Urinary Tract Infection

Urinary tract infection (UTI) refers to a bacterial infection in the bladder (cystitis), or kidneys and ureters (pyelonephritis).

**Background**

- Urinary tract infections in childhood are common and can be potentially serious in the first few years of life
- The diagnosis of UTI should be considered in all febrile infants and young children, and in all infants with fever without focus

**Assessment**

- A reliable urine specimen is vital to confirm the diagnosis – **urine bags must not be used** (high false positive rate)
- Suprapubic aspiration is the gold standard in infants less than 6 months, however catheter specimens can be used. In children over 6 months, catheter specimens are the preferred choice if a clean catch specimen has not been achieved by **45 minutes**
- In febrile young children who have a **definite clear alternative clinical diagnosis**, it is **not** necessary to check a urine collection in order to exclude a UTI

**History**

- Fever may be present, particularly fever without apparent source
- Irritability
- Poor feeding
Investigations

- **Urinalysis** - this is not accurate in infants under 12 months – so cannot be used to exclude a UTI. The only urinalysis results reliably predictive of a UTI are the leukocyte esterase and nitrites.
- Urine should be sent to the laboratory for microscopy and culture. This must be done urgently in infants < 6 weeks of age in whom a UTI is suspected. After hours a microbiology technician will need to be called in after discussing with the on call Microbiologist.
- A reliable urine specimen is vital to confirm the diagnosis – SPA, CSU, clean catch or MSU (in older kids)
- Urine cultures may be negative if there is previous antibiotic treatment
- Children who are systemically unwell and all infants < 3 mths should have blood tests including: FBC, blood cultures, CRP, U&E
- Lumbar punctures should be done in neonates and children < 6 weeks

<table>
<thead>
<tr>
<th>Investigations for age group</th>
<th>Birth to 6 weeks of age</th>
<th>6 weeks to 3 months of age</th>
<th>Over 3 months of age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FBC, CRP, U&amp;E, blood cultures, Urine - SPA, Lumbar puncture</td>
<td>FBC, CRP, U&amp;E, blood culture, Urine - SPA best, but can do catheter, Consider lumbar puncture only if toxic signs present</td>
<td>Toxic signs present: FBC, CRP, U&amp;E, blood cultures, Urine - SPA or catheter in children &lt; 6 months, or catheter if you have waited for &gt; 45 mins for a clean catch in older children, Consider lumbar puncture (if clinically indicated) <strong>Appears unwell but no toxic signs:</strong> Urine - SPA or catheter in children &lt; 6 months, or catheter if you have waited for &gt; 45 mins for a clean catch in older children <strong>Appears well:</strong> Urine - SPA or catheter in children &lt; 6 months, or catheter if you have waited for &gt; 45 mins for a clean catch in older children</td>
</tr>
</tbody>
</table>

Management

Refer to ChAMP Urinary Tract Infection Guideline
<table>
<thead>
<tr>
<th>Toxic signs present:</th>
<th>Admit under General Paediatric Team</th>
<th>Intravenous antibiotics: Amoxycillin and Gentamicin or Ceftriaxone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Admit under General Paediatric Team</td>
<td>Intravenous antibiotics: Amoxycillin and Gentamicin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appears unwell but no toxic signs:</th>
<th>Admit under General Paediatric Team</th>
<th>Intravenous antibiotics: Amoxycillin and Gentamicin or Ceftriaxone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discharge home on oral antibiotics: Cephalaxin or Cotrimoxazole or Augmentin Duo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GP follow up in 48-72 hours to check urine culture and sensitivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Request renal US based on child’s age as per referral instructions below</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appears well:</th>
<th>Discharge home on oral antibiotics: Cephalaxin or Cotrimoxazole or Augmentin Duo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GP follow up in 48-72 hours to check urine culture and sensitivity</td>
</tr>
<tr>
<td></td>
<td>Request renal US based on child’s age as per referral instructions below</td>
</tr>
</tbody>
</table>

### Medications

**Oral antibiotic choices for patients who are being discharged from the Emergency Department include:**

- Augmentin Duo 25mg/kg twice daily (to a maximum of 875mg of amoxycillin component)
  - OR
  - Cotrimoxazole 4mg/kg twice daily (to a maximum dose of 160mg trimethoprim)
  - OR
  - Cephalaxin 12.5mg/kg 6 hourly (maximum 500mg)

The duration of treatment should be:

- 5 days for children
- 7 days if they are more unwell
- 10 days for infants under 12 months

**Intramuscular (IM) antibiotic choices for patients who are being discharged from the Emergency Department include:**

- Gentamicin 6mg/kg (to a maximum of 480mg)
  - OR
  - Ceftriaxone 50mg/kg (maximum 2g)

**Intravenous antibiotic choices for children being admitted to hospital include:**

- Amoxycillin 50mg/kg 6 hourly (maximum 1g) plus Gentamicin 7.5mg/kg (< 10 years old) or 6mg/kg (>10 years old) (maximum 480mg)
  - OR
  - Ceftriaxone 50mg/kg once daily (maximum 2g) – if penicillin allergy

See [UTI: ChAMP Empiric Guideline](#) for further information.

Prophylaxis is not routinely used after the first documented UTI.

### Referrals and follow up

**Renal Tract Ultrasounds:**
• All children <3 yrs presenting with a first UTI should have a renal tract US
• A renal tract ultrasound is not always necessary for children aged 3 years or older with a simple UTI, however:
  ◦ Children of any age with recurrent urinary tract infections should have a renal tract ultrasound (non urgent)
  ◦ Children any age with an atypical UTI or UTI responding poorly to treatment should have a renal tract ultrasound (urgent)

GP Follow Up:

• All children presenting with a UTI should have a GP follow up and a GP letter completed (see UTI GP Letter).
• In children > 6 mths, GP will arrange an outpatient renal tract US

Referral to General Paediatric Team:

• Infants ≤ 6 mths presenting with a UTI should be referred to the General Paediatric Outpatient Clinic at PMH. Complete an internal referral form.
• A PMH radiology request form should be completed for a renal tract US, and this placed with the Outpatient Clinic referral form in the ED Consultant’s office. The Consultant checking results will send these off if a UTI is proven on culture.

Advise parents if the US is abnormal, the General Paediatric Team will arrange a clinic follow up.

Management Paperwork

- UTI GP Letter Interactive
- UTI Mgt Plan 6mth to 3 yrs Interactive 13012015
- UTI Mgt Plan under 6 months Interactive 13012015

References


This document can be made available in alternative formats on request for a person with a disability.

<table>
<thead>
<tr>
<th>File Path:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Owner:</td>
<td>Dr Meredith Borland HoD, PMH Emergency Department</td>
</tr>
</tbody>
</table>
### Urinary Tract Infection

<table>
<thead>
<tr>
<th>Reviewer / Team:</th>
<th>Kids Health WA Guidelines Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date First Issued:</td>
<td>20 August, 2013</td>
</tr>
<tr>
<td>Last Reviewed:</td>
<td>18 November, 2015</td>
</tr>
<tr>
<td>Approved by:</td>
<td>Dr Meredith Borland</td>
</tr>
<tr>
<td>Endorsed by:</td>
<td>Medical Advisory Committee</td>
</tr>
<tr>
<td>Standards Applicable:</td>
<td>NSQHS Standards:</td>
</tr>
</tbody>
</table>

**Printed or personally saved electronic copies of this document are considered uncontrolled**