NICE National Institute for Health and Care Excellence

NICE support for commissioning for urinary tract infection in infants, children and young people under 16

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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:

- considers the cost of implementing the changes needed to achieve the quality standard at a local level
- identifies where potential cost savings can be made
- highlights the areas of care in the quality standard that have potential implications for commissioners
- directs commissioners and service providers to a package of support tools that can help them implement NICE guidance and redesign services.

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. They 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 Clinical Commissioning Group (CCG) outcomes indicator set (formerly known as the Commissioning Outcomes Framework) is part of a

systematic approach to promoting quality improvement. The outcomes indicator set provides clinical commissioning groups and health and wellbeing boards with comparative information on the quality of health services commissioned by clinical commissioning groups and the associated health outcomes. The set includes indicators derived from NICE quality standards. By commissioning services in line with the quality standards, commissioners can contribute to improvements in health outcomes.

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 using the commissioning for quality and innovation (CQUIN) payment framework. 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 treatments and care.

This report on urinary tract infection in infants, children and young people under 16 should be read alongside:

- Urinary tract infection in children: diagnosis, treatment and long-term management. NICE clinical guideline 54 (2007).
- Feverish illness in children: assessment and initial management in children younger than 5 years. NICE clinical guideline 160 (2013).

2 Overview of urinary tract infection in infants, children and young people under 16

Urinary tract infection (UTI) is a common bacterial infection causing illness in infants, children and young people. It may be difficult to recognise and diagnose UTI in children because the presenting symptoms and signs are non-specific, particularly in infants and children younger than 3 years.

Children with UTI can present with symptoms or signs, including fever, irritability and vomiting, that are commonly seen with many childhood viral illnesses, particularly in younger children. In addition to this, collecting urine and interpreting results are not easy in this age group, so it may not always be possible to unequivocally confirm the diagnosis.

A severe UTI can make a child extremely unwell and sometimes have serious consequences; even minor infections can be distressing.

Although most infants, children and young people recover promptly from a UTI and have no long-term complications, there is a small subgroup at risk of significant morbidity. Prompt and accurate diagnosis of UTI is essential, and it is important to recognise and treat recurrent infection.

Traditional management of UTI in children, which includes imaging, prophylaxis and prolonged follow-up, has placed a heavy burden on NHS primary and secondary care resources. It is costly, based on limited evidence, and is unpleasant for children and distressing for their parents or carers. The aim of the NICE clinical guideline on urinary tract infection in children is to achieve more consistent clinical practice, based on accurate diagnosis and effective management. The algorithm in NICE clinical guideline 54 gives an overview of the diagnosis, treatment and long-term management of UTI in infants and children. The quality standard highlights the key quality improvement areas that remain despite publication of the guideline in 2007.

2.1 Epidemiology of urinary tract infection in infants, children and young people under 16

A UTI is defined by a combination of clinical features and the presence of bacteria in the urine. According to NICE's full guideline on urinary tract infection in children, around 1 in 10 girls and 1 in 30 boys will have had a UTI by the age of 16 years.

The reoccurrence of a UTI is common; three-quarters of children presenting with a UTI before the age of 1 year will have a recurrence. If the first

presentation of a UTI is after the age of 1, around 40% of girls and 30% of boys will have a recurrence. Around one-third of children diagnosed with UTI have vesicoureteric reflux, and other less common abnormalities include hydronephrosis, obstruction and duplex kidneys.

3 Commissioning and resource implications

The cost of meeting the quality standard for UTI in infants, children and young people under 16 depends on current local practice and the progress organisations have made in implementing NICE and NICE-accredited guidance.

Infants, children and young people with signs and symptoms of a UTI will be assessed and diagnosed in a number of services and settings, including GP practices, out-of-hours services and emergency services (such as A&E). Young people, particularly young women, may also be identified with symptoms of a UTI in sexual health clinics. To improve the quality of care across a wide range of services, commissioners will need to work with clinicians and services to raise awareness of the statements in this quality standard, particularly in primary care.

Commissioners will also need to agree processes to monitor how services assess and diagnose UTI in line with Urinary tract infections in infants, children and young people under 16 (NICE clinical guideline 54), with reference also to Feverish illness in children (NICE clinical guideline 160).

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

Table 1 Potential commissioning and resource implications of achieving the quality standard for urinary tract infection in infants, children and young people under 16

Quality statement	Commissioning implications	Estimated resource impact
1 – Urine testing	Commissioners should ensure that processes are in place for the timely collection and testing of urine samples across a number of settings.	Implementing quality statements 1 and 2 may lead to additional costs being incurred by commissioning organisations because of an increase in referrals and treatment for infants, children and young people diagnosed with a UTI. Where the number of urine tests increases significantly as a result of statement 1, additional costs may be incurred by test providers. This may impact on future contract costs with commissioning organisations.
2 – Risk factors	Agree skills and competencies needed to identify and record risk factors	
3 – Laboratory reporting	Expect providers to demonstrate that microbiology testing is in line with the quality statement	None anticipated
4 – Information	Ensure that high-quality information is given to children and young people who have had a UTI, and/or their parents or carers, regardless of service or setting	None anticipated

Abbreviation: UTI, urinary tract infection.

4 Commissioning implications and resource impact

This section considers the commissioning implications and potential resource impact of implementing the recommendations to achieve the NICE quality standard for UTI in infants, children and young people under 16.

4.1 Urine testing

Quality statement 1: Presentation with unexplained fever of 38°C or higher

Infants, children and young people presenting with unexplained fever of 38°C or higher have a urine sample tested within 24 hours.

Commissioners should ensure that providers routinely test urine samples within 24 hours of presentation for infants, children and young people with unexplained fever of 38°C or higher.

The Guideline Development Group for the NICE clinical guideline on urinary tract infections in infants, children and young people under 16 identified wide variation in practice in the diagnosis of UTI in children, including the choice and combination of tests and how laboratories perform microscopy and culture. In addition to this, it can be difficult to collect a urine sample from young children, in particular before children are toilet trained.

Infants, children and young people may present with signs and symptoms of a UTI at a number of settings. Commissioners should ensure that processes are in place for the timely collection and testing of urine samples across a number of settings, including primary care, out-of-hours services and emergency services (such as A&E). Urine collection methods and tests will depend on the age of the infant, child or young person.

In line with the NICE clinical guideline, all infants younger than 3 months with suspected UTI should be referred to paediatric specialist care and a urine sample should be sent for urgent microscopy and culture. The infants should be cared for in accordance with the recommendations for this age group in Feverish illness in children (NICE clinical guideline 160).

4.2 Risk factors

Quality statement 2: History and examination – recording of risk factors

Infants, children and young people with a urinary tract infection have risk factors for urinary tract infection and serious underlying pathology recorded as part of their history and examination.

The NICE clinical guideline on urinary tract infections in infants, children and young people under 16 lists a number of risk factors for UTI and serious underlying pathology that should be recorded as part of the history and

examination of an infant, child or young person with UTI. Infants, children and young people can present with signs and symptoms of UTI in a number of settings, so commissioners will need to work with clinicians to ensure that this information is recorded and shared between primary and secondary care.

4.3 Laboratory reporting

Quality statement 3: Laboratory reporting – differentiation of *E. coli* and non-*E. coli* organisms

Infants, children and young people with a urinary tract infection caused by coliform bacteria have results of microbiology laboratory testing differentiated by *Escherichia coli* (*E. coli*) or non-*E. coli* organisms.

Commissioners should seek assurance that providers can demonstrate that microbiology laboratories detecting coliform bacteria as a cause of a UTI report results differentiated by *E. coli* or non-*E. coli* organisms. Laboratory reporting definitions are likely to be incorporated within existing large-volume contracts with laboratories.

4.4 Information

Quality statement 4: Information about recognising re-infection

Children and young people who have had a urinary tract infection are given information about how to recognise re-infection and to seek medical advice straight away.

Some children and young people will experience a recurrence of UTI. It is important that children and young people, and/or their parents or carers as appropriate, are given information so that signs and symptoms are recognised and treated quickly to reduce the risk of complications.

Consultation comments on the draft quality standard indicated that there is variation in the quality of information given by healthcare professionals in different settings. Commissioners should ensure that local services provide information in line with the NICE clinical guideline on urinary tract infections in infants, children and young people under 16, and may wish to suggest that this is made available in a number of different formats, such as printed leaflets, web-based information and/or smartphone apps.

4.5 Resource impact

It is anticipated that implementing quality statements 1 and 2 will lead to an increase in the number of infants, children and young people who are diagnosed with an UTI at an early stage, and referred and treated for UTIs. Any increase in referrals and treatment may lead to additional costs being incurred by commissioning organisations. However, improved detection rates of UTI have been thought to be associated with a decrease in the number of people reaching end-stage renal failure as a consequence of acquired renal scarring (see the costing report for NICE clinical guideline 54). Savings may therefore be possible as a consequence.

Urine tests are likely to be incorporated within existing large-volume contracts with laboratories. Where the number of urine tests increases significantly as a result of implementing quality statement 1, additional costs may be incurred by test providers. The costing report for NICE clinical guideline 54 estimates that the unit cost of urine testing varies from £0.13 (leukocyte esterase and nitrite tests) to £20 (urgent microscopy and follow-up culture). This may impact on future contract costs with commissioning organisations.

Laboratory reporting definitions are likely to be incorporated within existing large-volume contracts with laboratories. Commissioning organisations are not therefore anticipated to incur any additional costs as a result of quality statement 3. No resource impact is anticipated as a result of quality statement 4.

5 Other useful resources

5.1 Policy documents

- Department of Health (2007). Continence exemplar
- Department of Health (2004). National service framework for children, young people and maternity services

5.2 Useful resources

- Spotting the sick child (2004)

5.3 NICE implementation support

Commissioners and others may wish to refer to the following implementation tools produced for the NICE clinical guideline on urinary tract infection in children:

- NICE guideline for paediatric urinary tract infection QIPP service model (2009)
- Shared learning examples for NICE urinary tract infection in children
- Implementation advice
- Audit support
- Costing report
- Costing template
- Slide set
- Online educational tools

Implementation support tools are also available for Feverish illness in children (NICE clinical guideline 160), including:

- Baseline assessment tool
- Clinical case scenarios
- Costing statement
- Electronic audit tools
- Slide set

- Support for education and learning: education resource – traffic light table

5.4 NICE pathways

Urinary tract infection in children (2012)

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