NICE National Institute for Health and Care Excellence

NICE support for commissioning for neonatal jaundice

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1 Introduction

Implementing the recommendations from NICE guidance and other NICE-accredited guidance is the best way to support improvements in the quality of care or services, in line with the statements and measures that comprise the NICE quality standards. This report:

- Highlights the key actions that clinical commissioning groups (CCGs), NHS England area teams and their partners should take to improve the quality of care for babies with neonatal jaundice. Priority actions are outlined in table 1.
- Identifies opportunities for collaboration and integration at a local level.
- Identifies the benefits and potential costs and savings from implementing the changes needed to achieve quality improvement.
- Directs commissioners and service providers to other tools that can help them implement NICE and NICE-accredited guidance.

NICE quality standards describe high-priority areas for quality improvement in a defined care or service area. Each standard consists of a prioritised set of specific, concise and measurable statements. The statements draw on existing guidance, which provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement. For more information see NICE quality standards.

NHS England's CCG outcomes indicator set is part of a systematic approach to promoting quality improvement. The outcomes indicator set provides CCGs and health and wellbeing boards with comparative information on the quality

of health services commissioned by CCGs and the associated health outcomes. The set includes indicators derived from NICE quality standards. By commissioning services in line with the quality standard, commissioners can contribute to improvements in health outcomes, particularly in:

- reducing numbers of deaths in babies and young children
- improving the experience of maternity services for women and their families
- improving the safety of maternity services
- reducing the numbers of people living with preventable ill health and of people dying prematurely, while reducing the gap between communities.

Commissioners can use the quality standards to improve services by including quality statements and measures in the service specification of the standard contract and establishing key performance indicators as part of tendering. They can also encourage improvements in provider performance by using quality standard measures in association with incentive payments such as Commissioning for quality and innovation (CQUIN) 2014/15 guidance. NICE quality standards provide a baseline against which improvements can be measured and rewarded, enabling commissioners to address gaps in service provision, support best practice and encourage evidence-based care.

This report on the neonatal jaundice quality standard should be read alongside:

- Neonatal jaundice. NICE quality standard 57 (2014)
- Postnatal care. NICE quality standard 37 (2013)
- Neonatal jaundice. NICE clinical guideline 98 (2010)
- Postnatal care. NICE clinical guideline 37 (2006)

2 Overview of neonatal jaundice

Jaundice refers to the yellow colouration of the skin and the whites of the eyes caused by a raised level of bilirubin (hyperbilirubinaemia). Jaundice that develops in the first 24 hours of life can indicate underlying disease and needs urgent assessment. For most babies, jaundice is not a sign of

underlying disease, and early jaundice ('physiological jaundice') is generally harmless. However, some babies will develop high levels of bilirubin, which can cause both, short-term and long-term neurological dysfunction (bilirubin encephalopathy) or kernicterus if not treated[1]. The risk of kernicterus is increased in babies with particularly high bilirubin levels and for certain groups, such as preterm babies. These conditions can have significant life-altering implications for babies and their families, and financial implications for health and social care services. However, kernicterus can be prevented if jaundice is identified early and treated effectively[2].

Using the NICE quality standard, in conjunction with the guidance on which it is based, should contribute to the improvements outlined in the NHS Outcomes Framework 2014–15 and Improving outcomes and supporting transparency: a public health outcomes framework for England, 2013–2016, Part 1 and Part 1A. CCGs are responsible for the commissioning of maternity care, including primary and secondary care. If newborn babies are admitted to hospital because they have neonatal jaundice, this is not covered by the maternity pathway payment. This is because babies needing inpatient treatment are admitted for care on an admission record in their own name.

2.1 Epidemiology of neonatal jaundice

Jaundice is one of the most common conditions needing medical attention in newborn babies; approximately 60% of term (gestational age of 37 weeks or more) and 80% of preterm babies develop jaundice in the first week of life. Breastfed babies are also more likely than formula-fed babies to develop physiological jaundice. Prolonged jaundice – that is jaundice that lasts longer

[1] The term kernicterus is used to denote the clinical features of acute or chronic bilirubin encephalopathy, as well as the yellow staining in the brain associated with the former. The risk of kernicterus is increased in babies with extremely high bilirubin levels. Kernicterus is also known to occur at lower levels of bilirubin in term babies who have risk factors, and in preterm babies (NICE clinical guideline 98).

[2] Features of acute or chronic bilirubin encephalopathy include athetoid cerebral palsy, hearing loss, and visual and dental problems. The exact level of bilirubin that is likely to cause neurotoxicity in any individual baby varies, and depends on the interplay of multiple factors which include acidosis, gestational and postnatal age, rate of rise of serum bilirubin, serum albumin concentration, and concurrent illness (including infection) (NICE clinical guideline 98: full guideline).

than 14 days of life – is also seen more commonly in these babies. In England in 2012/13, there were just over 673,000 hospital birth episodes recorded. It is therefore estimated that around 430,000 babies a year may need treatment for neonatal jaundice; around 50,000 of these will be preterm babies.

Although neonatal jaundice is common, kernicterus is very rare. In 2012/13 there were 15 finished consultant episodes that included kernicterus (ICD-10: P57).

3 Summary of commissioning and resource implications

The cost of meeting the quality standard for neonatal jaundice depends on current local practice and the progress organisations have made in implementing NICE and NICE-accredited guidance.

Table 1 summarises the priority commissioning actions and potential resource implications for commissioners working towards achieving this quality standard. See section 4 for more detail on commissioning and resource implications.

Table 1 Priority commissioning actions and potential resource implications for neonatal jaundice

Quality improvement area	Commissioning actions	Provider actions	Resource implications
1 – Information for parents or carers	CCGs should specify that all maternity service providers discuss and provide written information for parents and carers about neonatal jaundice within 24 hours of the birth.	Competent healthcare professionals such as midwives and doctors should work in partnership to ensure that neonatal jaundice is discussed and all parents or carers of newborn babies are provided with written information on neonatal jaundice within 24 hours of the birth.	No significant additional costs are anticipated. Early identification of jaundice may reduce the need for future healthcare interventions.
2 – Measurement of bilirubin level in babies more than 24 hours old	CCGs may wish to review contract arrangements with NHSE area teams and should specify that all maternity service providers work in partnership to ensure that bilirubin levels in babies who are more than 24 hours old can be measured within 6 hours of suspecting jaundice or a parent or carer reporting possible jaundice.	Competent healthcare professionals in primary, secondary and community care, such as midwives, health visitors and doctors should work in partnership to ensure that bilirubin levels in babies who are more than 24 hours old can be measured within 6 hours of suspecting jaundice or being informed of possible jaundice.	The cost impact will depend on progress in implementing NICE clinical guideline 98.The impact can be calculated locally by using the NICE costing template that supports the guideline.
3 – Management of hyperbilirubinaemia: treatment thresholds	CCGs should ensure that secondary care providers determine the treatment for babies with hyperbilirubinaemia by using standardised threshold tables and may wish to monitor the incidence of kernicterus.	Competent healthcare professionals in secondary care should have access to and use standardised threshold tables to determine treatment for babies with hyperbilirubinaemia.	No significant additional cost impact is expected, and the use of standardised tables could help to ensure the best use of resources.

4 Commissioning and resource implications

This section considers the commissioning implications and potential resource impact of implementing the recommendations to achieve the NICE quality standard for neonatal jaundice.

Commissioners may find it helpful to refer to the NICE shared learning database, which provides a service model example of implementation of the NICE clinical guideline on neonatal jaundice[3].

4.1 Information for parents or carers

Quality statement 1:

Parents or carers of newborn babies have a discussion with healthcare professionals and are given written information about neonatal jaundice within 24 hours of the birth, including what to look for and who to contact if they are concerned.

Early identification of neonatal jaundice is essential to ensure that babies receive appropriate treatment for either underlying disease or hyperbilirubinaemia caused by physiological jaundice in order to prevent complications and achieve the best clinical outcomes. CCGs will need to be assured that competent healthcare professionals such as midwives and doctors are working in partnership to ensure that neonatal jaundice is discussed and all parents or carers of newborn babies are provided with written information on neonatal jaundice within 24 hours of the birth. The information should include advice about what to look for and details of telephone access to healthcare professionals if parents or carers have

[3] Examples in the shared learning database are offered to share good practice and NICE makes no judgement on the compliance of these services with its guidance.

concerns. This is particularly important when early discharge from maternity units is common practice.

Examples of such information are the NICE neonatal jaundice parent information factsheet and information for the public about neonatal jaundice. These are available online and can be adapted to include local information, for example the contact details of local services or sources of local information.

Providing parents or carers with both verbal and written information is unlikely to have any significant cost impact, but early identification of neonatal jaundice and subsequent appropriate treatment may help to reduce the need for future healthcare interventions and improve clinical outcomes.

Commissioners may wish to refer to the quality standard for detailed information on neonatal jaundice that should be provided.

4.2 Measurement of bilirubin level in babies more than 24 hours old

Quality statement 2:

Babies with suspected jaundice, who are more than 24 hours old, have their bilirubin level measured within 6 hours of a healthcare professional suspecting jaundice or a parent or carer reporting possible jaundice.

Although bilirubin should not be measured routinely in babies who are not visibly jaundiced, measuring bilirubin levels in babies with suspected or obvious visible jaundice assesses the degree of jaundice and determines whether the baby needs further investigations or treatment. Because of the need for babies with rapidly rising bilirubin levels to be identified promptly for treatment, CCGs and NHS England area teams should ensure that all maternity care providers work in partnership and have the capacity and

capability in primary, secondary and community care to measure bilirubin levels in babies who are more than 24 hours old within 6 hours of the healthcare professional suspecting jaundice or a parent or carer reporting possible jaundice[4]. Contractual responsibilities and service configuration may need to be reviewed to determine whether additional investment is needed to facilitate measurement within 6 hours (particularly when babies have been discharged early from hospital).

CCGs may wish to assess the availability of transcutaneous bilirubinometers in the community. These devices use reflected light to measure the bilirubin level in the skin. The measurement is more accurate than visual inspection alone, is non-invasive and can be used in the community to provide instant results. A transcutaneous bilirubinometer is not as accurate as serum bilirubin testing but can help to identify early those babies who need serum bilirubin testing and further investigation, and those who do not need further investigation.

The financial impact will need to be assessed locally and may include equipment and training costs. A transcutaneous bilirubinometer is estimated to cost £3400 and the test to cost £3.98 (with calibration tip), while the cost of a serum blood test is estimated to be £19.23 per test.

The cost impact of achieving this quality statement will depend on progress at a local level in implementing NICE clinical guideline 98.The NICE costing template for the guideline may help organisations to calculate costs at the local level to achieve this statement. Organisations should use the template to reflect local circumstances in the delivery of maternity services. For example, the service models for a rural area and an urban area may be different.

The costing template for NICE clinical guideline 98 can help local users to calculate the cost impact of implementing the testing when local assumptions

[4] For babies in the first 24 hours of life, see NICE clinical guideline 98, recommendation 1.2.10.

and population numbers are available for input.

Commissioners may wish to refer to the NICE 'do not do' recommendations, which identify NHS clinical practices that should be discontinued completely or should not be used routinely when measuring bilirubin levels.

The NICE pathway on neonatal jaundice provides details of the recommended actions for measuring bilirubin levels in babies over 24 hours with suspected of obvious jaundice.

4.3 Management of hyperbilirubinaemia: treatment thresholds

Quality statement 3:

Babies with hyperbilirubinaemia are started on treatment in accordance with standardised threshold tables or charts.

Once jaundice is recognised, there can be uncertainty about when to treat and widespread variation in the use of phototherapy and exchange transfusion. CCGs should seek assurance that competent healthcare professionals in secondary care are using threshold tables and treatment threshold graphs to determine the appropriate treatment and management of hyperbilirubinaemia to reduce this uncertainty. The use of NICE treatment threshold graphs will help to ensure a balance between treatment thresholds being low enough to prevent complications (such as kernicterus) but not so low that phototherapy would be used unnecessarily[5].

[5] Phototherapy is an effective treatment for significant hyperbilirubinaemia and can reduce the need for exchange transfusion (procedure involving a complete changeover of blood), which is necessary in only the most severe cases.

The use of threshold tables or charts that take into account serum bilirubin level, gestational age and postnatal age is not likely to have a cost impact, but may help to ensure that NHS resources are used efficiently.

Data is available on the incidence of kernicterus via Hospital episode statistics (HES) online or the Neonatal Critical Care Minimum Data Set. The ICD-10 code for Kernicterus is P57.

Commissioners may find it helpful to refer to the NICE 'do not do' recommendations, which identify NHS clinical practices that should be discontinued completely or should not be used routinely to treat hyperbilirubinaemia.

The NICE pathway on neonatal jaundice provides clear details of the recommended actions for how to manage hyperbilirubinaemia and treatment thresholds.

5 Other useful resources

5.1 Useful resources

- NHS England (2012) Commissioning maternity services. A resource pack to support clinical commissioning groups.
- Royal College of Midwives (2012) Commissioning maternity services in England.
- Department of Health (2009) Toolkit for high quality neonatal services.
- Department of Health (2008) Neonatal Taskforce Bulletin.

5.2 NICE implementation support

- Neonatal jaundice. NICE audit support (2011).
- Neonatal jaundice. NICE baseline assessment (2010).
- Neonatal jaundice. NICE costing report (2010).
- Neonatal jaundice. NICE costing template (2010).
- Neonatal jaundice. NICE slide set (2010).

5.3 NICE pathways

- Patient experience in adult NHS Services
- Neonatal jaundice
- Postnatal care