Kendall
University Hospital Coventry	Dr Kate Blake
University Hospital Lewisham	Dr Jauro Kuna
University Hospital of Hartlepool	Dr Anil Gupta
University Hospital of North Durham	Dr Mehdi Garbash
University Hospital of North Staffordshire	Dr Kate Palmer
University Hospital of North Tees	Dr Bernd Reichert
University Hospital of South Manchester	Dr Faisal Al-Zidgali
University Hospital of Wales	Dr Roshan Adappa

Hospital	NNAP unit lead
Victoria Hospital (Blackpool)	Dr Chris Rawlingson
Wansbeck General Hospital	Ms Joan Oliver
Warrington Hospital	Dr Delyth Webb
Warwick Hospital	Dr Ajay Upponi
Watford General Hospital	Dr Sankara Narayanan
West Cumberland Hospital	Dr Mahfud Ben-Hamida
West Middlesex University Hospital	Dr Hashir Ariff
West Suffolk Hospital	Dr Ian Evans
Wexham Park Hospital	Dr Rekha Sanghavi
Whipps Cross University Hospital	Dr Caroline Sullivan
Whiston Hospital	Dr Laweh Amegavie
Whittington Hospital	Dr Raoul Blumberg
William Harvey Hospital	Dr David Long
Withybush Hospital	Dr Vishwa Narayan
Worcestershire Royal Hospital	Dr Andrew Gallagher
Worthing Hospital	Dr Anil Garg
Wrexham Maelor Hospital	Dr Brendan Harrington
Yeovil District Hospital	Dr Megan Eaton
York District Hospital	Dr Guy Millman
Ysbyty Gwynedd	Dr Mike Cronin

Appendix B: 2012 Audit Dataset

The following table details the raw data fields that were used during analysis for the 2012 NNAP audit.

Fields Used For:	Data Field	Comment
General- used for multiple questions and determining eligible babies	Baby: Badger Patient Anonymised ID	Patient Identifier unique to the Badger system. Only units who have cared for a baby can find them when they search for their ID
	Baby: Date Of Birth	Not provided as a data item, but used as the basis for anonymised times in minutes (eg Time of birth=0, an hour after birth=60)
	Baby: Month Of Birth	Calendar month in which baby was born
	Baby: Year Of Birth	Calendar year in which baby was born
	Baby: Gestational Age At Birth (Weeks)	The baby's gestational age at birth in completed weeks
	Baby: Gestational Age At Birth (Days)	The number of days between whole weeks at the baby's time of birth
	Baby: Birth weight (g)	
	Baby: Place Of Birth	Provided as a NHS organisation code and NDAU code
	Baby: NHS Number	Encrypted
	Mother: NHS Number	Encrypted; used to identify unique mothers
	Mother: Booked Place Of Delivery	Provided as a NHS organisation code and NDAU code
	Mother: Birth Order	Identifies first twin, second twin, first triplet etc. Used to identify unique mothers when NHS number is missing
	Mother: Total Births This Pregnancy	Used to identify unique mothers when Mother's NHS number is missing
	Admissions: Source Of Admission	Provided as a NHS organisation code and NDAU code
	Admissions: Admission Time	Provided as minutes from birth
	Admissions: Episode Number	
	Admissions: Hospital Providing Care	Provided as a NHS organisation code and NDAU code
	Discharge: Discharge Status	
	Discharge: Discharge Time	Provided as minutes from birth
	Discharge: Discharge Location	Provided as a NHS organisation code and NDAU code
	Discharge: Discharge Ward	The type of ward the baby is being discharged to (where applicable)

Fields Used For:	Data Field	Comment
Question 1- Admission Temperature	Admission: Was Temperature Taken After Admission? (Yes/ No/Unknown)	
	Admission: Was The Baby's Temperature Recordable? (Yes/ No)	
	Admission: Admission Temperature Time (Date and Time)	Provided as minutes from birth
	Admission: Admission Temperature Value (°C)	Valid range 25-42
Question 2- Antenatal Steroids	Mother: Were Antenatal Steroids Given? (Yes/No/ Unknown)	
	Mother: Was A Complete Course Of Steroids Given? (Complete/Incomplete/No/ Unknown)	
Question 3- ROP Screening	Ad Hoc: Time Of ROP Screening (Date and Time)	Provided as minutes from birth
Question 4- Mother's milk at discharge	Daily Data: Date Of Day Of Care (Date and Time)	Provided as minutes from birth (Time=midnight at the beginning of the day)
	Daily Data: Enteral Feeds	
	Discharge: Discharge Milk	Used for case-mix adjustment exercise
	Mother: Postcode	Provided as a Lower Layer Super Output Area code, used for case-mix adjustment exercise
	Mother: Birth Year	Provided as a calendar year, used for case-mix adjustment exercise
	Mother: Smoking In Pregnancy	Used for case-mix adjustment exercise
	Mother: Number Of Previous Pregnancies	Used for case-mix adjustment exercise
	Mother: Marital Status	Used for case-mix adjustment exercise
Question 5- First Consultation after admission	Admission: Was There A Consultation By A Senior Member Of Staff With Parents/ Carers After Admission? (Yes/ No/Unknown)	
	Admission: Parents Seen By A Senior Member Of Staff (Date and Time)	Provided as minutes from birth
Question 6- Transfers within network	-	No unique fields used for this question: only 'General fields' were required

Fields Used For:	Data Field	Comment
Question 7- Term admissions	-	No unique fields used for this question: only 'General fields' were required; Analysis of this question not included in 2012
Question 8- Two Year Follow up	Other: two Year Outcomes (Separate Table)	Complete two year outcomes data, including all of the fields on the TRPG/ SEND/NNAP 2-Year Corrected Age Outcome Form and why, if applicable, the baby was lost to follow up
Question 9- Blood and CSF Cultures	Ad-Hoc: Time Of Culture (Date And Time)	Provided as minutes from birth
	Ad-Hoc: Type Of Culture Taken	
	Ad-Hoc: Clinical Signs Present When Culture Was Taken	
	Ad-Hoc: Pathogen Results	
Question 10- Encephalopathy	Daily Data: Date Of Day Of Care	Provided as minutes from birth (Times=midnight at the beginning of the day); Analysis of this question not included in 2012
	Daily Data: Neurological Tone	Analysis of this question not included in 2012
	Daily Data: Neurological Consciousness	Analysis of this question not included in 2012
	Daily Data: Convulsions Today? (Yes/No)	Analysis of this question not included in 2012
	Daily Data: Therapuetic Hypothermia? (Yes/No)	'Cooling'; Analysis of this question not included in 2012
Question 11- CABSI	Daily Data: Date Of Day Of Care	Provided as minutes from birth (Times=midnight at the beginning of the day)
	Daily Data: Line Inserted Today	
	Ad-Hoc: Time Of Culture	Provided as minutes from birth
	Ad-Hoc: Type Of Culture Taken	
	Ad-Hoc: Clinical Signs Present When Culture Was Taken	
	Ad-Hoc: Pathogen Results	

Appendix C: Categories of Care

Neonatal intensive care units provide specialist care for preterm, low birth weight and ill newborn babies. Neonatal care is given in most district general hospitals in special care baby units or neonatal intensive care units. It is a requirement that all maternity units be able to provide facilities for resuscitating unexpectedly ill newborn infants.

The categories of neonatal units are defined as:

- Level 1 (Local Special Care Service): Units providing Special Care but not aiming to provide any significant continuing High Dependency or Intensive Care.

- Level 2 (Local Neonatal Service): Units provide High Dependency Care and some short-term Intensive Care as agreed within the network.

- Level 3 (Neonatal Intensive Care Service): Units provide the whole range of medical neonatal care but not necessarily all specialist services such as neonatal surgery or cardiology

Categories of Care
These are the BAPM Categories of Care, August 2011.

Intensive care
General principle
This is care provided for babies who are the most unwell or unstable and have the greatest needs in relation to staff skills and staff to patient ratios.

Definition of Intensive Care Day

- Any day where a baby receives any form of mechanical respiratory support via a tracheal tube
- **BOTH** non-invasive ventilation (eg nasal CPAP, SIPAP, BIPAP, vapotherm) and PN
- Day of surgery (including laser therapy for ROP)
- Day of death
- Any day receiving any of the following:
    - Presence of an umbilical arterial line
    - Presence of an umbilical venous line
    - Presence of a peripheral arterial line
    - Insulin infusion
    - Presence of a chest drain
    - Exchange transfusion
    - Therapeutic hypothermia
    - Prostaglandin infusion
    - Presence of replogle tube
    - Presence of epidural catheter
    - Presence of silo for gastroschisis
    - Presence of external ventricular drain
    - Dialysis (any type)

High dependency care

General principle
This is care provided for babies who require highly skilled staff but where the ratio of nurse to patient is less than intensive care.

Definition of High Dependency Care Day
Any day where a baby does not fulfil the criteria for intensive care where any of the following apply**:**

- Any day where a baby receives any form of non invasive respiratory support (eg nasal CPAP, SIPAP, BIPAP, HHFNC)
- Any day receiving any of the following:
  - parenteral nutrition
  - continuous infusion of drugs (except prostaglandin and/or insulin)
  - presence of a central venous or long line (PICC)
  - presence of a tracheostomy
  - presence of a urethral or suprapubic catheter
  - presence of trans-anastomotic tube following oesophageal atresia repair
  - presence of NP airway/nasal stent
  - observation of seizures/CF monitoring
  - barrier nursing
  - ventricular tap

Special care

General principle
Special care is provided for babies who require additional care delivered by the neonatal service but do not require either Intensive or High Dependency care.

Definition of Special Care Day

- Any day where a baby does not fulfill the criteria for intensive or high dependency care and requires any of the following:
  - 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
  - baby receiving phototherapy
  - special observation of physiological variables at least four hourly

TRANSITIONAL CARE

General principle

Transitional care can be delivered in two service models, within a dedicated transitional care ward or within a postnatal ward. In either case the mother **must be resident with her baby and providing care**. Care above that needed normally is provided by the mother with support from a midwife/ healthcare professional who needs no specialist neonatal training. Examples include low birth weight babies, babies who are on a stable reducing programme of opiate withdrawal for Neonatal Abstinence Syndrome and babies requiring a specific treatment that can be administered on a post-natal ward, such as antibiotics or phototherapy.

Appendix D: Participating units

Units represented in this report by less than 12 months complete data are indicated by an asterisk (*).

Institution	Unit Level	NHS Code	Completed episodes of care	Distinct babies per unit
Alexandra Hospital	SCU	RNZ23	247	231
Bassetlaw District General Hospital	SCU	RHAAA	132	121
Bedford Hospital	SCU	RC110	366	336
Bronglais General Hospital*	SCU	RKVAJ	2	2
Broomfield Hospital	SCU	RRDAA	596	560
Chase Farm Hospital	SCU	RNLC7	280	247
Conquest Hospital	SCU	RXC01	123	111
Cumberland Infirmary*	SCU	RTX05	242	228
Darent Valley Hospital	SCU	RN707	616	547
Darlington Memorial Hospital	SCU	RTRDA	207	186
Dewsbury and District Hospital	SCU	RXF10	275	258
Ealing Hospital	SCU	RC368	294	278
Eastbourne District General Hospital	SCU	RXC02	221	203
Epsom General Hospital	SCU	RVR50	192	183
Frimley Park Hospital	SCU	RDU01	551	519
Furness General Hospital	SCU	RTXBU	93	85
George Eliot Hospital	SCU	RLT01	239	220
Good Hope Hospital	SCU	RJH01	542	504
Harrogate District Hospital	SCU	RCD01	155	136
Hereford County Hospital	SCU	RTE83	250	231
Hinchingbrooke Hospital	SCU	RQQ31	255	237
James Paget Hospital	SCU	RGP75	303	287
King George Hospital	SCU	RF4DG	293	281
North Devon District Hospital	SCU	RBZ12	229	213
North Manchester General Hospital	SCU	RW602	482	448
Oxford University Hospitals, Horton Hospital	SCU	RTH05	144	130
Pilgrim Hospital	SCU	RWD2W	387	356
Princess Royal Hospital	SCU	RWA02	260	241
Princess Royal University Hospital	SCU	RG303	324	289
Queen Elizabeth Hospital, Gateshead	SCU	RR7EN	245	225
Queen Elizabeth The Queen Mother Hospital	SCU	RVV11	258	229
Royal Surrey County Hospital	SCU	RA201	680	647
Scarborough General Hospital	SCU	RCC25	196	185
South Tyneside District Hospital	SCU	RE9GA	140	128

Institution	Unit Level	NHS Code	Completed episodes of care	Distinct babies per unit
Staffordshire General Hospital	SCU	RRE01	1016	1001
The Royal Free Hospital	SCU	RAL01	358	329
Torbay Hospital	SCU	RA901	343	320
University Hospital of North Durham	SCU	RXPCP	246	220
Wansbeck General Hospital	SCU	RTDAA	427	398
Warwick Hospital	SCU	RJC02	368	336
West Cumberland Hospital*	SCU	RTX06	180	171
West Middlesex University Hospital	SCU	RFW01	404	382
West Suffolk Hospital	SCU	RGR50	427	406
Worthing Hospital	SCU	RPL04	809	772
Yeovil District Hospital	SCU	RA430	207	193
Ysbyty Gwynedd*	SCU	RT7AU	81	75
Airedale General Hospital	LNU	RCF22	205	200
Barnet Hospital	LNU	RAL26	456	420
Barnsley District General Hospital	LNU	RFRAA	281	257
Basildon Hospital	LNU	RAJ12	472	439
Basingstoke and North Hampshire Hospital	LNU	RN506	297	276
Calderdale Royal Hospital	LNU	RWY02	497	476
Chesterfield and North Derbyshire Royal Hospital	LNU	RFSDA	299	282
City Hospital	LNU	RXK02	931	900
Colchester General Hospital	LNU	RDEE4	454	421
Countess of Chester Hospital	LNU	RJR05	537	506
Croydon University Hospital	LNU	RJ611	561	531
Diana Princess of Wales Hospital	LNU	RJL30	801	767
Doncaster Royal Infirmary	LNU	RHQDR	323	302
Dorset County Hospital	LNU	RBD01	249	237
East Surrey Hospital	LNU	RTP04	422	397
Fairfield General Hospital*	LNU	RT201	43	40
Glangwili General Hospital*	LNU	RVAAG	72	66
Gloucestershire Royal Hospital	LNU	RTE03	628	592
Great Western Hospital	LNU	RN325	366	346
Hillingdon Hospital	LNU	RAS01	382	368
Ipswich Hospital	LNU	RGQ02	614	584
Kettering General Hospital	LNU	RNQ51	418	402
King's Mill Hospital	LNU	RK5BC	254	236
Kingston Hospital	LNU	RQY57	460	434
Leighton Hospital	LNU	RBT20	275	262
Lincoln County Hospital	LNU	RJL50	441	380
Lister Hospital	LNU	RWH01	918	891
Macclesfield District General Hospital	LNU	RJN71	161	155

Institution	Unit Level	NHS Code	Completed episodes of care	Distinct babies per unit
Manor Hospital	LNU	RBK02	447	427
Milton Keynes Foundation Trust Hospital	LNU	RD816	345	315
Newham General Hospital	LNU	RNHB1	537	482
North Middlesex University Hospital	LNU	RAPNM	371	338
Northampton General Hospital*	LNU	RP1M4	261	253
Northwick Park Hospital	LNU	RV383	486	462
Ormskirk District General Hospital	LNU	RVY02	396	378
Peterborough City Hospital	LNU	RGN66	963	918
Pinderfields General Hospital	LNU	RGD08	323	302
Poole Hospital NHS Foundation Trust	LNU	RD300	334	308
Prince Charles Hospital*	LNU	RRSB3	78	71
Princess Alexandra Hospital	LNU	RQWG0	438	422
Princess of Wales Hospital*	LNU	RYMB7	51	49
Queen Elizabeth Hospital, King's Lynn	LNU	RCX70	418	406
Queen Elizabeth Hospital, Woolwich	LNU	RG222	393	371
Queen's Hospital, Burton on Trent	LNU	RJF02	229	215
Queen's Hospital, Romford	LNU	RF4QH	939	888
Rotherham District General Hospital	LNU	RFRPA	284	264
Royal Albert Edward Infirmary	LNU	RRF02	269	254
Royal Berkshire Hospital	LNU	RHW01	539	487
Royal Cornwall Hospital	LNU	REF12	569	553
Royal Derby Hospital	LNU	RTGFG	421	389
Royal Devon and Exeter Hospital	LNU	RH801	745	700
Royal Glamorgan Hospital*	LNU	RVEB1	131	126
Royal Hampshire County Hospital	LNU	RN101	364	339
Royal Lancaster Infirmary	LNU	RTX02	164	144
Royal Oldham Hospital	LNU	RT203	469	452
Royal Shrewsbury Hospital	LNU	RXWAS	768	741
Royal United Hospital	LNU	RD130	584	557
Russells Hall Hospital	LNU	RNA01	576	560
Salisbury District Hospital	LNU	RNZ02	222	210
Scunthorpe General Hospital	LNU	RJL32	707	664
Southend Hospital	LNU	RAJ01	460	426
St Helier Hospital	LNU	RVR05	456	437
St Mary's Hospital, IOW	LNU	RR201	229	216
St Mary's Hospital, London	LNU	RV3CP	309	297
St Richard's Hospital	LNU	RPR01	1102	1063
Stepping Hill Hospital	LNU	RWJ01	280	254
Stoke Mandeville Hospital	LNU	RXQ02	495	462
Tameside General Hospital	LNU	RMP01	308	286
Taunton and Somerset Hospital	LNU	RBA11	487	463

Institution	Unit Level	NHS Code	Completed episodes of care	Distinct babies per unit
Tunbridge Wells Hospital	LNU	RWF01	634	600
University Hospital Lewisham	LNU	RJ224	417	394
Victoria Hospital, Blackpool	LNU	RXL01	305	284
Warrington Hospital	LNU	RWWWH	354	333
Watford General Hospital	LNU	RWG02	1185	1146
Wexham Park Hospital	LNU	RD750	519	492
Whipps Cross University Hospital	LNU	RGCKH	452	410
Whiston Hospital	LNU	RBN01	338	316
Whittington Hospital	LNU	RKEQ4	2366	2313
Withybush Hospital*	LNU	RR6BL	77	73
Worcestershire Royal Hospital	LNU	RWP50	580	555
York District Hospital*	LNU	RCB55	272	267
Arrowe Park Hospital	NICU	RBL14	345	329
Birmingham Heartlands Hospital	NICU	RR101	1081	1043
Birmingham Women's Hospital	NICU	RLU01	1284	1198
Bradford Royal Infirmary	NICU	RAE02	776	733
Chelsea and Westminster Hospital	NICU	RQM01	587	551
Derriford Hospital	NICU	RK950	1124	1082
Glan Clwyd Hospital*	NICU	RT8A1	149	147
Guy's and St Thomas' Hospital	NICU	RJ100	820	781
Homerton Hospital	NICU	RQXM1	713	667
Hull Royal Infirmary	NICU	RWA01	551	535
James Cook University Hospital[1]	NICU	RTRAT	495	475
King's College Hospital	NICU	RJ250	692	661
Lancashire Women and Newborn Centre	NICU	XXX111	624	605
Leeds Neonatal Service	NICU	RR801	1587	1547
Liverpool Women's Hospital	NICU	REP01	1139	1109
Luton and Dunstable Hospital	NICU	RC971	832	777
Medway Maritime Hospital	NICU	RVVMD	968	935
New Cross Hospital	NICU	RL403	594	566
Norfolk and Norwich University Hospital	NICU	RM102	919	898
North Bristol NHS Trust (Southmead)	NICU	RVJH4	2232	2189
Nottingham City Hospital	NICU	RCSLB	748	700
Nottingham University Hospital (QMC)	NICU	RTG09	645	608
Oxford University Hospitals, John Radcliffe Hospital	NICU	RTH08	840	820
Princess Anne Hospital	NICU	RHM12	837	802
Queen Alexandra Hospital	NICU	RHU03	577	551
Queen Charlotte's Hospital	NICU	RQN03	388	368
Rosie Maternity Hospital, Addenbrookes	NICU	RGT01	1023	997
Royal Bolton Hospital	NICU	RMC01	633	614
Royal Preston Hospital	NICU	RXN02	534	499

Institution	Unit Level	NHS Code	Completed episodes of care	Distinct babies per unit
Royal Sussex County Hospital	NICU	RXH01	540	505
Royal Victoria Infirmary	NICU	RTD02	711	652
Singleton Hospital*	NICU	RVCC4	79	79
St George's Hospital	NICU	RJ701	1204	1171
St Mary's Hospital, Manchester	NICU	RW3SM	932	905
St Michael's Hospital	NICU	RA707	2714	2631
St Peter's Hospital	NICU	RTK01	769	750
Sunderland Royal Hospital	NICU	RLNGL	326	310
The Jessop Wing, Sheffield	NICU	RHQPH	783	752
The Royal London Hospital[2]	NICU	RNJ12	638	589
University College Hospital	NICU	RRV11	773	689
University Hospital Coventry	NICU	RKB01	630	577
University Hospital of North Staffordshire	NICU	RJEHQ	437	422
University Hospital of North Tees	NICU	RTRNT	327	301
University Hospital of South Manchester	NICU	RM202	369	348
William Harvey Hospital	NICU	RWF37	389	373
Wrexham Maelor Hospital*	NICU	RT9A4	110	107

1- Data from James Cook University Hospital includes that of Friarage Hospital

2- Data from The Royal London Hospital includes babies cared on Elizabeth Ward and Constance Green

Appendix E: Results by NNU tables

Audit question 1 (temperature taken within the first hour)

Unit level	Unit name	Eligible babies	Time of temperature measurement (from birth)			
			Within an hour (as % of eligible babies	After an hour	Not taken after admission	Missing/Unknown data
SCU	**Alexandra Hospital**	2	2 (100%)	0	0	0
	Bassetlaw District General Hospital	1	1 (100%)	0	0	0
	Bedford Hospital	7	7 (100%)	0	0	0
	Broomfield Hospital	11	8 (73%)	1	0	2
	Chase Farm Hospital	3	3 (100%)	0	0	0
	Conquest Hospital	4	3 (75%)	0	0	1
	Cumberland Infirmary	1	1 (100%)	0	0	0
	Darent Valley Hospital	8	7 (88%)	1	0	0
	Darlington Memorial Hospital	4	4 (100%)	0	0	0
	Dewsbury and District Hospital	3	3 (100%)	0	0	0
	Ealing Hospital	3	2 (67%)	0	0	1
	Eastbourne District General Hospital	3	2 (67%)	0	0	1
	Epsom General Hospital	2	2 (100%)	0	0	0
	Frimley Park Hospital	8	6 (75%)	0	0	2
	Furness General Hospital	1	1 (100%)	0	0	0
	George Eliot Hospital	4	2 (50%)	0	0	2
	Good Hope Hospital	3	2 (67%)	1	0	0
	Harrogate District Hospital	1	0 (0%)	0	0	1
	Hereford County Hospital	3	2 (67%)	0	0	1
	Hinchingbrooke Hospital	5	1 (20%)	0	2	2
	James Paget Hospital	5	5 (100%)	0	0	0
	King George Hospital	1	1 (100%)	0	0	0

Unit level	Unit name	Eligible babies	Time of temperature measurement (from birth)			
			Within an hour (as % of eligible babies	After an hour	Not taken after admission	Missing/Unknown data
	King's Mill Hospital	8	8 (100%)	0	0	0
	North Devon District Hospital	3	3 (100%)	0	0	0
	North Manchester General Hospital	15	14 (93%)	0	0	1
	Pilgrim Hospital	7	7 (100%)	0	0	0
	Princess Royal Hospital	3	2 (67%)	1	0	0
	Princess Royal University Hospital	3	3 (100%)	0	0	0
	Queen Elizabeth Hospital, Gateshead	2	1 (50%)	0	0	1
	Queen Elizabeth The Queen Mother Hospital	1	1 (100%)	0	0	0
	Royal Surrey County Hospital	2	1 (50%)	0	0	1
	South Tyneside District Hospital	3	3 (100%)	0	0	0
	Staffordshire General Hospital	1	1 (100%)	0	0	0
	The Royal Free Hospital	5	5 (100%)	0	0	0
	Torbay Hospital	2	2 (100%)	0	0	0
	University Hospital Of North Durham	5	5 (100%)	0	0	0
	Wansbeck General Hospital	2	2 (100%)	0	0	0
	Warwick Hospital	11	10 (91%)	1	0	0
	West Cumberland Hospital	1	0 (0%)	1	0	0
	West Middlesex University Hospital	13	10 (77%)	1	1	1
	West Suffolk Hospital	3	3 (100%)	0	0	0
	Worthing Hospital	4	2 (50%)	0	0	2
	Yeovil District Hospital	2	2 (100%)	0	0	0
2	**Airedale General Hospital**	9	9 (100%)	0	0	0
	Barnet Hospital	15	13 (87%)	1	0	1
	Barnsley District General Hospital	8	8 (100%)	0	0	0
	Basildon Hospital	17	16 (94%)	1	0	0

Unit level	Unit name	Eligible babies	Time of temperature measurement (from birth)			
			Within an hour (as % of eligible babies	After an hour	Not taken after admission	Missing/Unknown data
	Basingstoke and North Hampshire Hospital	4	4 (100%)	0	0	0
	Calderdale Royal Hospital	22	22 (100%)	0	0	0
	Chesterfield and North Derbyshire Royal Hospital	3	3 (100%)	0	0	0
	City Hospital	29	24 (83%)	4	0	1
	Colchester General Hospital	14	10 (71%)	0	2	2
	Countess Of Chester Hospital	11	11 (100%)	0	0	0
	Croydon University Hospital	22	22 (100%)	0	0	0
	Diana Princess Of Wales Hospital	7	6 (86%)	1	0	0
	Doncaster Royal Infirmary	19	19 (100%)	0	0	0
	Dorset County Hospital	4	4 (100%)	0	0	0
	East Surrey Hospital	8	8 (100%)	0	0	0
	Fairfield General Hospital	2	2 (100%)	0	0	0
	Glangwili General Hospital	1	1 (100%)	0	0	0
	Gloucestershire Royal Hospital	28	27 (96%)	1	0	0
	Great Western Hospital	12	8 (67%)	0	0	4
	Hillingdon Hospital	10	9 (90%)	0	0	1
	Ipswich Hospital	14	13 (93%)	1	0	0
	Kettering General Hospital	10	7 (70%)	1	0	2
	Kingston Hospital	12	9 (75%)	1	0	2
	Leighton Hospital	12	10 (83%)	2	0	0
	Lincoln County Hospital	11	11 (100%)	0	0	0
	Lister Hospital	13	12 (92%)	0	0	1
	Macclesfield District General Hospital	3	1 (33%)	1	0	1
	Manor Hospital	19	19 (100%)	0	0	0

Unit level	Unit name	Eligible babies	Time of temperature measurement (from birth)			
			Within an hour (as % of eligible babies	After an hour	Not taken after admission	Missing/Unknown data
	Milton Keynes Foundation Trust Hospital	19	17 (89%)	2	0	0
	Newham General Hospital	23	18 (78%)	1	0	4
	North Middlesex University Hospital	11	9 (82%)	0	0	2
	Northampton General Hospital	1	1 (100%)	0	0	0
	Northwick Park Hospital	22	19 (86%)	3	0	0
	Ormskirk District General Hospital	3	3 (100%)	0	0	0
	Peterborough City Hospital	13	12 (92%)	0	0	1
	Pinderfields General Hospital	20	20 (100%)	0	0	0
	Poole Hospital NHS Foundation Trust	17	17 (100%)	0	0	0
	Prince Charles Hospital	3	3 (100%)	0	0	0
	Princess Alexandra Hospital	8	7 (88%)	1	0	0
	Queen Elizabeth Hospital, King's Lynn	11	8 (73%)	1	0	2
	Queen Elizabeth Hospital, Woolwich	16	15 (94%)	1	0	0
	Queen's Hospital, Burton On Trent	8	8 (100%)	0	0	0
	Queen's Hospital, Romford	32	30 (94%)	1	0	1
	Rotherham District General Hospital	10	10 (100%)	0	0	0
	Royal Albert Edward Infirmary	6	6 (100%)	0	0	0
	Royal Berkshire Hospital	26	26 (100%)	0	0	0
	Royal Cornwall Hospital	17	13 (76%)	2	0	2
	Royal Derby Hospital	28	25 (89%)	0	0	3
	Royal Devon and Exeter Hospital	10	8 (80%)	0	1	1
	Royal Glamorgan Hospital	3	3 (100%)	0	0	0
	Royal Hampshire County Hospital	7	6 (86%)	0	0	1
	Royal Lancaster Infirmary	13	11 (85%)	1	0	1
	Royal Oldham Hospital	24	19 (79%)	2	0	3

Unit level	Unit name	Eligible babies	Time of temperature measurement (from birth)			
			Within an hour (as % of eligible babies	After an hour	Not taken after admission	Missing/Unknown data
	Royal Shrewsbury Hospital	26	25 (96%)	1	0	0
	Royal United Hospital	10	10 (100%)	0	0	0
	Russells Hall Hospital	18	13 (72%)	2	0	3
	Salisbury District Hospital	4	3 (75%)	1	0	0
	Scunthorpe General Hospital	5	5 (100%)	0	0	0
	Southend Hospital	10	7 (70%)	3	0	0
	St Helier Hospital	15	13 (87%)	2	0	0
	St Mary's Hospital, IOW	4	3 (75%)	0	0	1
	St Mary's Hospital, London	15	13 (87%)	2	0	0
	St Richard's Hospital	6	6 (100%)	0	0	0
	Stepping Hill Hospital	6	6 (100%)	0	0	0
	Stoke Mandeville Hospital	21	21 (100%)	0	0	0
	Tameside General Hospital	8	8 (100%)	0	0	0
	Taunton and Somerset Hospital	18	9 (50%)	4	0	5
	Tunbridge Wells Hospital	16	15 (94%)	0	0	1
	University Hospital Lewisham	25	21 (84%)	3	0	1
	Victoria Hospital, Blackpool	13	13 (100%)	0	0	0
	Warrington Hospital	4	4 (100%)	0	0	0
	Watford General Hospital	18	18 (100%)	0	0	0
	Wexham Park Hospital	20	20 (100%)	0	0	0
	Whipps Cross University Hospital	12	12 (100%)	0	0	0
	Whiston Hospital	6	6 (100%)	0	0	0
	Whittington Hospital	16	15 (94%)	0	0	1
	Worcestershire Royal Hospital	19	17 (89%)	2	0	0
	York District Hospital	1	0 (0%)	1	0	0

Unit level	Unit name	Eligible babies	Time of temperature measurement (from birth)			
			Within an hour (as % of eligible babies	After an hour	Not taken after admission	Missing/Unknown data
3	**Arrowe Park Hospital**	34	31 (91%)	3	0	0
	Birmingham Heartlands Hospital	41	36 (88%)	3	0	2
	Birmingham Women's Hospital	61	52 (85%)	5	1	3
	Bradford Royal Infirmary	29	28 (97%)	0	1	0
	Chelsea and Westminster Hospital	27	24 (89%)	0	0	3
	Derriford Hospital	31	28 (90%)	1	0	2
	Glan Clwyd Hospital	6	4 (67%)	0	0	2
	Guy's and St Thomas' Hospital	38	38 (100%)	0	0	0
	Homerton Hospital	52	47 (90%)	5	0	0
	Hull Royal Infirmary	28	27 (96%)	0	0	1
	James Cook University Hospital	42	36 (86%)	3	0	3
	King's College Hospital	37	33 (89%)	4	0	0
	Lancashire Women and Newborn Centre	25	25 (100%)	0	0	0
	Leeds Neonatal Service	40	34 (85%)	5	0	1
	Liverpool Women's Hospital	66	65 (98%)	0	0	1
	Luton and Dunstable Hospital	56	55 (98%)	0	1	0
	Medway Maritime Hospital	45	41 (91%)	4	0	0
	New Cross Hospital	53	49 (92%)	2	0	2
	Norfolk and Norwich University Hospital	31	26 (84%)	5	0	0
	North Bristol NHS Trust (Southmead)	53	41 (77%)	5	0	7
	Nottingham City Hospital	22	19 (86%)	0	2	1
	Nottingham University Hospital (QMC)	14	10 (71%)	2	0	2
	Oxford University Hospitals, John Radcliffe Hospital	35	35 (100%)	0	0	0

Unit level	Unit name	Eligible babies	Time of temperature measurement (from birth)			
			Within an hour (as % of eligible babies	After an hour	Not taken after admission	Missing/Unknown data
	Princess Anne Hospital	36	33 (92%)	3	0	0
	Queen Alexandra Hospital	52	52 (100%)	0	0	0
	Queen Charlotte's Hospital	82	55 (67%)	16	0	11
	Rosie Maternity Hospital, Addenbrookes	47	46 (98%)	0	0	1
	Royal Bolton Hospital	51	40 (78%)	6	0	5
	Royal Preston Hospital	29	25 (86%)	0	0	4
	Royal Sussex County Hospital	40	32 (80%)	5	0	3
	Royal Victoria Infirmary	60	58 (97%)	0	0	2
	Singleton Hospital	1	1 (100%)	0	0	0
	St George's Hospital	47	44 (94%)	2	0	1
	St Mary's Hospital, Manchester	63	56 (89%)	6	0	1
	St Michael's Hospital	30	27 (90%)	0	0	3
	St Peter's Hospital	49	47 (96%)	1	1	0
	Sunderland Royal Hospital	19	18 (95%)	0	0	1
	The Jessop Wing, Sheffield	90	80 (89%)	10	0	0
	The Royal London Hospital	33	23 (70%)	3	0	7
	University College Hospital	61	55 (90%)	5	1	0
	University Hospital Coventry	34	30 (88%)	3	0	1
	University Hospital Of North Staffordshire	39	38 (97%)	1	0	0
	University Hospital Of North Tees	22	19 (86%)	1	0	2
	University Hospital Of South Manchester	17	17 (100%)	0	0	0
	William Harvey Hospital	29	25 (86%)	1	1	2
	Wrexham Maelor Hospital	1	0 (0%)	0	0	1

Audit questions 2, 4 and 5 (Steroids, own mother's milk at discharge, and consultation)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
SCU	**Alexandra Hospital**	37	20 (54%)	5	2 (40%)	128	87 (68%)
	Bassetlaw District General Hospital	20	19 (95%)	3	1 (33%)	84	71 (85%)
	Bedford Hospital	65	44 (68%)	14	6 (43%)	319	281 (88%)
	Broomfield Hospital	90	76 (84%)	31	24 (77%)	340	218 (64%)
	Chase Farm Hospital	33	25 (76%)	1	1 (100%)	178	141 (79%)
	Conquest Hospital	35	27 (77%)	7	1 (14%)	94	73 (78%)
	Cumberland Infirmary	31	23 (74%)	6	3 (50%)	189	51 (27%)
	Darent Valley Hospital	109	86 (79%)	30	17 (57%)	470	387 (82%)
	Darlington Memorial Hospital	62	53 (85%)	12	4 (33%)	163	134 (82%)
	Dewsbury and District Hospital	62	46 (74%)	15	8 (53%)	219	168 (77%)
	Ealing Hospital	75	57 (76%)	33	25 (76%)	239	125 (52%)
	Eastbourne District General Hospital	31	17 (55%)	3	1 (33%)	154	95 (62%)
	Epsom General Hospital	26	18 (69%)	4	4 (100%)	141	97 (69%)
	Frimley Park Hospital	89	69 (78%)	27	20 (74%)	450	318 (71%)
	Furness General Hospital	21	12 (57%)	4	4 (100%)	73	57 (78%)
	George Eliot Hospital	42	34 (81%)	6	2 (33%)	137	92 (67%)
	Good Hope Hospital	67	43 (64%)	-	-	286	210 (73%)
	Harrogate District Hospital	33	25 (76%)	8	7 (88%)	123	98 (80%)
	Hereford County Hospital	49	43 (88%)	9	4 (44%)	218	171 (78%)
	Hinchingbrooke Hospital	48	35 (73%)	6	4 (67%)	171	119 (70%)
	James Paget Hospital	59	53 (90%)	14	10 (71%)	165	121 (73%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	King George Hospital	-	-	-	-	64	45 (70%)
	King's Mill Hospital	69	41 (59%)	28	16 (57%)	185	125 (68%)
	North Devon District Hospital	39	32 (82%)	7	5 (71%)	144	111 (77%)
	North Manchester General Hospital	97	72 (74%)	25	11 (44%)	380	340 (89%)
	Oxford University Hospitals, Horton Hospital	14	14 (100%)	-	-	78	78 (100%)
	Pilgrim Hospital	48	32 (67%)	13	6 (46%)	187	152 (81%)
	Princess Royal Hospital	27	21 (78%)	-	-	178	135 (76%)
	Princess Royal University Hospital	49	39 (80%)	15	12 (80%)	225	177 (79%)
	Queen Elizabeth Hospital, Gateshead	41	32 (78%)	7	4 (57%)	173	128 (74%)
	Queen Elizabeth The Queen Mother Hospital	59	41 (69%)	12	6 (50%)	208	173 (83%)
	Royal Surrey County Hospital	68	46 (68%)	28	23 (82%)	171	110 (64%)
	Scarborough General Hospital	37	26 (70%)	7	1 (14%)	125	45 (36%)
	South Tyneside District Hospital	23	17 (74%)	4	0 (0%)	113	81 (72%)
	Staffordshire General Hospital	37	28 (76%)	7	6 (86%)	152	145 (95%)
	The Royal Free Hospital	59	40 (68%)	6	6 (100%)	236	120 (51%)
	Torbay Hospital	40	30 (75%)	3	0 (0%)	168	104 (62%)
	University Hospital Of North Durham	58	43 (74%)	10	1 (10%)	172	124 (72%)
	Wansbeck General Hospital	40	36 (90%)	6	0 (0%)	240	209 (87%)
	Warwick Hospital	61	54 (89%)	6	6 (100%)	298	191 (64%)
	West Cumberland Hospital	27	7 (26%)	5	5 (100%)	137	21 (15%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	West Middlesex University Hospital	88	73 (83%)	33	26 (79%)	333	293 (88%)
	West Suffolk Hospital	61	44 (72%)	16	9 (56%)	261	207 (79%)
	Worthing Hospital	60	50 (83%)	22	19 (86%)	222	209 (94%)
	Yeovil District Hospital	18	17 (94%)	1	0 (0%)	105	67 (64%)
	Ysbyty Gwynedd	13	10 (77%)	1	0 (0%)	46	12 (26%)
LNU	**Airedale General Hospital**	51	40 (78%)	16	11 (69%)	177	122 (69%)
	Barnet Hospital	111	102 (92%)	30	24 (80%)	323	280 (87%)
	Barnsley District General Hospital	57	41 (72%)	27	11 (41%)	219	184 (84%)
	Basildon Hospital	110	84 (76%)	44	18 (41%)	363	347 (96%)
	Basingstoke and North Hampshire Hospital	60	47 (78%)	22	19 (86%)	251	250 (100%)
	Calderdale Royal Hospital	146	127 (87%)	52	27 (52%)	424	384 (91%)
	Chesterfield and North Derbyshire Royal Hospital	58	48 (83%)	18	8 (44%)	256	254 (99%)
	City Hospital	166	113 (68%)	77	40 (52%)	489	365 (75%)
	Colchester General Hospital	72	56 (78%)	20	13 (65%)	362	290 (80%)
	Countess Of Chester Hospital	77	72 (94%)	30	15 (50%)	345	299 (87%)
	Croydon University Hospital	118	87 (74%)	48	33 (69%)	508	488 (96%)
	Diana Princess Of Wales Hospital	89	63 (71%)	26	13 (50%)	232	196 (84%)
	Doncaster Royal Infirmary	97	76 (78%)	35	11 (31%)	264	225 (85%)
	Dorset County Hospital	49	45 (92%)	18	9 (50%)	203	183 (90%)
	East Surrey Hospital	110	88 (80%)	42	27 (64%)	345	231 (67%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	Fairfield General Hospital	11	9 (82%)	2	1 (50%)	39	36 (92%)
	Glangwili General Hospital	16	13 (81%)	5	2 (40%)	53	18 (34%)
	Gloucestershire Royal Hospital	164	130 (79%)	78	38 (49%)	552	343 (62%)
	Great Western Hospital	108	77 (71%)	35	24 (69%)	276	170 (62%)
	Hillingdon Hospital	108	98 (91%)	51	34 (67%)	344	299 (87%)
	Ipswich Hospital	92	65 (71%)	37	24 (65%)	479	331 (69%)
	Kettering General Hospital	108	81 (75%)	50	29 (58%)	333	322 (97%)
	Kingston Hospital	91	72 (79%)	37	20 (54%)	397	317 (80%)
	Leighton Hospital	65	62 (95%)	22	12 (55%)	216	211 (98%)
	Lincoln County Hospital	84	68 (81%)	22	13 (59%)	330	312 (95%)
	Lister Hospital	125	100 (80%)	38	22 (58%)	860	725 (84%)
	Macclesfield District General Hospital	26	23 (88%)	5	3 (60%)	111	78 (70%)
	Manor Hospital	123	106 (86%)	60	26 (43%)	400	350 (88%)
	Milton Keynes Foundation Trust Hospital	81	66 (81%)	34	17 (50%)	286	277 (97%)
	Newham General Hospital	145	126 (87%)	68	49 (72%)	423	384 (91%)
	North Middlesex University Hospital	62	53 (85%)	28	25 (89%)	274	249 (91%)
	Northampton General Hospital	80	60 (75%)	32	13 (41%)	215	125 (58%)
	Northwick Park Hospital	108	99 (92%)	51	40 (78%)	422	311 (74%)
	Ormskirk District General Hospital	55	46 (84%)	25	11 (44%)	331	235 (71%)
	Peterborough City Hospital	96	75 (78%)	40	28 (70%)	274	234 (85%)
	Pinderfields General Hospital	88	57 (65%)	40	11 (28%)	255	203 (80%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	Poole Hospital NHS Foundation Trust	117	96 (82%)	53	29 (55%)	287	287 (100%)
	Prince Charles Hospital	22	17 (77%)	9	1 (11%)	55	6 (11%)
	Princess Alexandra Hospital	99	81 (82%)	39	21 (54%)	376	202 (54%)
	Princess Of Wales Hospital	8	6 (75%)	1	0 (0%)	40	13 (33%)
	Queen Elizabeth Hospital, King's Lynn	66	54 (82%)	28	19 (68%)	248	151 (61%)
	Queen Elizabeth Hospital, Woolwich	99	79 (80%)	56	41 (73%)	322	316 (98%)
	Queen's Hospital, Burton On Trent	69	57 (83%)	30	16 (53%)	194	170 (88%)
	Queen's Hospital, Romford	186	136 (73%)	12	5 (42%)	546	393 (72%)
	Rotherham District General Hospital	51	43 (84%)	21	10 (48%)	233	200 (86%)
	Royal Albert Edward Infirmary	75	67 (89%)	21	9 (43%)	226	225 (100%)
	Royal Berkshire Hospital	137	91 (66%)	44	28 (64%)	453	408 (90%)
	Royal Cornwall Hospital	103	65 (63%)	30	16 (53%)	467	362 (78%)
	Royal Derby Hospital	140	105 (75%)	45	17 (38%)	357	255 (71%)
	Royal Devon and Exeter Hospital	95	77 (81%)	35	22 (63%)	364	273 (75%)
	Royal Glamorgan Hospital	36	31 (86%)	14	3 (21%)	111	68 (61%)
	Royal Hampshire County Hospital	84	76 (90%)	32	20 (63%)	309	309 (100%)
	Royal Lancaster Infirmary	44	29 (66%)	14	6 (43%)	130	95 (73%)
	Royal Oldham Hospital	141	115 (82%)	57	28 (49%)	399	339 (85%)
	Royal Shrewsbury Hospital	106	82 (77%)	49	32 (65%)	316	296 (94%)
	Royal United Hospital	86	61 (71%)	38	23 (61%)	421	306 (73%)
	Russells Hall Hospital	118	74 (63%)	50	18 (36%)	377	263 (70%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	Salisbury District Hospital	67	57 (85%)	26	15 (58%)	197	190 (96%)
	Scunthorpe General Hospital	50	35 (70%)	21	12 (57%)	207	105 (51%)
	Southend Hospital	72	58 (81%)	27	12 (44%)	408	273 (67%)
	St Helier Hospital	99	87 (88%)	41	30 (73%)	220	190 (86%)
	St Mary's Hospital, IOW	25	18 (72%)	9	4 (44%)	173	157 (91%)
	St Mary's Hospital, London	111	106 (95%)	49	40 (82%)	252	208 (83%)
	St Richard's Hospital	83	65 (78%)	20	13 (65%)	231	207 (90%)
	Stepping Hill Hospital	58	48 (83%)	30	24 (80%)	215	164 (76%)
	Stoke Mandeville Hospital	108	89 (82%)	52	33 (63%)	432	432 (100%)
	Tameside General Hospital	74	65 (88%)	18	8 (44%)	251	192 (76%)
	Taunton and Somerset Hospital	93	67 (72%)	25	19 (76%)	271	210 (77%)
	Tunbridge Wells Hospital	112	100 (89%)	40	30 (75%)	404	390 (97%)
	University Hospital Lewisham	115	100 (87%)	53	41 (77%)	361	349 (97%)
	Victoria Hospital, Blackpool	89	76 (85%)	44	12 (27%)	221	178 (81%)
	Warrington Hospital	73	57 (78%)	22	8 (36%)	268	250 (93%)
	Watford General Hospital	117	90 (77%)	60	42 (70%)	596	563 (94%)
	Wexham Park Hospital	141	130 (92%)	54	36 (67%)	475	475 (100%)
	Whipps Cross University Hospital	111	90 (81%)	53	38 (72%)	353	226 (64%)
	Whiston Hospital	79	58 (73%)	25	9 (36%)	282	272 (96%)
	Whittington Hospital	124	108 (87%)	49	45 (92%)	294	293 (100%)
	Withybush Hospital	14	9 (64%)	4	2 (50%)	58	25 (43%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	Worcestershire Royal Hospital	169	139 (82%)	50	33 (66%)	315	233 (74%)
	York District Hospital	66	47 (71%)	27	15 (56%)	241	113 (47%)
NICU	**Arrowe Park Hospital**	114	100 (88%)	30	10 (33%)	287	237 (83%)
	Birmingham Heartlands Hospital	191	141 (74%)	72	45 (63%)	572	407 (71%)
	Birmingham Women's Hospital	236	176 (75%)	79	53 (67%)	686	492 (72%)
	Bradford Royal Infirmary	157	126 (80%)	54	26 (48%)	471	313 (66%)
	Chelsea and Westminster Hospital	128	105 (82%)	46	38 (83%)	449	330 (73%)
	Derriford Hospital	127	112 (88%)	50	27 (54%)	330	287 (87%)
	Glan Clwyd Hospital	33	27 (82%)	11	0 (0%)	55	8 (15%)
	Guy's and St Thomas' Hospital	140	122 (87%)	60	53 (88%)	569	364 (64%)
	Homerton Hospital	170	156 (92%)	51	34 (67%)	591	533 (90%)
	Hull Royal Infirmary	138	99 (72%)	67	34 (51%)	431	296 (69%)
	James Cook University Hospital	175	160 (91%)	73	24 (33%)	406	296 (73%)
	King's College Hospital	147	128 (87%)	59	43 (73%)	596	551 (92%)
	Lancashire Women and Newborn Centre	190	163 (86%)	85	34 (40%)	562	442 (79%)
	Leeds Neonatal Service	278	213 (77%)	121	66 (55%)	715	429 (60%)
	Liverpool Women's Hospital	282	253 (90%)	-	-	925	515 (56%)
	Luton and Dunstable Hospital	138	128 (93%)	47	21 (45%)	493	400 (81%)
	Medway Maritime Hospital	176	162 (92%)	70	35 (50%)	459	438 (95%)
	New Cross Hospital	155	128 (83%)	58	26 (45%)	327	260 (80%)
	Norfolk and Norwich University Hospital	155	135 (87%)	55	37 (67%)	401	302 (75%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	North Bristol NHS Trust (Southmead)	179	141 (79%)	61	41 (67%)	557	365 (66%)
	Nottingham City Hospital	131	101 (77%)	58	27 (47%)	471	290 (62%)
	Nottingham University Hospital (QMC)	102	70 (69%)	7	1 (14%)	396	280 (71%)
	Oxford University Hospitals, John Radcliffe Hospital	199	175 (88%)	58	36 (62%)	673	671 (100%)
	Princess Anne Hospital	135	115 (85%)	46	32 (70%)	555	551 (99%)
	Queen Alexandra Hospital	177	162 (92%)	72	45 (63%)	493	493 (100%)
	Queen Charlotte's Hospital	142	131 (92%)	31	27 (87%)	311	217 (70%)
	Rosie Maternity Hospital, Addenbrookes	147	115 (78%)	40	28 (70%)	610	492 (81%)
	Royal Bolton Hospital	177	147 (83%)	69	37 (54%)	562	444 (79%)
	Royal Preston Hospital	129	109 (84%)	55	19 (35%)	441	274 (62%)
	Royal Sussex County Hospital	146	125 (86%)	46	32 (70%)	376	299 (80%)
	Royal Victoria Infirmary	182	158 (87%)	60	32 (53%)	496	439 (89%)
	Singleton Hospital	25	25 (100%)	4	2 (50%)	74	42 (57%)
	St George's Hospital	144	110 (76%)	64	48 (75%)	424	339 (80%)
	St Mary's Hospital, Manchester	265	208 (78%)	93	53 (57%)	673	405 (60%)
	St Michael's Hospital	166	119 (72%)	50	23 (46%)	447	302 (68%)
	St Peter's Hospital	139	131 (94%)	51	35 (69%)	350	237 (68%)
	Sunderland Royal Hospital	94	89 (95%)	54	21 (39%)	241	232 (96%)
	The Jessop Wing, Sheffield	251	209 (83%)	97	56 (58%)	550	531 (97%)

Unit Level	Unit name	Question 2- Mothers given antenatal steroids		Question 4- Babies receiving mother's milk at discharge		Question 5- First consultation after admission	
		Eligible mothers	Number meeting standard (as %)	Eligible babies	Number meeting standard (as %)	Eligible episodes	Number meeting standard (as %)
	The Royal London Hospital	106	86 (81%)	36	25 (69%)	445	143 (32%)
	University College Hospital	157	142 (90%)	19	16 (84%)	533	523 (98%)
	University Hospital Coventry	189	142 (75%)	69	26 (38%)	525	510 (97%)
	University Hospital Of North Staffordshire	140	116 (83%)	81	34 (42%)	366	354 (97%)
	University Hospital Of North Tees	97	80 (82%)	39	8 (21%)	261	195 (75%)
	University Hospital Of South Manchester	104	91 (88%)	41	23 (56%)	324	296 (91%)
	William Harvey Hospital	113	92 (81%)	39	20 (51%)	324	185 (57%)
	Wrexham Maelor Hospital	27	13 (48%)	8	2 (25%)	77	7 (9%)

Audit question 3 (ROP)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
SCU	**Alexandra Hospital**	23	14 (61%)	12 (52%)	1	1	0	0	0	0 (0%)	9 (39%)
	Bassetlaw District General Hospital	16	11 (69%)	10 (63%)	1	0	0	0	0	0 (0%)	5 (31%)
	Bedford Hospital	17	13 (76%)	13 (76%)	0	0	0	0	0	0 (0%)	4 (24%)
	Broomfield Hospital	41	31 (76%)	28 (68%)	0	2	1	0	0	1 (9%)	10 (24%)
	Chase Farm Hospital	22	14 (64%)	9 (41%)	0	1	4	0	0	4 (33%)	8 (36%)
	Conquest Hospital	13	10 (77%)	6 (46%)	4	0	0	0	0	0 (0%)	3 (23%)
	Cumberland Infirmary	10	8 (80%)	6 (60%)	0	2	0	0	0	0 (0%)	2 (20%)
	Darent Valley Hospital	40	36 (90%)	18 (45%)	0	7	5	0	6	11 (73%)	4 (10%)
	Darlington Memorial Hospital	22	18 (82%)	9 (41%)	0	4	2	0	3	5 (56%)	4 (18%)
	Dewsbury and District Hospital	27	25 (93%)	18 (67%)	1	1	5	0	0	5 (71%)	2 (7%)
	Ealing Hospital	36	3 (8%)	2 (6%)	0	1	0	0	0	0 (0%)	33 (92%)
	Eastbourne District General Hospital	16	0 (0%)	0 (0%)	0	0	0	0	0	0 (0%)	16 (100%)
	Epsom General Hospital	14	14 (100%)	12 (86%)	0	1	1	0	0	1 (100%)	0 (0%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Frimley Park Hospital	36	8 (22%)	2 (6%)	1	4	0	0	1	1 (3%)	28 (78%)
	Furness General Hospital	5	1 (20%)	1 (20%)	0	0	0	0	0	0 (0%)	4 (80%)
	George Eliot Hospital	36	25 (69%)	19 (53%)	0	0	5	1	0	6 (35%)	11 (31%)
	Good Hope Hospital	25	25 (100%)	22 (88%)	0	1	2	0	0	2 (100%)	0 (0%)
	Harrogate District Hospital	6	6 (100%)	6 (100%)	0	0	0	0	0	N/A	0 (0%)
	Hereford County Hospital	16	11 (69%)	9 (56%)	0	0	1	0	1	2 (29%)	5 (31%)
	Hinchingbrooke Hospital	12	3 (25%)	3 (25%)	0	0	0	0	0	0 (0%)	9 (75%)
	James Paget Hospital	22	6 (27%)	5 (23%)	1	0	0	0	0	0 (0%)	16 (73%)
	King George Hospital	51	37 (73%)	28 (55%)	2	7	0	0	0	0 (0%)	14 (27%)
	King's Mill Hospital	36	15 (42%)	9 (25%)	1	5	0	0	0	0 (0%)	21 (58%)
	North Devon District Hospital	11	3 (27%)	3 (27%)	0	0	0	0	0	0 (0%)	8 (73%)
	North Manchester General Hospital	51	36 (71%)	29 (57%)	1	5	1	0	0	1 (6%)	15 (29%)
	Oxford University Hospitals, Horton Hospital	11	11 (100%)	8 (73%)	0	3	0	0	0	N/A	0 (0%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Pilgrim Hospital	17	15 (88%)	7 (41%)	0	0	7	0	1	8 (80%)	2 (12%)
	Princess Royal Hospital	13	8 (62%)	8 (62%)	0	0	0	0	0	0 (0%)	5 (38%)
	Princess Royal University Hospital	29	8 (28%)	6 (21%)	1	1	0	0	0	0 (0%)	21 (72%)
	Queen Elizabeth Hospital, Gateshead	21	15 (71%)	14 (67%)	1	0	0	0	0	0 (0%)	6 (29%)
	Queen Elizabeth The Queen Mother Hospital	23	17 (74%)	12 (52%)	0	2	3	0	0	3 (33%)	6 (26%)
	Royal Surrey County Hospital	29	7 (24%)	5 (17%)	1	0	0	0	1	1 (4%)	22 (76%)
	Scarborough General Hospital	11	10 (91%)	9 (82%)	1	0	0	0	0	0 (0%)	1 (9%)
	South Tyneside District Hospital	7	4 (57%)	4 (57%)	0	0	0	0	0	0 (0%)	3 (43%)
	Staffordshire General Hospital	16	15 (94%)	7 (44%)	1	1	4	0	2	6 (86%)	1 (6%)
	The Royal Free Hospital	20	5 (25%)	4 (20%)	0	1	0	0	0	0 (0%)	15 (75%)
	Torbay Hospital	16	16 (100%)	12 (75%)	0	1	3	0	0	3 (100%)	0 (0%)
	University Hospital Of North Durham	22	21 (95%)	6 (27%)	0	11	2	0	2	4 (80%)	1 (5%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Wansbeck General Hospital	25	6 (24%)	5 (20%)	0	1	0	0	0	0 (0%)	19 (76%)
	Warwick Hospital	20	19 (95%)	19 (95%)	0	0	0	0	0	0 (0%)	1 (5%)
	West Cumberland Hospital	11	6 (55%)	5 (45%)	0	0	1	0	0	1 (17%)	5 (45%)
	West Middlesex University Hospital	54	7 (13%)	1 (2%)	0	3	2	0	1	3 (6%)	47 (87%)
	West Suffolk Hospital	35	33 (94%)	24 (69%)	1	1	5	0	2	7 (78%)	2 (6%)
	Worthing Hospital	33	33 (100%)	20 (61%)	0	5	6	0	2	8 (100%)	0 (0%)
	Yeovil District Hospital	12	4 (33%)	3 (25%)	1	0	0	0	0	0 (0%)	8 (67%)
	Ysbyty Gwynedd	6	3 (50%)	0 (0%)	0	1	2	0	0	2 (40%)	3 (50%)
LNU	**Airedale General Hospital**	27	27 (100%)	23 (85%)	0	0	4	0	0	4 (100%)	0 (0%)
	Barnet Hospital	60	57 (95%)	49 (82%)	1	3	4	0	0	4 (57%)	3 (5%)
	Barnsley District General Hospital	41	33 (80%)	24 (59%)	0	6	3	0	0	3 (27%)	8 (20%)
	Basildon Hospital	54	49 (91%)	30 (56%)	0	5	10	0	4	14 (74%)	5 (9%)
	Basingstoke and North Hampshire Hospital	21	21 (100%)	10 (48%)	0	2	7	0	2	9 (100%)	0 (0%)
	Calderdale Royal Hospital	55	51 (93%)	49 (89%)	1	1	0	0	0	0 (0%)	4 (7%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Chesterfield and North Derbyshire Royal Hospital	31	29 (94%)	27 (87%)	0	2	0	0	0	0 (0%)	2 (6%)
	City Hospital	113	94 (83%)	75 (66%)	0	5	11	0	3	14 (42%)	19 (17%)
	Colchester General Hospital	27	23 (85%)	22 (81%)	0	0	1	0	0	1 (20%)	4 (15%)
	Countess Of Chester Hospital	31	31 (100%)	17 (55%)	0	9	3	0	2	5 (100%)	0 (0%)
	Croydon University Hospital	48	24 (50%)	19 (40%)	0	5	0	0	0	0 (0%)	24 (50%)
	Diana Princess Of Wales Hospital	20	20 (100%)	17 (85%)	1	0	2	0	0	2 (100%)	0 (0%)
	Doncaster Royal Infirmary	49	44 (90%)	43 (88%)	0	1	0	0	0	0 (0%)	5 (10%)
	Dorset County Hospital	13	12 (92%)	8 (62%)	0	1	3	0	0	3 (75%)	1 (8%)
	East Surrey Hospital	40	30 (75%)	3 (8%)	0	7	13	0	7	20 (67%)	10 (25%)
	Fairfield General Hospital	1	1 (100%)	1 (100%)	0	0	0	0	0	N/A	0 (0%)
	Glangwili General Hospital	7	5 (71%)	4 (57%)	0	1	0	0	0	0 (0%)	2 (29%)
	Gloucestershire Royal Hospital	67	67 (100%)	54 (81%)	0	4	8	0	1	9 (100%)	0 (0%)
	Great Western Hospital	53	21 (40%)	15 (28%)	0	5	1	0	0	1 (3%)	32 (60%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Hillingdon Hospital	61	60 (98%)	42 (69%)	1	2	14	0	1	15 (94%)	1 (2%)
	Ipswich Hospital	37	12 (32%)	7 (19%)	0	5	0	0	0	0 (0%)	25 (68%)
	Kettering General Hospital	54	38 (70%)	37 (69%)	0	1	0	0	0	0 (0%)	16 (30%)
	Kingston Hospital	50	29 (58%)	25 (50%)	0	4	0	0	0	0 (0%)	21 (42%)
	Leighton Hospital	27	27 (100%)	24 (89%)	0	2	0	0	1	1 (100%)	0 (0%)
	Lincoln County Hospital	36	34 (94%)	15 (42%)	0	6	5	0	8	13 (87%)	2 (6%)
	Lister Hospital	53	27 (51%)	18 (34%)	0	8	1	0	0	1 (4%)	26 (49%)
	Macclesfield District General Hospital	18	8 (44%)	6 (33%)	0	1	0	0	1	1 (9%)	10 (56%)
	Manor Hospital	52	48 (92%)	36 (69%)	0	2	8	0	2	10 (71%)	4 (8%)
	Milton Keynes Foundation Trust Hospital	43	40 (93%)	22 (51%)	0	12	3	0	3	6 (67%)	3 (7%)
	Newham General Hospital	82	51 (62%)	39 (48%)	3	8	1	0	0	1 (3%)	31 (38%)
	North Middlesex University Hospital	46	45 (98%)	30 (65%)	1	5	9	0	0	9 (90%)	1 (2%)
	Northampton General Hospital	37	33 (89%)	25 (68%)	0	0	5	0	3	8 (67%)	4 (11%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Northwick Park Hospital	72	20 (28%)	13 (18%)	2	4	1	0	0	1 (2%)	52 (72%)
	Ormskirk District General Hospital	27	8 (30%)	4 (15%)	0	4	0	0	0	0 (0%)	19 (70%)
	Peterborough City Hospital	53	50 (94%)	43 (81%)	0	2	5	0	0	5 (63%)	3 (6%)
	Pinderfields General Hospital	54	52 (96%)	34 (63%)	1	4	12	1	0	13 (87%)	2 (4%)
	Poole Hospital NHS Foundation Trust	43	43 (100%)	41 (95%)	0	2	0	0	0	N/A	0 (0%)
	Prince Charles Hospital	14	5 (36%)	2 (14%)	1	2	0	0	0	0 (0%)	9 (64%)
	Princess Alexandra Hospital	34	7 (21%)	5 (15%)	0	1	1	0	0	1 (4%)	27 (79%)
	Queen Elizabeth Hospital, King's Lynn	34	32 (94%)	28 (82%)	0	1	2	0	1	3 (60%)	2 (6%)
	Queen Elizabeth Hospital, Woolwich	54	32 (59%)	18 (33%)	9	5	0	0	0	0 (0%)	22 (41%)
	Queen's Hospital, Burton On Trent	33	32 (97%)	21 (64%)	0	1	5	0	5	10 (91%)	1 (3%)
	Queen's Hospital, Romford	29	25 (86%)	8 (28%)	0	17	0	0	0	0 (0%)	4 (14%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Rotherham District General Hospital	37	37 (100%)	33 (89%)	0	4	0	0	0	N/A	0 (0%)
	Royal Albert Edward Infirmary	28	26 (93%)	18 (64%)	0	2	4	0	2	6 (75%)	2 (7%)
	Royal Berkshire Hospital	73	70 (96%)	50 (68%)	0	2	16	0	2	18 (86%)	3 (4%)
	Royal Cornwall Hospital	39	36 (92%)	28 (72%)	2	4	1	0	1	2 (40%)	3 (8%)
	Royal Derby Hospital	62	48 (77%)	38 (61%)	4	3	2	0	1	3 (18%)	14 (23%)
	Royal Devon and Exeter Hospital	41	41 (100%)	35 (85%)	0	1	4	0	1	5 (100%)	0 (0%)
	Royal Glamorgan Hospital	18	18 (100%)	8 (44%)	0	1	8	0	1	9 (100%)	0 (0%)
	Royal Hampshire County Hospital	27	26 (96%)	18 (67%)	3	2	1	0	2	3 (75%)	1 (4%)
	Royal Lancaster Infirmary	21	11 (52%)	6 (29%)	1	4	0	0	0	0 (0%)	10 (48%)
	Royal Oldham Hospital	76	73 (96%)	61 (80%)	1	4	7	0	0	7 (70%)	3 (4%)
	Royal Shrewsbury Hospital	66	66 (100%)	65 (98%)	0	1	0	0	0	N/A	0 (0%)
	Royal United Hospital	40	40 (100%)	33 (83%)	0	6	1	0	0	1 (100%)	0 (0%)
	Russells Hall Hospital	51	24 (47%)	17 (33%)	0	6	0	0	1	1 (4%)	27 (53%)

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				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Salisbury District Hospital	19	16 (84%)	13 (68%)	0	0	3	0	0	3 (50%)	3 (16%)
	Scunthorpe General Hospital	30	25 (83%)	24 (80%)	0	1	0	0	0	0 (0%)	5 (17%)
	Southend Hospital	32	31 (97%)	24 (75%)	1	2	4	0	0	4 (80%)	1 (3%)
	St Helier Hospital	51	51 (100%)	35 (69%)	2	14	0	0	0	N/A	0 (0%)
	St Mary's Hospital, Iow	14	14 (100%)	5 (36%)	0	6	2	0	1	3 (100%)	0 (0%)
	St Mary's Hospital, London	57	43 (75%)	35 (61%)	0	8	0	0	0	0 (0%)	14 (25%)
	St Richard's Hospital	25	24 (96%)	13 (52%)	1	4	3	0	3	6 (86%)	1 (4%)
	Stepping Hill Hospital	35	35 (100%)	26 (74%)	0	1	8	0	0	8 (100%)	0 (0%)
	Stoke Mandeville Hospital	55	55 (100%)	44 (80%)	0	4	2	0	5	7 (100%)	0 (0%)
	Tameside General Hospital	33	33 (100%)	31 (94%)	0	0	2	0	0	2 (100%)	0 (0%)
	Taunton and Somerset Hospital	39	5 (13%)	1 (3%)	1	3	0	0	0	0 (0%)	34 (87%)
	Tunbridge Wells Hospital	49	44 (90%)	30 (61%)	1	6	4	0	3	7 (58%)	5 (10%)
	University Hospital Lewisham	79	55 (70%)	42 (53%)	0	11	2	0	0	2 (8%)	24 (30%)

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				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Victoria Hospital, Blackpool	41	23 (56%)	15 (37%)	1	3	2	0	2	4 (18%)	18 (44%)
	Warrington Hospital	31	29 (94%)	12 (39%)	0	7	7	0	3	10 (83%)	2 (6%)
	Watford General Hospital	65	43 (66%)	38 (58%)	2	3	0	0	0	0 (0%)	22 (34%)
	Wexham Park Hospital	62	62 (100%)	37 (60%)	3	12	6	0	4	10 (100%)	0 (0%)
	Whipps Cross University Hospital	71	23 (32%)	13 (18%)	1	7	1	0	1	2 (4%)	48 (68%)
	Whiston Hospital	32	32 (100%)	25 (78%)	2	3	2	0	0	2 (100%)	0 (0%)
	Whittington Hospital	67	64 (96%)	52 (78%)	1	6	3	0	2	5 (63%)	3 (4%)
	Withybush Hospital	4	1 (25%)	0 (0%)	0	1	0	0	0	0 (0%)	3 (75%)
	Worcestershire Royal Hospital	60	50 (83%)	43 (72%)	0	2	5	0	0	5 (33%)	10 (17%)
	York District Hospital	23	19 (83%)	18 (78%)	0	1	0	0	0	0 (0%)	4 (17%)
NICU	**Arrowe Park Hospital**	55	53 (96%)	43 (78%)	0	1	9	0	0	9 (82%)	2 (4%)
	Birmingham Heartlands Hospital	102	99 (97%)	93 (91%)	1	3	1	0	1	2 (40%)	3 (3%)

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				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Birmingham Women's Hospital	100	73 (73%)	44 (44%)	0	11	6	0	12	18 (40%)	27 (27%)
	Bradford Royal Infirmary	72	69 (96%)	66 (92%)	1	0	2	0	0	2 (40%)	3 (4%)
	Chelsea and Westminster Hospital	95	85 (89%)	79 (83%)	0	6	0	0	0	0 (0%)	10 (11%)
	Derriford Hospital	67	44 (66%)	25 (37%)	0	6	12	0	1	13 (36%)	23 (34%)
	Glan Clwyd Hospital	11	9 (82%)	8 (73%)	0	0	1	0	0	1 (33%)	2 (18%)
	Guy's and St Thomas' Hospital	97	91 (94%)	72 (74%)	1	14	3	1	0	4 (40%)	6 (6%)
	Homerton Hospital	97	88 (91%)	36 (37%)	1	50	0	0	1	1 (10%)	9 (9%)
	Hull Royal Infirmary	82	82 (100%)	60 (73%)	0	2	20	0	0	20 (100%)	0 (0%)
	James Cook University Hospital	86	47 (55%)	31 (36%)	0	10	4	1	1	6 (13%)	39 (45%)
	King's College Hospital	94	91 (97%)	70 (74%)	1	4	10	0	6	16 (84%)	3 (3%)
	Lancashire Women and Newborn Centre	89	71 (80%)	59 (66%)	9	1	2	0	0	2 (10%)	18 (20%)
	Leeds Neonatal Service	131	112 (85%)	103 (79%)	2	6	1	0	0	1 (5%)	19 (15%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Liverpool Women's Hospital	122	118 (97%)	89 (73%)	0	6	18	0	5	23 (85%)	4 (3%)
	Luton and Dunstable Hospital	92	91 (99%)	82 (89%)	2	3	4	0	0	4 (80%)	1 (1%)
	Medway Maritime Hospital	91	91 (100%)	77 (85%)	0	3	11	0	0	11 (100%)	0 (0%)
	New Cross Hospital	82	81 (99%)	76 (93%)	5	0	0	0	0	0 (0%)	1 (1%)
	Norfolk and Norwich University Hospital	74	51 (69%)	42 (57%)	2	5	2	0	0	2 (8%)	23 (31%)
	North Bristol NHS Trust (Southmead)	77	40 (52%)	25 (32%)	0	13	1	0	1	2 (5%)	37 (48%)
	Nottingham City Hospital	85	28 (33%)	18 (21%)	0	10	0	0	0	0 (0%)	57 (67%)
	Nottingham University Hospital (QMC)	27	10 (37%)	2 (7%)	0	8	0	0	0	0 (0%)	17 (63%)
	Oxford University Hospitals, John Radcliffe Hospital	92	89 (97%)	74 (80%)	1	13	0	0	1	1 (25%)	3 (3%)
	Princess Anne Hospital	84	82 (98%)	72 (86%)	3	7	0	0	0	0 (0%)	2 (2%)

Unit Level	Unit name	Eligible babies	Number of babies with a known ROP screening	ROP screen during neonatal care			ROP screen after discharge				Number of babies with no screening data (% of eligible babies)
				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	Queen Alexandra Hospital	97	77 (79%)	40 (41%)	0	9	5	0	23	28 (58%)	20 (21%)
	Queen Charlotte's Hospital	59	27 (46%)	17 (29%)	0	10	0	0	0	0 (0%)	32 (54%)
	Rosie Maternity Hospital, Addenbrookes	67	67 (100%)	63 (94%)	0	3	1	0	0	1 (100%)	0 (0%)
	Royal Bolton Hospital	79	69 (87%)	52 (66%)	0	6	11	0	0	11 (52%)	10 (13%)
	Royal Preston Hospital	67	19 (28%)	8 (12%)	0	11	0	0	0	0 (0%)	48 (72%)
	Royal Sussex County Hospital	81	70 (86%)	46 (57%)	7	15	1	0	1	2 (15%)	11 (14%)
	Royal Victoria Infirmary	104	96 (92%)	71 (68%)	1	9	14	0	1	15 (65%)	8 (8%)
	Singleton Hospital	3	1 (33%)	1 (33%)	0	0	0	0	0	0 (0%)	2 (67%)
	St George's Hospital	93	90 (97%)	75 (81%)	2	5	8	0	0	8 (73%)	3 (3%)
	St Mary's Hospital, Manchester	132	130 (98%)	115 (87%)	1	5	8	0	1	9 (82%)	2 (2%)
	St Michael's Hospital	73	67 (92%)	63 (86%)	1	3	0	0	0	0 (0%)	6 (8%)
	St Peter's Hospital	70	70 (100%)	55 (79%)	4	6	4	0	1	5 (100%)	0 (0%)
	Sunderland Royal Hospital	64	63 (98%)	57 (89%)	3	2	1	0	0	1 (50%)	1 (2%)
	The Jessop Wing, Sheffield	120	105 (88%)	94 (78%)	0	11	0	0	0	0 (0%)	15 (13%)

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				Screened on time (NNAP Standard)	Screened early	Screened late	Within screening window	Before screening window opened	After screening window	Outpatient follow up rate for babies not screened on the unit (%)	
	The Royal London Hospital	84	49 (58%)	27 (32%)	0	22	0	0	0	0 (0%)	35 (42%)
	University College Hospital	64	64 (100%)	54 (84%)	0	8	2	0	0	2 (100%)	0 (0%)
	University Hospital Coventry	91	61 (67%)	54 (59%)	0	6	0	0	1	1 (3%)	30 (33%)
	University Hospital Of North Staffordshire	91	81 (89%)	75 (82%)	2	3	1	0	0	1 (9%)	10 (11%)
	University Hospital Of North Tees	52	16 (31%)	6 (12%)	0	10	0	0	0	0 (0%)	36 (69%)
	University Hospital Of South Manchester	48	48 (100%)	38 (79%)	0	0	10	0	0	10 (100%)	0 (0%)
	William Harvey Hospital	51	20 (39%)	8 (16%)	0	12	0	0	0	0 (0%)	31 (61%)
	Wrexham Maelor Hospital	13	1 (8%)	0 (0%)	0	1	0	0	0	0 (0%)	12 (92%)
Total		**7996**	**6312 (79%)**	**4842 (61%)**	**118**	**713**	**477**	**4**	**158**	**646 (28%)**	**1684 (21%)**

Appendix F: TRPG/SEND/NNAP 2–YEAR CORRECTED AGE OUTCOME FORM

Name & Designation of person completing form _____

Hospital of Birth _____

Infant's name _____ Infant's NHS No _____

Date of Birth _____/_____/_____ Date of assessment _____/_____/_____

Gestation at birth (completed weeks) _____ Sex: Male / Female

Reason if child not assessed: Deceased post discharge / lost to follow up

Full *Current* Post Code _____ Date of death if applicable ____/____/____

Birth weight_____ Current hospital of follow up: _____

PLEASE DO NOT COMPLETE THIS FORM IF THE CHILD IS ACUTELY ILL

	1. Neuromotor:	**No**	**Yes**	**Don't Know**
	a. Does this child have any difficulty walking?			
	b. Is this child's gait non-fluent or abnormal reducing mobility?			
■	c. **Is this child unable to walk without assistance**?			
	d. Is this child unstable or needs to be supported when sitting?			
■	e. **Is this child unable to sit?**			
	f. Does this child have any difficulty with the use of one hand?			
	g. Does this child have difficulty with the use of both hands?			
■	h. **Is this child unable to use hands (i.e. to feed)?**			
	2. Malformations:			
	a. Does this child have a malformation identified at birth/ within the first 2yrs?			
■	b. **Does this malf'ion impair daily activities despite assistance?**			
	3. Respiratory & CVS system:			
	a. Does this child have limited exercise tolerance with or without treatment?			
■	b. **Does child require supplemental O_2/other respiratory support**			
	4. Gastro-intestinal Tract:			
	a. Is this child on a special diet? If yes, what diet:_____			
	b. Does this child have a stoma?			
■	c. **Does this child require TPN, NG or PEG feeding?**			
	5. Renal:			
	a. Does this child have renal impairment, no treatment?			
	b. Is this child on dietary or drug treatment for renal impairment?			
■	c. **Is this child having renal dialysis/awaiting renal transplant?**			

	6. Neurology:	**No**	**Yes**	**Don't know**
	a. Has this child had a fit or seizure in the past 12 months?			
	b. Is this child on any anticonvulsants?			
■	c. **Has this child had more than 1 seizures a month despite treatment?**			
	d. Has this child ever had ventriculo-peritoneal shunt inserted?			
	7. Growth: *Give date of measurements if different from date of assessment* _____			
	Weight _____ kg Date _____ Length _____ cm Date _____ Head circumference _____ cm Date _____			
	8. Development	**No**	**Yes**	**Don't Know**
	a. Is the child's development between 3-6 months behind corrected age?			
	b. Is the child's development between 6-12 months behind corrected age?			
■	c. **Is the child's development > 12 months behind corrected age?**			
	d. Will you be referring the child for a detailed neurodevelopmental assessment?			
	e. If child had detailed neurodevelopmental assessment, provide name of the test:			
	9. Neurosensory:			
	a. Does this child have a hearing impairment?			
	b. Does this child have hearing impairment corrected by aids?			
■	c. **Does this child have hearing impairment not correctable with aids?**			
	d. Does this child have any visual problems (including squint)?			
	e. Does this child have visual defect that is not fully correctable?			
■	f. **Is this child blind or sees light only?**			
	10. Communication			
	a. Does this child have any difficulty with communication?			
	b. Does this child have difficulty with speech (<10 words/signs)?			
■	c. **Does the child have <5 meaningful words, vocalisations or signs?**			
	d. Does this child have difficulty with understanding outside of familiar context?			
	e. **Is this child unable to understand words or signs?**			
	Special Questions:			
	a. Is this child on at-risk register, fostered or adopted?			
	b. Was this child difficult to test? If yes, circle appropriate below: (a) tired, (b) poor attention, (c) difficult to engage, (d) other			

Appendix G: NNAP Audit Questions 2013

1) Do all babies of less than or equal to 28^{+6} weeks gestation have their temperature taken within the 1st hour after birth?

2) Are all mothers who deliver their babies between 24^{+0} and 34^{+6} weeks gestation given **any** dose of antenatal steroids?

3) Do all babies <1501g or a gestational age at birth $<32^{+0}$ weeks at birth undergo the first Retinopathy of Prematurity (ROP) screening in accordance with the current guideline recommendations?

4) What proportion of babies of $<33^{+0}$ weeks gestation at birth were receiving any of their own mother's milk at discharge to home from a neonatal unit?

5) After admission to the NNU, is there a documented consultation with parents/carers by a senior member of the neonatal team within 24 hours?

6) Are all babies who require transfer out of a unit kept within their own Network, except where clinical reasons dictate otherwise?

7) Are rates of normal survival at two years comparable in similar babies in similar units? *(in 2013 we are auditing babies of $<30^{+0}$ gestation at birth who became term plus two years during 2013)*

8) What percentage of babies admitted to a neonatal unit have:

a) one or more episodes of a pure growth of a pathogen from blood
b) one or more episodes of a pure growth of a pathogen from CSF
c) either a pure growth of a skin commensal or a mixed growth with $\geq$3 clinical signs at the time of blood sampling

9) What percentage of babies of more than or equal to 35^{+0} weeks gestation have an encephalopathy within the first three full calendar days after birth?

10) How many blood stream infections[a] are there on a NNU per 1000 days of central line[b] care?

[a] The growth of a recognised pathogen in pure culture, or in the case of a mixed growth, or growth of skin commensal, the added requirement for three or more of 10 predefined clinical signs

[b] central line = UAC, UVC, percutaneous long line or surgically inserted long line.

Appendix H: Organisms submitted to the National Neonatal Research Database

Organisms reported to National Neonatal Audit Programme in the course of 2012 have been classified as either 'recognised pathogens' or 'other organism (including skin commensals),' recognising that the 'other organisms' may also be pathogens, for the analyses in audit questions 9 and 11 (Table 1). This list originated from the National Patient Safety Agency (NPSA) Matching Michigan project, a quality improvement initiative on neonatal units to lower catheter associated bloodstream infections*. The grouping of organisms may change after review by Public Health England†.

*Andrew Dodgson, Consultant Microbiologist at Central Manchester University Hospital NHS Foundation Trust

†Professor Mike Sharland, Lead Consultant Paediatrician, St George's University Hospital NHS Foundation Trust

'Recognised pathogens'		
Acinetobacter sp. *Acinetobacter baumanii* *Acinetobacter lwoffii*	*Enterobacter sp.* *Enterobacter agglomerans* *Enterobacter aerogenes* *Enterobacter cloacae* *Enterococcus faecalis* *Enterococcus faecium*	*Serratia sp.* *Serratia liquefaciens* *Serratia marcescens*
'Anaerobes'	*Haemophilus sp.* *Haemophilus influenzae* *Haemophilus parainfluenzae*	*Staphylococcus aureus*
Candida sp. *Candida albicans* *Candida glabrata* *Candida parapsilosis*	*Klebsiella sp.* *Klebsiella aerogenes* *Klebsiella oxytoca* *Klebsiella pneumoniae*	Methicillin-resistant *Staphylococcus aureus* (MRSA)
Citrobacter sp. *Citrobacter freundii*	*Listeria sp.* *Listeria monocytogenes*	*Stenotrophomonas maltophilia*
Clostridium perfringens	*Morganella morganii*	α Haemolytic Streptococci *Streptococcus pneumoniae*
'Coliform'	*Proteus mirabilis*	β Haemolytic Streptococci Group B - *Streptococcus* *Streptococcus agalactiae*
Corynebacterium diphtheriae	*Pseudomonas aeruginosa*	*Streptococcus milleri*
Escherischia coli (E. coli)	*Salmonella sp.*	*Streptococcus anginosus*

'Other organisms (including skin commensals)'		
Actinomyces bovis	*Flavobacterium sp.*	*Neisseria sp. (excl N. meningitides, N. gonorrhoeae)*
Bacillus sp. *Bacillus cereus*	*Gemella morbilarum*	*Peptostreptococcus sp.*
Chryseobacterium sp.	*Lactobacillus sp.*	*Prevotella sp.*
Corynebacterium sp. (excl C. diphtheria) *Corynebacterium striatum*	*Lactococcus sp.*	*Pseudomonas sp. (except P. aeruginosa)* *Pseudomonas stutzeri*
Diptheriods	*Micrococcus sp.*	*Staphylococcus sp.* *Staphylococcus epidermidis* *Staphylococcus haemolytics* *Staphylococcus saprophyticus* *Staphylococcus,* Coagulase Negative
Eikenella corrodens	*Moraxella catarrhalis*	*Streptococcus sp.* *Streptococcus bovis* *Streptococcus mitis* *Streptococcus oralis* *Streptococcus salivarius* *Streptococcus sanguis* *Streptococcus viridans*
Enterococcus sp.	*Mycoplasma hominis*	