National Neonatal Audit Programme (NNAP)

RCPCH Audits

Executive summary

2018 annual report on 2017 data

HQIP
Healthcare Quality Improvement Partnership

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

National Neonatal Audit Programme (NNAP) 2018 annual report on 2017 data

The National Neonatal Audit Programme is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP).

HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement in patient outcomes, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales.

HQIP holds the contract to commission, manage and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions.

The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations and crown dependencies. **www.hqip.org.uk/national-programmes**

Published by RCPCH September 2018.

The Royal College of Paediatrics and Child Health is a registered charity in England and Wales (1057744) and in Scotland (SCO38299).

Acknowledgements

The NNAP Project Board would like to thank all the doctors, nurses, administrators, data analysts and others who have given their time and effort to collect information for the audit and ensure its accuracy, and who have developed and carried out plans to improve the service they deliver. We would particularly like to thank the NNAP clinical leads in each unit, and the neonatal networks for their continued support.

We would also like to thank the people and organisations that work closely with the NNAP but are not represented on the Project Board or Methodology and Dataset Group, including the National Maternity and Perinatal Audit (NMPA), the Independent Advisory Group of the Healthcare Quality Improvement Partnership (HQIP), and the Neonatal Critical Care Clinical Reference Group at NHS England.

NNAP Project Board members

Professor Anne Greenough, Professor of Neonatology and Clinical Respiratory Physiology, Chair of the NNAP Project Board

Dr Sam Oddie, Consultant Neonatologist, NNAP Clinical Lead

Vanessa Attrell, Network Manager, South East Coast Neonatal Network

Dr Lisa Barker, Consultant Neonatologist

Zoe Chivers, Head of Services, Bliss (to July 2018)

Ellen Hallsworth, Parent Representative (to June 2018)

Wendy Hodgson, Neonatal Nurses Association Representative

Dr Chris Kissack, Consultant Neonatologist, Scottish Representative

Dr Helen Mactier, Consultant Neonatologist, British Association of Perinatal Medicine Representative

Professor Neena Modi, Professor of Neonatal Medicine, Neonatal Data Analysis Unit, Imperial College London

Gina Outram, Neonatal Nurses Association Representative (to April 2018)

Dr Colin Peters, Consultant Neonatologist, Scottish Representative

Dr Siddhartha Sen, Consultant Neonatologist, Welsh Representative

Mirek Skrypak, Associate Director for Quality and Development, Healthcare Quality Improvement Partnership

Patrick Tully, NNAP Parent Representative

Sarah Walker, Project Manager, Healthcare Quality Improvement Partnership

Professor Andrew Wilkinson, Emeritus Professor of Paediatrics, University of Oxford

Dr Amy Young, Trainee in Neonatal Medicine

NNAP Methodology and Dataset Group members

Dr Sam Oddie, Consultant Neonatologist, Chair of the NNAP Methodology and Dataset Group
Dr Julie-Claire Becher, Consultant Neonatologist
Dr Kate Blake, Consultant Neonatologist
Charlotte Bradford, Information Manager, Yorkshire and Humber Neonatal Network
Dr Sanjeev Deshpande, Consultant Neonatologist
Jacki Dopran, Senior Nurse
Elizabeth Gallagher, Network Manager, Wales Neonatal Network
Rebecca Lemin, Network Manager, South West Neonatal Network
Dr Yinru Lim, Trainee in Neonatal Medicine
Dr Kate Palmer, Consultant Neonatologist
Mehali Patel, Senior Research Officer, Bliss
Dr Oliver Rackham, Consultant Neonatologist, RCPCH Clinical Lead for Audit

NNAP Project Team*

Dr Sam Oddie, Consultant Neonatologist, NNAP Clinical Lead
Rachel Winch, NNAP Audit Manager, RCPCH
Mark Hannigan, Clinical Standards and Quality Improvement Manager, RCPCH
Dr Marcia Philbin, Assistant Director Research and Policy Division, RCPCH
Melanie David-Feveck, Project Administrator, RCPCH (to March 2018)
Karina Green, Project Administrator, RCPCH (from March 2018)
Sandeepa Arora, NNAP Data Analyst, NDAU (from March 2018)
Kayleigh Ougham, NNAP Data Analyst, NDAU
Dr Nicholas Longford, NNAP Statistician, NDAU

**Note that members of the NNAP Project Team also sit on the Project Board and Methodology and Dataset Group.*

National Neonatal Audit Programme 2018 report on 2017 data

Forewords

I am pleased to introduce the 11th annual report of the National Neonatal Audit Programme, which has been run by the Royal College of Paediatrics and Child Health since its inception in 2006.

The audit celebrates some key achievements in neonatal care this year; more very preterm babies are being admitted to neonatal units with a normal temperature and rates of magnesium sulphate administration to mothers at risk of very preterm birth have increased notably (from 53% with 17% missing data, to 64% with 8% missing data).

Variation, however, continues to exist between neonatal units and neonatal networks. There are clear opportunities for units and networks to use their NNAP data as a driver for quality improvement activities.

The audit achieves excellent engagement from the neonatal community and the high levels of data completeness achieved in most audit measures mean that the audit continues to be a robust source of information, enabling the neonatal community to make best use of their results to drive change.

The NNAP reports for the first time this year on new measures of parental partnership in neonatal care. The development of these new measures is a credit to the NNAP parent representatives Ellen Hallsworth and Patrick Tully and Bliss representative Zoe Chivers. Ellen and Zoe step down this year after several years of providing highly valuable insight to the NNAP. I thank them for their contribution to the audit.

Thank you also to those involved in writing this report and developing its recommendations, including the NNAP Project Board, Methodology and Dataset Group, the Project Team and Clinical Lead Professor Sam Oddie. Finally, I would like to thank the neonatal and wider perinatal teams for providing their essential input into the audit.

Professor Anne Greenough, Vice President Science and Research
Chair of the NNAP Project Board

Royal College of Paediatrics and Child Health

Follow @RCPCHtweets | www.rcpch.ac.uk

The NNAP expects, this year, to achieve full coverage of the 182 neonatal units in England, Wales and Scotland. Engagement in this national audit is accepted by many national bodies to be a key indicator of neonatal service quality.

The measures used include processes (clinical and organisational) and outcomes and continue to address many different dimensions of healthcare quality. Refreshingly, several new ideas have been introduced in this report including measures relating to parental partnership in care, and place of birth of babies born at less than 27 weeks gestational age, which are known to influence important clinical outcomes. There is acknowledgement of the importance of linking maternity and neonatal data in collaboration with the National Maternity and Perinatal Audit (NMPA). A start is made in systematic analysis of rates of change in measures with time and their variation between units and networks.

The publication of comparative data is not sufficient on its own to improve care and reduce variation in outcomes. This might partly explain the fact that, despite ongoing improvement in many longstanding measures, the pace of change has reduced for many with the persistence of marked regional variation. Approaches by the NNAP to improve access to comparative data through *NNAP Online* and encourage local quality improvement are to be welcomed. National initiatives in England and Scotland to train professionals in quality improvement methodology and to collaborate for improvement, if sustained, should add momentum.

The NNAP has become a very important part of the landscape of UK neonatal care. In the context of current work to transform neonatal services in England and Scotland it is important that priority is given to quality improvement informed by national audit and benchmarking. Closer coordination of the work of the many agencies interested in the quality of neonatal care would help accelerate improvement.

Dr Gopi Menon, President
British Association for Perinatal Medicine

Follow @BAPM_Official | www.bapm.org

Executive summary

Around 750,000 babies are born each year in England, Scotland and Wales, and of these nearly 105,000 or around 1 in 7, will require specialist neonatal care. The National Neonatal Audit Programme (NNAP) uses routinely collected data to support quality improvement in neonatal units of all types.

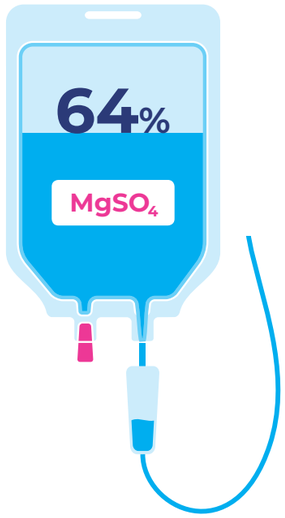
Established in 2006, the NNAP is commissioned by the Healthcare Quality Improvement Partnership (HQIP), funded by NHS England, the Scottish Government and the Welsh Government, and is delivered by the RCPCH. It forms part of the HQIP National Clinical Audit and Patient Outcomes Programme (NCAPOP). The RCPCH is currently contracted to deliver the NNAP from April 2017 to March 2021. For most audit measures, this report looks at care provided to babies with a final discharge from neonatal care between 1 January and 31 December 2017.

In addition to our existing audit measures, in 2017 the NNAP reported on new measures focussed on parental partnership in care; looking at minimising separation of mother and baby, and the presence of parents on consultant ward rounds. We hope that these measures will support neonatal units to achieve a partnership with parents in providing care. This year we also describe how many of the least mature babies are delivered in units best suited to care for them. Our final new measure describes, for the first time, how many babies develop necrotising enterocolitis.

Selected key findings and recommendations

These key findings were selected by consensus at the NNAP key findings workshop by a multidisciplinary and multiagency group of NNAP stakeholder representatives. For a full list of the key findings and recommendations for these, and other measures, see the key findings and recommendations section of the full report , available at: **www.rcpch.ac.uk/nnap-report-2018**

Antenatal magnesium sulphate

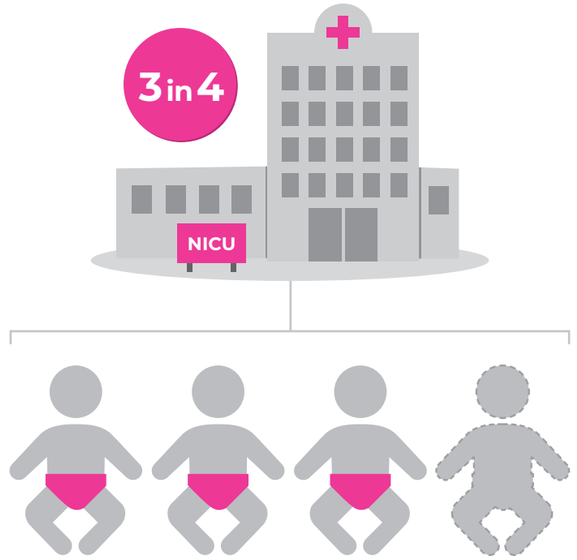


Giving magnesium sulphate to women who are at risk of delivering a preterm baby reduces the chance that their baby will develop cerebral palsy. The NNAP looks at whether mothers who delivered their baby at less than 30 weeks were given antenatal magnesium sulphate. Magnesium sulphate administration was much higher in 2017 than in 2016 (2017 – 64.1% of eligible mothers; 2016 – 53.3% of eligible mothers), reflecting rapid assimilation into practice of this aspect of NICE guidance, which is aimed at reducing cerebral palsy.

Selected recommendation:

To seek missed opportunities, and themes as to why magnesium was not given in line with NICE guidance, **neonatal and maternity care staff** in units with below average rates of administration should formally review records of babies born at less than 30 weeks where magnesium sulphate was not given to the mother.

Birth in a centre with a neonatal intensive care unit (NICU)

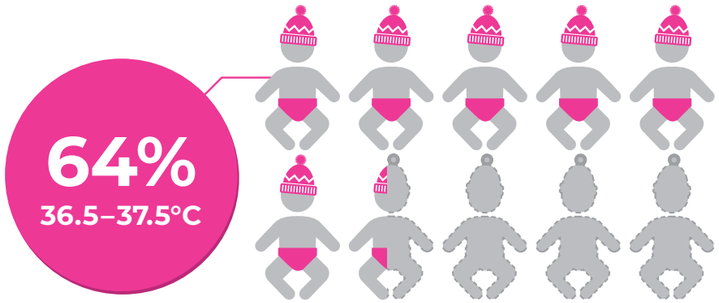


The NNAP looks at the proportion of babies born at less than 27 weeks gestational age who were born at a hospital with an on-site NICU. Babies who are born at less than 27 weeks gestational age are at high risk of death and serious illness. There is evidence that outcomes are improved if such immature babies are cared for in a NICU from birth. Three in four babies born less than 27 weeks gestational age were born at a hospital with an on-site NICU. Only two of 15 neonatal networks have more than 85% of these babies born within a hospital with an on-site NICU. Geographical size of network does not readily explain why more of some networks' babies are delivered in centres with a NICU.

Selected recommendation:

Neonatal networks, maternity networks and local maternity systems in England, and their equivalent bodies in Wales and Scotland, which do not achieve delivery of 85% of babies less than 27 weeks in a hospital with an onsite NICU should review whether they have realistic plans to achieve improvements in this area, and develop plans if required.

Promoting normal temperature on admission for very preterm babies



More very preterm babies in England, Scotland and Wales are admitted with a normal temperature than has been recorded for other nations in the international literature.[1,2,3] Sixty four percent of babies had a normal first temperature (36.5 to 37.5°C) measured within an hour of birth. This is an improvement in performance from recent years (2016 – 60.8%; 2015 – 58.1%) without an increase in hyperthermia – temperature above 37.5°C (2017 – 12.2%; 2016 – 12%). However there remains room for significant further improvement in the promotion of normothermia on admission to neonatal units for very preterm babies.

Selected recommendation:

Neonatal units should ensure that they have a care bundle in place, developed with multidisciplinary input, which mandates the use of evidence-based strategies to encourage admission normothermia of very preterm babies.

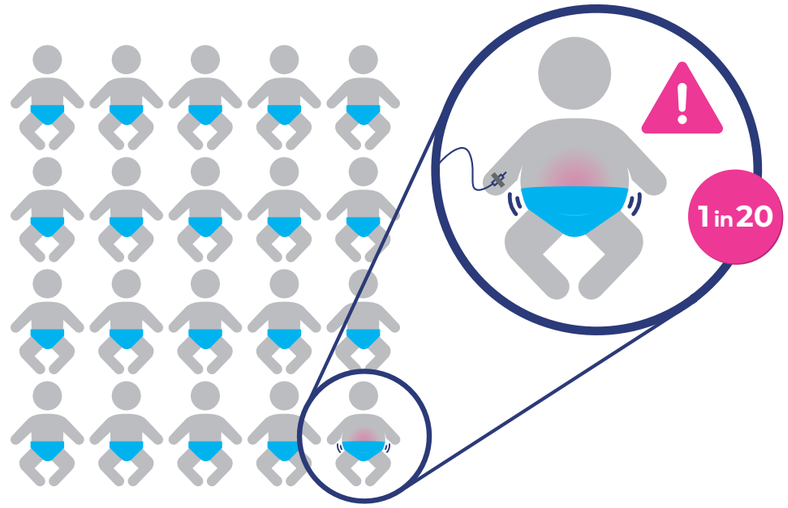
[1] Wilson E., et al. Admission Hypothermia in Very Preterm Infants and Neonatal Mortality and Morbidity. The Journal of Pediatrics 2016; 175: 61-7.

[2] Iyu Y., et al. Association Between Admission Temperature and Mortality and Major Morbidity in Preterm Infants Born at Fewer Than 33 Weeks' Gestation. JAMA Pediatrics 2015; 169e150277-8.

[3] Laptook A.R., et al. Admission Temperature and Mortality and Morbidity among Moderately and Extremely Preterm Infants. The Journal of Pediatrics 2018; 192: 53-9.

National Neonatal Audit Programme 2018 report on 2017 data

Necrotising enterocolitis

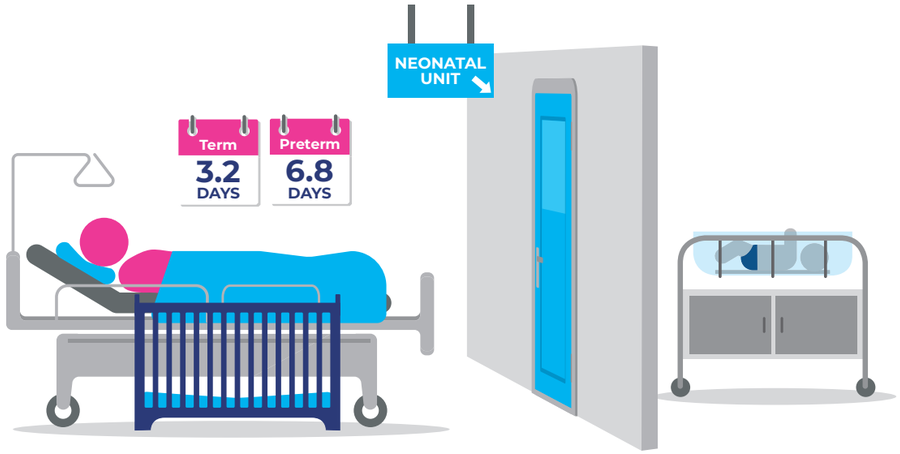


Necrotising enterocolitis (NEC) is a devastating illness which can follow preterm birth. One in twenty (5.6%; 428 of 8,228) babies born at less than 32 weeks gestational age developed necrotising enterocolitis (NEC). The NNAP uses a surveillance definition of NEC based on diagnosis at surgery, post-mortem or on the presence of clinical or radiographic signs.

Selected recommendation:

Neonatal units who validated their NEC data for 2017 should use NNAP Online to compare rates of NEC with other units, and use these comparisons to seek quality improvement opportunities.

Minimising separation of mothers and term and late preterm babies



The NNAP looks at the number of days that term and late preterm babies requiring low dependency care are separated from their mother. Variation exists in the average number of separation days between neonatal units and networks, for both term and late preterm babies. Findings for these two measures suggest that opportunities exist to reduce separation of mothers and term and late preterm babies by providing some neonatal care as transitional care.

Selected recommendation:

Neonatal units and trusts/health boards where transitional care cannot be delivered should work with their commissioners to develop the ability to deliver such care to minimise mother and baby separation, following the BAPM guidance A Framework for Neonatal Transitional Care.[11]

Full key findings by audit measure are available in chapter 2 of the main report, available at:
www.rcpch.ac.uk/nnap-report-2018

[11] British Association of Perinatal Medicine. Neonatal Transitional Care – A Framework for Practice. 2017. Available from: https://www.bapm.org/resources/framework-neonatal-transitional-care

Supporting quality improvement in neonatal care

The NNAP identifies areas for quality improvement in neonatal units in relation to the delivery and outcomes of care. The NNAP presents data to neonatal units and networks to facilitate quality improvement, alongside other initiatives in the following ways:

- **NNAP Online** is the audit's interactive reporting tool. It is available at **http://nnap.rcpch.ac.uk** and can be used to compare performance at a unit, network and national level; supporting neonatal units and networks to share best practice and stimulate quality improvement activities. The NNAP also shares examples of good practice by showcasing **case studies** in the annual report, online and at our annual NNAP and Neonatal Data Analysis Unit (NDAU) Collaborator's Meeting.

- **NNAP unit results posters** summarise a selection of the unit's NNAP results which are most relevant to parents and carers. Neonatal units display the posters in a public area, and complete a second poster, which explains the actions they are taking in response to their audit results. Designed to be used alongside ***Your baby's care*** (available at **www.rcpch.ac.uk/your-babys-care-2018**), our parents' guide to the NNAP, the posters help to communicate the meaning and relevance of the audit results not only to parents, but to the wider team involved in caring for the baby and mother.

- NNAP quarterly reports support neonatal units and networks to monitor data quality and completeness and their ongoing performance throughout the data collection year. Quarterly reports enable units to review their provisional results at the end of the year before inclusion in the NNAP annual report.

- The NNAP works closely with **neonatal networks**, adapting its measures and reporting to be responsive to the needs of the networks. The NNAP works closely with other national bodies and participates in several national initiatives, including the National Clinical Audit Benchmarking project (NCAB, a collaboration between HQIP and CQC), the Neonatal Peer Review Visit programme, NHS Choices and MyNHS Clinical Outcomes Publication and the Transparency and Open Data initiative.

Future developments in the NNAP

For the 2018 data year, we expect to achieve participation from all 15 neonatal units in Scotland, giving full participation across England, Wales and Scotland and would like to achieve UK wide participation in the future.

A new measure of neonatal nurse staffing levels will be reported for the 2018 data year, focussing on the proportion of shifts staffed according to relevant standards, and the number of additional shifts that would be required to meet those standards.

In 2017 and 2018 the NNAP has been collecting data on mortality. For a very few preterm babies (those who die before 44 weeks post menstrual age, in a non NNAP unit) this will require additional data entry, but for most cases, this reporting will be based on existing data flows.

National Neonatal Audit Programme (NNAP)
Executive summary: 2018 annual report on 2017 data

Published by RCPCH September 2018

Healthcare Quality Improvement Partnership (HQIP)
Dawson House, 5 Jewry Street,
London EC3N 2EX

Royal College of Paediatrics and Child Health
5-11 Theobalds Road,
London, WC1X 8SH