Diagnosis and Management of Acute UTI in Children

NHS

Clinical Assessment/Management tool for Children

Primary and Community Care Settings

History	Examination	Consider Complications and Alternative diagnoses	Red Flags
• Fever – See fever page to assess risk of serious illness • Vomiting • Poor feeding • Lethargy • Irritability • Abdominal pain/loin pain • Dysuria • Urinary Frequency or urgency • Offensive smelling urine • Haematuria	• Abdominal tenderness • Loin tenderness (pyelonephritis) • Abdominal mass • Palpable bladder - urinary retention • Exclude balanitis or vulvovaginitis	• Sepsis +\- meningitis (more common in infant under 3 months of age) • Gastroenteritis • Constipation • Appendicitis • GI obstruction	• Child < 3 months • Unwell/septic appearance • Known renal disease • Congenital renal abnormality • Previous renal scarring • Vesico Ureteric Reflux • Abdominal Mass • Poor urine output

Obtaining a Urine Sample

In children over 3 months of age who appear well, if unable to obtain urine sample at time of initial review, send home with advice to return with urine sample within 6 hours.

Ideally this is clean catch into a clean pot, for example, a potty which has been cleaned with hot water and washing up liquid. A cold cloth onto their tummy can help them urinate.

Where suspected UTI in infant under 3 months of age, refer to paediatrics same day (do not delay referral if unable to obtain urine sample)

Urine dipstick results	3 months to 3 years	>3 years
Both leukocyte esterase and nitrite are negative	Do not start antibiotic treatment. Consider other causes for symptoms Do not send urine for culture unless: • Strong clinical suspicion • History of recurrent infection • Failure to respond to treatment	Do not send urine for culture Do not start antibiotic treatment Consider alternative diagnosis
Leukocyte esterase and nitrite are both positive	Send a urine sample for culture. Start antibiotic treatment, please check CKS	Send urine sample for culture. Start antibiotic treatment, please check CKS
If leukocyte esterase is positive and nitrite is negative	Send a urine sample for culture. Start antibiotic treatment, please check CKS	Send urine sample for culture Only start antibiotic treatment if clinically significant signs of UTI, please check CKS Consider alternative diagnosis
If leukocyte esterase is negative and nitrite is positive	Send a urine sample for culture. Start antibiotic treatment, please check CKS	Ensure sample was tested promptly, if not consider repeat Send urine sample to the lab for culture Start antibiotic treatment please check CKS

Green Features	Amber Features	Red Features
• Appears well • See fever pathway	• Haemodynamically stable • Signs of pyelonephritis (vomiting, fever, loin pain, rigors)	• Age < 3 months • Unwell/septic appearance • Underlying renal disease • Not able to tolerate oral antibiotics
Management	**Management**	**Management**
• Send urine sample for culture as per guidelines above • Start antibiotic treatment for 3 days: ♦ First line – Trimethoprim or Nitrofurantoin as per BNFC ♦ Second line – Nitrofurantoin or Cefalexin as per BNFC ♦ Local Policy or as culture results determine • Simple advice: ♦ Analgesia ♦ Plenty of fluids • Treat any constipation see constipation page • Agree with parents follow up for results • Provide family with written advice – see our page on UTI	• Consider referral or discussion with a paediatrician • Send urine sample for culture • Start antibiotic treatment for lower UTI: Urinary-tract infections | Treatment summaries | BNFC | NICE ♦ First line – Trimethoprim or Nitrofurantoin as per BNFC ♦ Second line – Nitrofurantoin or Cefalexin as per BNFC ♦ Local Policy or as culture results determine • If pyelonephritis / upper UTI likely and systemically well treat with: ♦ Cefalexin for 7 to 10 days as per BNFC ♦ Local Policy or as culture results determine *Antimicrobial-Paediatric-Summary-UKPAS* / CKS • Simple advice: ♦ Analgesia ♦ Plenty of fluids • Safety net advice about when to return, provide family with written advice – see our page on UTI	• Send urine sample for culture • Refer to local paediatric department for acute assessment

This guidance has been reviewed and adapted by healthcare professionals across West Yorkshire with consent from the Hampshire development groups

Investigation and management following a UTI

Clinical Assessment/Management tool for Children

Healthier Together

NHS

Primary and Community Care Settings

Atypical and Recurrent UTI

Atypical UTI includes:

- Seriously ill
- Poor urine flow
- Abdominal or bladder mass
- Raised creatine
- Septicaemia
- Failure to respond to treatment with suitable antibiotics within 48 hours
- Infection with non-E. coli organisms

Recurrent UTI:

- Refer all children with recurrent UTI to a paediatric specialist for assessment and investigations (CKS recurrent UTI in children)
- ≥2 episodes of UTI with proven acute upper UTI (acute pyelonephritis), or
- 1 episode of UTI with proven acute upper UTI plus ≥1 episodes of UTI with proven lower UTI (cystitis), or
- ≥3 episodes of UTI with proven lower UTI

Consider predisposing factors:

Constipation (WY Healthier Together constipation pathway)

Poor fluid intake (ERIC https://www.eric.org.uk/blog/how-to-get-kids-to-drink-more water)

< 6 MONTHS

Recommended imaging schedule for babies younger than 6 months:

Test	Responds well to treatment within 48 hours	Atypical urinary tract infection	Recurrent urinary tract infection
Ultrasound during the acute infection	No	Yes	Yes
Ultrasound within 6 weeks	Yes, if abnormal consider MCUG	No	No
DMSA scan 4 to 6 months after the acute infection	No	Yes	Yes
MCUG	No	Yes	Yes

6 MONTHS - 3 YEARS

Recommended imaging schedule for babies and children between 6 months to under 3 years:

Test	Responds well to treatment within 48 hours	Atypical urinary tract infection	Recurrent urinary tract infection
Ultrasound during the acute infection	No	Yes	No
Ultrasound within 6 weeks	No	No	Yes
DMSA scan 4 to 6 months after the acute infection	No	Yes	Yes
MCUG	No	Yes	No

> 3 YEARS

Recommended imaging schedule for children 3 years or older:

Test	Responds well to treatment within 48 hours	Atypical urinary tract infection	Recurrent urinary tract infection
Ultrasound during the acute infection	No	Yes	No
Ultrasound within 6 weeks	No	No	Yes
DMSA scan 4 to 6 months after the acute infection	No	No	Yes
MCUG	No	No	No

Prophylaxis

- Do not routinely give prophylactic antibiotics to babies and children following first-time UTI.
- See the NICE guideline on urinary tract infection (recurrent): antimicrobial prescribing for prophylactic antibiotic treatment for recurrent UTI in babies and children. CKS recurrent UTI in children