Urinary Tract Infection (UTI) in Children

Evelina London Children's Hospital

Suspect UTI clinically from signs/symptoms

Consider UTI in an infant of child with the following signs or symptoms

< 3 months old

Refer immediately to on-call paediatric team

> 3 months old

Assess the risk of serious illness in line with "Feverish Illness in Children (figure 1) If high refer to on-call Paeds team

3 months to 3 years old - Use Microscopy and culture to diagnose UTI

No specific urinary symptoms

Clinically Well

Clinically Unwell

Urine dip Nitrite -ve

Urine dip Nitrite +ve

Send sample to lab (ideally 2)
Do not give ABx unless MC&S +ve

Specific urinary symptoms present

> 3 years old

Dipstick fresh urine sample

Leuc +ve Nitrite +ve

Leuc –ve Nitrite +ve

Leuc +ve Nitrite –ve

Leuc –ve Nitrite –ve

Do not give ABx unless MC&S +ve

Not a UTI

Consider other diagnoses eg. vulvovaginitis

Send sample to lab (ideally 2)

Signs of upper tract infection
- Bacteruria and Temp >38°C
- Loin pain/tenderness

YES

If acutely unwell or any concerns about sepsis – refer to paediatric on call team

If no signs of sepsis
Treat with PO ABx, with a low resistance profile for 7-10 days eg Co Amoxiclav or ciprofloxacin (if allergic to penicillin)

NO

Treat with PO ABx for 3 days (1st line Trimethoprim or nitrofurantoin)

Reassess after 24-48hrs if still unwell

Is imaging or follow up required?

	Typical UTI ▪ No features of an atypical or recurrent UTI present	**Atypical UTI – 1 or more of below** ▪ Seriously ill/sepsis ▪ Poor urinary flow ▪ Abdominal mass ▪ Raised creatinine(routine U&E not required) ▪ Non E.coli organismcultured ▪ Failure to respond to Rx within 48 hrs	**Recurrent UTI** ▪ ≥ 3 lower tract UTIs ▪ ≥ 2 upper tract UTI's ▪ 1 upper tract and ≥ 2 lower tract UTI's
Under 6 months old	- Arrange a routine USS within 6 weeks. - If USS abnormal refer to paediatric OPD	- Arrange an acute USS within 1 week - Refer to paed OPD for further investigation	- Arrange an acute USS within 1 week - Refer to paed OPD for further investigation
6 months to 3 years old	- No imaging or follow up required	- Arrange an acute USS within 1 week UNLESS the only atypical feature is that it is a non E.coli organism, where the USS can be within 6 weeks. - Refer to paed OPD for further investigation	- Arrange a routine USS within 6 weeks. - Refer to paed OPD for further investigation
More than 3 years old	- No imaging or follow up required	- Arrange acute USS within 1 week UNLESS the only atypical feature is that it is a non E.coli organism, where the USS can be within 6 weeks. - If USS abnormal refer to paediatrics	- Arrange a routine USS within 6 weeks. - Refer to paediatrics for further investigation

TOP TIPS

- Interpreting urine culture can be difficult as contamination is common
- Try to send 2 clean catch samples before starting antibiotics
- NEVER use bags to collect urines for MC&S as this increases the risk of contamination significantly
- A urine with a bacterial growth <10^5 cfu/ml and no WCC is unlikely to be a true UTI
- A urine that has a mixed growth with a bacterial count >10^5 cfu/ml may be a true UTI, especially if WCC are present
- If you are unsure if the result is a true UTI, discuss with your local Paed or Micro team before requesting further investigations
- Important to discuss the importance of completing treatment to parents and taking preventative measures e.g wiping front to back.

For further information please refer to the full NICE guidance (CG54) http://guidance.nice.org.uk/CG54

Fig.1.

	Green—Low risk	Amber—Intermediate risk	Red—High risk
Colour (of skin, lips, or tongue)	Normal colour	Pallor reported by parent or carer	Pale, mottled, ashen, or blue
Activity	Responds normally to social cues Content or smiles Stays awake or awakens quickly Strong normal cry or not crying	Not responding normally to social cues No smile Wakes only with prolonged stimulation Decreased activity	No response to social cues Appears ill to a healthcare professional (see box of definitions of terms) Does not wake, or if roused does not stay awake Weak, high-pitched, or continuous cry
Respiratory		Nasal flaring Tachypnoea: Respiratory rate (RR) >50 breaths/min at ages 6–12 months RR >40 breaths/min at ages >12 months Oxygen saturation ≤95% in air Crackles in the chest	Grunting Tachypnoea: RR > 60 breaths/min Moderate or severe chest indrawing
Circulation and hydration	Normal skin and eyes Moist mucous membranes	Tachycardia: >160 beats/min at age <12 months >150 beats/min at age 12-24 months >140 beats/min at age 2-5 years Capillary refill time ≥3 seconds Dry mucous membranes Poor feeding in infants Reduced urine output	Reduced skin turgor
Other	None of the amber or red symptoms or signs	Temperature ≥39°C at ages 3–6 months Fever for ≥5 days Rigors (see definitions box) Swelling of a limb or joint Non-weight bearing limb or not using an extremity	Temperature ≥38°C at ages <3 months Non-blanching rash Bulging fontanelle Neck stiffness Status epilepticus Focal neurological signs Focal seizures

This traffic light table should be used in conjunction with the recommendations in this guideline on investigations and initial management in children with fever

For same/next day Paediatric advice from Paediatric consultant:

- **Evelina** : **Phone** : 07557 159092 (11am-7pm weekdays)
- **Evelina** : **Email:** general.paediatrics@nhs.net (answer within 24hrs on weekdays)

- **KCH** : **Phone:** 02032996613 (option 3), (8.30am – midnight weekdays, 8 30am - 8pm weekend)
- **KCH** : **Email** :via Choose and Book for a response within 24 hrs Mon-Fri.

For General Paediatrics referral

KCH : via Choose and Book

Evelina : Letter FAO General Paediatrics by :

- Post : Sky Level 6, Evelina London Children's Hospital
- Fax: 020 7188 4612, or
- Email: mailto:general.paediatrics@nhs.net

NB : Specialist Paediatric Kidney services are at the Evelina Children's Hospital : if in doubt re referral discuss with same/next day Paediatric consultant advice service (above)