# Suspected Urinary Tract Infection

**Clinical Assessment/Management tool for Children**

## Management - Acute Setting

### Suspected UTI?

- Fever with no clear focus
- Vomiting
- Poor feeding
- Lethargy
- Irritability
- Abdominal pain
- Dysuria/frequency
- Loin pain

### Consider differential diagnoses:
- Sepsis, meningitis, GI obstruction, appendicitis, gastroenteritis.
- Other differentials for dysuria/discomfort include vulvovaginitis and threadworms.

### Do the symptoms and/or signs suggest an immediately life threatening illness?

- Yes
  - Contact Lead ED / Paediatric doctor
  - Consider moving to resuscitation area

### Management - Acute Setting

**If fever ≥38°C, see fever pathway**

<table>
<thead>
<tr>
<th>Green – Low risk</th>
<th>Amber – Intermediate risk</th>
<th>Red – high risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemically well, temp &lt;38°C (all children &lt;3 months of age with presumed UTI need urgent 2° care review)</td>
<td>Temp ≥38°C but haemodynamically stable (see table 1 - normal ranges for HR and RR)</td>
<td>Fever ≥ 38°C in a child under 3 months or features suggestive of sepsis (<a href="#">see sepsis pathway</a>) / haemodynamic instability (see table 1)</td>
</tr>
</tbody>
</table>

### Urgent Action

- **Urgent senior review**
- **Bloods including FBC, U+E, CRP, blood gas and blood culture.**
- **Fluid resuscitation as required**
- **Administer IV Abs (See box 2)**

### Provide family with UTI safety netting sheet

**Arrange follow-up / imaging as required (see boxes 3&4)**

**If recurrent UTIs (see box 3), review risk factors (see box 5)**

**Think safeguarding**

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**Patient presents Suspected UTI?**

### Able to obtain urine sample? (see box 1)

- **Yes**
  - If nitrites or leuk +ve, send for culture (see box 1) and treat empirically (see box 2)
  - If nitrites and leuk both +ve, send for culture. If culture +ve, treat with oral Abs based on sensitivities and seek paediatric advice

- **No**
  - If nitrites and leuk both -ve, UTI unlikely. Do not send for culture.
  - If nitrites +ve, treat empirically as UTI (see box 2). No need to send culture.
  - If leuk +ve but nitrites -ve, consider alternative diagnosis. If good clinical evidence of UTI, send culture (see box 1) and treat empirically awaiting culture results (see box 2)

### Under 3 Months

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<tr>
<th>If nitrites or leuk both +ve, send for culture (see box 1) and treat empirically (see box 2)</th>
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### 3 months to <3 years

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### ≥3 years

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### In a child under 3 months, a negative urine dip does not exclude a UTI.

### Provide family with UTI safety netting sheet

**Arrange follow-up / imaging as required (see boxes 3&4)**

**If recurrent UTIs (see box 3), r/v risk factors (box 5)**

**Think Safeguarding**

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**GMC Best Practice recommends: Record your findings ([See “Good Medical Practice”](http://bit.ly/1DPXl2b))**

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This writing of this guideline involved extensive consultation with healthcare professionals in Wessex.

This document was arrived at after careful consideration of the evidence available including but not exclusively NICE, SIGN, EBM data and NHS evidence, as applicable. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement.

The guidance does not, however, 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 carer.
Management - Acute Setting

Table 1: Normal Paediatric Values:

<table>
<thead>
<tr>
<th>(APLS*)</th>
<th>Respiratory Rate at rest (b/min)</th>
<th>Heart Rate (b/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 year</td>
<td>30 - 40</td>
<td>110 - 160</td>
</tr>
<tr>
<td>1 - 2 years</td>
<td>25 - 35</td>
<td>100 - 150</td>
</tr>
<tr>
<td>&gt; 2 -5 years</td>
<td>25 - 30</td>
<td>95 - 140</td>
</tr>
<tr>
<td>5 - 12 years</td>
<td>20 - 25</td>
<td>80 - 120</td>
</tr>
<tr>
<td>Over 12</td>
<td>15 - 20</td>
<td>60 - 100</td>
</tr>
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Box 1

Urine collection and preservation

- Clean catch is recommended method. Gentle suprapubic cutaneous stimulation using gauze soaked in cold fluid helps trigger voiding*
- If absolutely unavoidable pads / bags must be put on clean skin and checked very regularly to minimise contamination risk
- Unless urine can get straight to lab preservation in a boric acid (red top) container will allow 48 hours delay

*Urine collection in infants Kaufmann et al BMJ open

Box 2

Treatment

≤3 month: treat as pyelonephritis (refer to paediatrics)

>3 months of age:
If unable to tolerate oral Abs or systemically unwell (suggestive of bacteraemia), requires consideration of IV antibiotics— refer to paediatrics.
- Lower UTI: trimethoprim (4mg/kg (max 200mg/dose) 12 hourly for 3 days). If previous treatment with trimethoprim in preceding 3 months, use nitrofurantoin if able to swallow tablets (age 12-18 years 50mg 6 hourly) for 3 days or cefalexin 25mg/kg 8 hourly for 3 days (max 1g/dose). If confirmed severe penicillin allergy and unable to swallow nitrofurantoin tablets, prescribe ciprofloxacin 20mg/kg 12 hourly for 3 days (max 750mg/dose).
- Upper UTI/pyelonephritis: cefalexin (25mg/kg 8 hourly (max 1g/dose) for 7 days). If severe penicillin allergy, use ciprofloxacin 20mg/kg 12 hourly for 7 days (max 750mg/dose).
- For more information about treatment, see Wessex empirical antibiotic guide / microguide.

Box 3

Who needs imaging?

Ultrasound:
- Under 6 months - within 6 weeks, acutely if atypical** or recurrent*** infection
- Over 6 months - not routinely, acutely if atypical** infection, within 6 weeks if recurrent*** infection.

DMSA:
- Atypical** infections under 3 years
- Recurrent*** infections at all ages

MCUG:
- Under 6 months with atypical** or recurrent*** infections
- Consider in all under 6 months with abnormal ultrasound.
- Consider 6-18 months if non E-Coli UTI, poor flow, dilatation on US or family history VUR

**Atypical UTI = seriously ill sepsis, poor urine flow, non E-Coli, abdominal or bladder mass, raised creatinine, failure to respond in 48 hours
*** Recurrent UTIs = ≥3 lower UTIs, ≥2 upper UTIs or 1 upper and 1 lower UTI

Box 4

Who needs paediatric follow-up?

- Children with recurrent UTIs not responding to simple advice (see risk factors)
- Children with abnormal imaging or if appropriate imaging cannot be arranged in primary care

Box 5

Risk factors for recurrent UTIs

- Constipation
- Poor fluid intake
- Infrequent voiding esp at school (holding on)
- Irritable bladder (can happen following UTI)
- Neuropathic bladder
  - Examine spine
- Genitourinary abnormalities
  - Examine genitalia

For further information, see NICE guidelines: https://pathways.nice.org.uk/pathways/urinary-tract-infection-in-under-16s#path=view%3A/pathways/urinary-tract-infection-in-under-16s/diagnosing-urinary-tract-infection-in-under-16s.xml&content=view-index