Suspected Urinary Tract Infection

Clinical Assessment/ Management tool for Children

Management - Primary Care and Community Settings

Patient presents

If fever ≥38°C, also see fever pathway

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.

Green – Low risk	Amber – Intermediate risk	Red – high risk
Systemically well, temp <38°C	Temp ≥38°C but haemodynamically stable (see table 1 - normal ranges for HR and RR)	Fever ≥ 38°C in a child under 3 months or features suggestive of sepsis / haemodynamic instability (see table 1)

Urgent Action

- Refer immediately to emergency care – consider 999
- Alert Paediatrician
- If sepsis, consider antibiotics if transfer time will be >1 hour (Benzylpenicillin IM 300mg age <1 year, 600mg age 1-9 years, 1.2g > = 10 years)

Hospital Emergency Department / Paediatric Unit

Green – Low risk

Able to obtain urine sample? (see box 1)

Yes

Under 3 Months	3 months to <3 years	≥3 years
• IIf nitrites or leuc +ve, send for culture (see box 1) and speak to paediatrics • If nitrites and leuc both -ve, send for culture and speak to paediatrics if clinical concern. If culture +ve, treat with oral Abs based on sensitivities and speak to paediatrics.	• If nitrites and leuc both -ve, UTI unlikely. Do not send for culture • If nitrites +ve or leuc +ve, send for culture (see box 1) and treat empirically (see box 2)	• IIf nitrites and leuk both -ve, UTI unlikely. Do not send for culture. • If nitrites +ve, treat empirically as UTI (see box 2). Send culture in case of treatment failure. • 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)

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**

No

- Provide family with collection pot (to return with sample within next 6-12 hours). If OOH setting and appropriate, give family bottle for urine collection- can attend own GP when open next day for dipstick +- send for culture (see box 1)
- Provide fever safety netting sheet

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

Amber – Intermediate risk

Able to obtain urine sample? (see box 1)

Yes

- If nitrites and leuc both -ve, UTI unlikely. Do not send for culture unless under 3months.
- If nitrites and/or leuc +ve on dipstick, assume UTI. Send sample for culture (see box 1) and treat empirically as upper UTI awaiting culture results (see box 2). Under 3m speak to paediatrics
- If child ≥3 years of age and dipstick +ve only for leuc, consider alternative diagnosis

No

- If features of pyelonephritis (loin pain, abdominal pain, vomiting, high spiking fever), needs referral to 2° care.
- If otherwise well, give family a collection pot (to return with sample within next 6-12 hours). If OOH GP setting, consider treating empirically as upper UTI (see box 2) but give family bottle for urine collection before starting Abs- attend own GP next day for dipstick+- send for culture. .
- Provide fever safety netting sheet

Provide family with **UTI safety netting sheet**
Arrange follow-up / imaging as required (see boxes 3-4)
If recurrent UTI's (see box 3), r/v risk factors (box 5)
Think **Safeguarding**

First version NMay 2021 Review date: May 2023

CS50217

Suspected Urinary Tract Infection

Clinical Assessment/ Management tool for Children

Management - Primary Care and Community Settings

Table 1: Normal Paediatric Values:

(APLS*)	Respiratory Rate at rest (b/min)	Heart Rate (b/min)
< 1 year	30 - 40	110 - 160
1 - 2 years	25 - 35	100 - 150
> 2 -5 years	25 - 30	95 - 140
5 - 12 years	20 - 25	80 - 120
Over 12	15 - 20	60 - 100

* Advanced Paediatric Life Support The Practical Approach Fifth Edition Advanced Life Support Group Edited by Martin Samuels; Susan Wieteska Wiley-Blackwell / 2011 BMJ Books.

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. Some labs will not allow this in the under 5's.

*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.

- Please refer to SCAN microguide for antibiotics choice in lower and upper UTI's in children. https://viewer.microguide.global/SCAN/SCAN

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 months- 3 years if non E-Coli UTI, poor flow, dilatation on USS 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://www.nice.org.uk/guidance/cg54

This guidance was written in collaboration with the SE Coast SCN and involved extensive consultation with healthcare professionals in Frimley, Wessex and Wexam