NICE National Institute for Health and Care Excellence

NICE Pathways

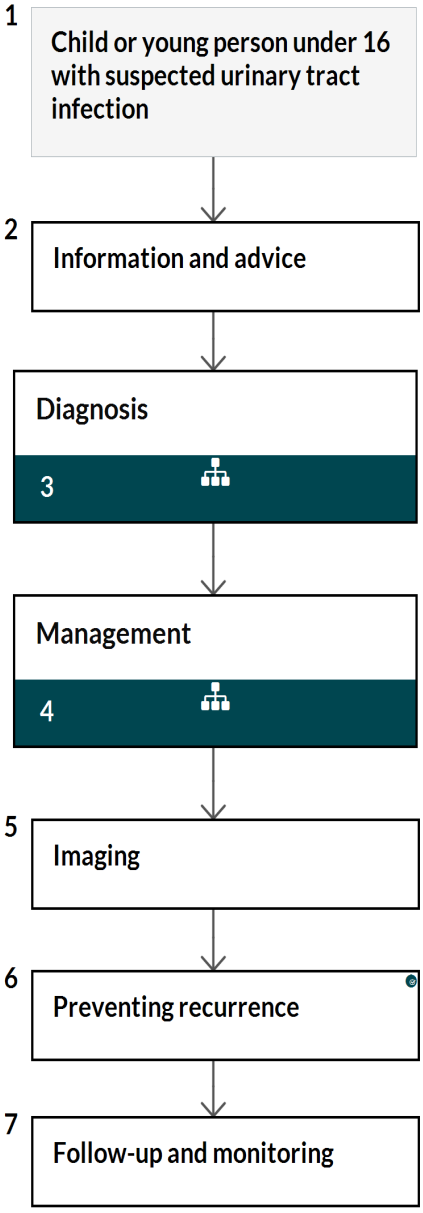
Urinary tract infections in children and young people under 16 years

NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

They are updated regularly as new NICE guidance is published. To view the latest version of this NICE Pathway see:

http://pathways.nice.org.uk/pathways/urinary-tract-infections
NICE Pathway last updated: 10 September 2020

This document contains a single flowchart and uses numbering to link the boxes to the associated recommendations.



1 Child or young person under 16 with suspected urinary tract infection

No additional information

2 Information and advice

Healthcare professionals should ensure that when a child or young person has been identified as having a suspected UTI, they and their parents or carers as appropriate are given information about the need for treatment, the importance of completing any course of treatment and advice about prevention and possible long-term management.

Healthcare professionals should offer children and young people and/or their parents or carers appropriate advice and information on:

- prompt recognition of symptoms
- urine collection, storage and testing
- appropriate treatment options
- prevention
- the nature of and reason for any urinary tract investigation
- prognosis
- reasons and arrangements for long-term management if required.

NICE has written information for the public on urinary tract infection in under 16s.

3 Diagnosis

See Urinary tract infections / Diagnosing urinary tract infection in under 16s

4 Management

See Urinary tract infections / Management of urinary tract infection in under 16s

5 Imaging

Infants and children who have had a UTI should be imaged as outlined in the recommended

imaging schedules [See page 7].

Routine imaging to identify VUR is not recommended for infants and children who have had a UTI, except in specific circumstances.

The way in which the results of imaging will be communicated should be agreed with the parents or carers or the young person as appropriate.

Ultrasound

Infants and children with atypical UTI should have ultrasound of the urinary tract during the acute infection to identify structural abnormalities of the urinary tract such as obstruction, as outlined in the recommended imaging schedules [See page 7]. This is to ensure prompt management.

For infants younger than 6 months with first-time UTI that responds to treatment, ultrasound should be carried out within 6 weeks of the UTI, as outlined in the first table in the recommended imaging schedules [See page 7].

For infants and children aged 6 months and older with first-time UTI that responds to treatment, routine ultrasound is not recommended unless the infant or child has atypical UTI, as outlined in the second and third tables in the recommended imaging schedules [See page 7].

Infants and children who have had a lower UTI should undergo ultrasound (within 6 weeks) only if they are younger than 6 months or have had recurrent infections.

DMSA scan

A DMSA scan 4–6 months following the acute infection should be used to detect renal parenchymal defects.

If the infant or child has a subsequent UTI while awaiting DMSA, the timing of the DMSA should be reviewed and consideration given to doing it sooner.

MCUG

When an MCUG is performed, prophylactic antibiotics should be given orally for 3 days with MCUG taking place on the second day.

See what NICE says on sedation in children and young people.

6 Preventing recurrence

Healthcare professionals should ensure that children and young people, and their parents or carers as appropriate, are aware of the possibility of a UTI recurring and understand the need for vigilance and to seek prompt treatment from a healthcare professional for any suspected reinfection.

NICE has written information for the public on urinary tract infection in under 16s.

Children who have had a UTI should be encouraged to drink an adequate amount.

Children who have had a UTI should have ready access to clean toilets when required and should not be expected to delay voiding.

Dysfunctional elimination syndromes and constipation should be addressed in infants and children who have had a UTI.

See what NICE says on constipation.

Antibiotic prophylaxis

Antibiotic prophylaxis should not be routinely recommended in infants and children following first-time UTI.

Asymptomatic bacteriuria in infants and children should not be treated with prophylactic antibiotics.

See NICE's recommendations on antimicrobial stewardship and managing recurrent UTIs.

Quality standards

The following quality statement is relevant to this part of the interactive flowchart.

4. Information about recognising re-infection

7 Follow-up and monitoring

When to follow up

Infants and children who do not undergo imaging investigations should not routinely be followed up.

When results are normal, a follow-up outpatient appointment is not routinely required. Parents or carers should be informed of the results of all the investigations in writing.

Infants and children who are asymptomatic following an episode of UTI should not routinely have their urine re-tested for infection.

Asymptomatic bacteriuria is not an indication for follow-up.

Assessment

Infants and children who have recurrent UTI or abnormal imaging results should be assessed by a paediatric specialist.

Assessment of infants and children with renal parenchymal defects should include height, weight, blood pressure and routine testing for proteinuria.

Surgical management of vesicoureteric reflux

Surgical management of VUR is not routinely recommended.

Long-term follow-up and monitoring

Infants and children with a minor, unilateral renal parenchymal defect do not need long-term follow-up unless they have recurrent UTI or family history or lifestyle risk factors for hypertension.

Infants and children who have bilateral renal abnormalities, impaired kidney function, raised blood pressure and/or proteinuria should receive monitoring and appropriate management by a paediatric nephrologist to slow the progression of chronic kidney disease.

Recommended imaging schedules

Infant under 6 months

Test	Responds well to treatment within 48 hours	Atypical UTI	Recurrent UTI
Ultrasound during the acute infection	No	Yes[1]	Yes
Ultrasound within 6 weeks	Yes[2]	No	No
DMSA 4–6 months following the acute infection	No	Yes	Yes
MCUG	No	Yes	Yes

Infant from 6 months to under 3 years

Test	Responds well to treatment within 48 hours	Atypical UTI	Recurrent UTI
Ultrasound during the acute infection	No	Yes	No
Ultrasound within 6 weeks	No	No	Yes
DMSA 4–6 months following acute infection	No	Yes	Yes
MCUG	No	No[3]	No

[1] In an infant or child with a non-*E. coli*-UTI, responding well to antibiotics and with no other features of atypical infection, the ultrasound can be requested on a non-urgent basis to take place within 6 weeks.

[2] If abnormal consider MCUG.

[3] While MCUG should not be performed routinely it should be considered if the following features are present: dilatation on ultrasound, poor urine flow, non-*E. coli* infection, family history of VUR.

Child aged 3 or over

Test	Responds well to treatment within 48 hours	Atypical UTI	Recurrent UTI
Ultrasound during the acute infection	No	Yes[1],[2]	No
Ultrasound within 6 weeks	No	No	Yes
DMSA 4–6 months following acute infection	No	No	Yes
MCUG	No	No	No

Glossary

Atypical UTI

(includes seriously ill (for more information refer to NICE's recommendations on fever in under 5s), poor urine flow, abdominal or bladder mass, raised creatinine, septicaemia, failure to respond to treatment with suitable antibiotics within 48 hours, infection with non-*E. coli* organisms)

bacteriuria

(bacteria in the urine with or without urinary tract infection)

DMSA

dimercaptosuccinic acid

MCUG

micturating cystourethrogram

Recurrent UTI

2 or more episodes of UTI with acute pyelonephritis/upper urinary tract infection, or 1 episode of UTI with acute pyelonephritis/upper urinary tract infection plus 1 or more episode of UTI with cystitis/lower urinary tract infection, or 3 or more episodes of UTI with cystitis/lower urinary tract infection.

UTI

urinary tract infection

VUR

vesicoureteric reflux

Sources

Urinary tract infection in under 16s: diagnosis and management (2007 updated 2018) NICE guideline CG54

Your responsibility

Guidelines

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

[1] Ultrasound in toilet-trained children should be performed with a full bladder with an estimate of bladder volume before and after micturition.

[2] In a child with a non-*E. coli*-UTI, responding well to antibiotics and with no other features of atypical infection, the ultrasound can be requested on a non-urgent basis to take place within 6 weeks.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Technology appraisals

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take these recommendations fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this interactive flowchart is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Commissioners and/or providers have a responsibility to provide the funding required to enable the recommendations to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Medical technologies guidance, diagnostics guidance and interventional procedures guidance

The recommendations in this interactive flowchart represent the view of NICE, arrived at after

careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take these recommendations fully into account. However, the interactive flowchart does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Commissioners and/or providers have a responsibility to implement the recommendations, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this interactive flowchart should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.