

# URINARY TRACT INFECTION (UTI) IN CHILDREN V1.1

## Comments from the Expert Advisory Group

UTI in children is an illness caused by infection of the lower urinary tract (cystitis), the upper urinary tract (pyelonephritis) or both.

### Upper UTI (pyelonephritis) is diagnosed in children presenting with:

- Fever  $\geq 38^{\circ}\text{C}$  and bacteriuria
- Fever  $< 38^{\circ}\text{C}$ , loin pain/tenderness and bacteriuria

### Lower UTI (cystitis) is diagnosed in children with:

- Bacteriuria and localised symptoms including lower abdominal or suprapubic pain, dysuria, urinary frequency and urgency
- No systemic symptoms or signs.

### Symptoms/signs of a UTI in children **<3 months** include:

- Fever
- Vomiting
- Lethargy
- Irritability
- Poor feeding and failure to thrive

### Symptoms/signs of a UTI in children **$\geq 3$ months** include:

- As above (fever, vomiting, lethargy, irritability, poor feeding)  
**plus**
- Abdominal pain, or,
- Loin tenderness

### Hospital referral:

- Refer unwell infants under 3 months for urgent assessment
- Refer infants  $< 6$  months to a paediatrician for follow-up.
- Refer children  $< 3$  years post atypical or recurrent UTI for imaging

### Investigations:

- Have a low threshold for testing urine of unwell children who are less than 3 years
- Perform urine dipstick in children  $\geq 3$  months with symptoms/signs of a UTI
- To help attain a clean catch sample it may be useful to apply gentle circular stimulation of the suprapubic area of the child with gauze soaked in cold water.
- If a clean catch urine sample is not possible, a nappy pad sample is a viable alternative for dipstick testing.
  - If there is a positive dipstick from a nappy pad try hard to get a clean catch sample.
  - A nappy pad sample is not suitable for formal laboratory testing as culture results are unreliable and local laboratory may not accept such samples

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\*Adapted from NICE Guidance on Management of UTI in Children (CG54)

Dipstick result on sample <4 hours old	Action
<b>Children 3 months-3 years</b>	
Leukocyte positive +/- nitrite positive	<u>Probable UTI:</u> <ul style="list-style-type: none"> <li>• Send MSU</li> <li>• Start antibiotics</li> </ul>
Leukocyte and nitrite negative	<u>Unlikely UTI:</u> <ul style="list-style-type: none"> <li>• Do not send MSU unless:               <ul style="list-style-type: none"> <li>○ Suspected upper UTI or pyelonephritis</li> <li>○ High/medium risk of serious illness</li> <li>○ Recurrent UTI</li> <li>○ When clinical symptoms and dipstick results don't correlate.</li> </ul> </li> <li>• Do not start antibiotics</li> </ul>
<b>Children over 3 years</b>	
Leukocyte and nitrite positive	<u>Probable UTI:</u> <ul style="list-style-type: none"> <li>• Send MSU IF:               <ul style="list-style-type: none"> <li>○ Child is at intermediate/high risk of serious illness, AND/OR</li> <li>○ Previous history of UTI.</li> </ul> </li> <li>• Start antibiotics</li> </ul>
Leukocyte negative and nitrite positive	<u>Possible UTI:</u> <ul style="list-style-type: none"> <li>• Send MSU if clinically suspicious of UTI and urine sample was fresh.</li> <li>• Consider starting antibiotics pending MSU result.</li> </ul>
Leukocyte positive and nitrite negative	<u>Possible UTI:</u> <ul style="list-style-type: none"> <li>• Send MSU</li> <li>• Do not start antibiotics unless clinical evidence of UTI (leukocytes may indicate infection elsewhere).</li> </ul>

The presence of pyuria and symptoms distinguishes UTI from asymptomatic bacteriuria

**Refer children <3 years post atypical or recurrent UTI for imaging.**

**Atypical urinary infection includes any of the following:**

- Failure to respond after 48h appropriate antibiotic treatment.
- Poor urine flow.
- Bladder or abdominal mass.
- Infection with non *E. coli* organism.
- Sepsis
- Abnormal renal function on blood tests.

**Recurrent urinary infection:**

- ≥1 episode of upper tract infection/pyelonephritis **and** ≥1 episode of lower tract infection **OR**
- ≥2 episodes of upper tract infection/pyelonephritis **OR**
- ≥3 episodes of lower urinary tract infection or cystitis.

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## Treatment

UPPER URINARY TRACT INFECTION EMPIRIC ANTIBIOTIC TREATMENT TABLE			
Drug	Dose	Duration	Notes
<b>1st choice option</b>			
Cefalexin	<a href="#">See dosing table</a>	7-10 days	
<b>2nd choice option</b>			
Co-amoxiclav	<a href="#">See dosing table</a>	7-10 days	

LOWER URINARY TRACT INFECTION EMPIRIC ANTIBIOTIC TREATMENT TABLE			
Drug	Dose	Duration	Notes
<b>1st choice options</b>			
Trimethoprim*	<a href="#">See dosing table</a>	3 days	
Nitrofurantoin*	<a href="#">See dosing table</a>	3 days	Nitrofurantoin liquid is an unlicensed product. Please contact community pharmacist to discuss availability.
Cefalexin	<a href="#">See dosing table</a>	3 days	

\*safe in penicillin allergy

Do not send a “test of cure” MSU if child has had a good clinical response to antibiotic therapy.

## Patient Information

[HSE A to Z Urinary tract infections](#)