Suspected Urinary Tract Infection

Clinical Assessment/ Management tool for Children

Management - Primary Care and Community Settings

Healthier Together

NHS

Patient presents

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 (see sepsis pathway) / 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 300mg age <1 year, 600mg age 1-9 years, 1.2g > = 10 years)

Hospital Emergency Department / Paediatric Unit

Able to obtain urine sample? (see box 1)

Yes

Under 3 Months	3 months to <3 years	≥3 years
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	•If nitrites and leuk both -ve, UTI unlikely. Do not send for culture •If nitrites +ve or leuk +ve, send for culture (see box 1) and treat empirically. (see box 2) •	• If nitrites and leuk both -ve, UTI unlikely. Do not send for culture. • If nitrites +ve,lueocytes negative send for culture and treat empirically as UTI (see box 2). • 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, give family red bottle for urine collection - attend own GP when next open 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.

Able to obtain urine sample? (see box 1)

Yes

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

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

No

- If features of pyelonephritis (loin pain, abdominal pain, vomiting, high spiking fever), needs referral to secondary 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 red bottle for urine collection before starting Abs- attend own GP when next open for dipstick+- send for culture.
- Provide fever safety netting sheet.

Microbiology

UTI is only confirmed by laboratory evidence of single growth of bacteria >10 to the power of 5

CS50217

This guidance has been reviewed and adapted by healthcare professionals across HWE with consent from the Healthier Together Steering group.

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.

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Table 1: Normal Paediatric Values:

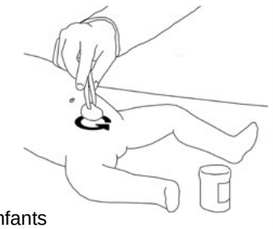
(APLS*)	Respiratory Rate at rest (b/min)	Heart Rate (b/min)
< 1 year	30 - 40	110 - 160
1 - 2 years	25 - 35	100 - 150
> 2 -5 years	25 - 30	95 - 140
5 - 12 years	20 - 25	80 - 120
Over 12	15 - 20	60 - 100

* 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



*Urine collection in infants
Kaufmann et al BMJ open

Box 2

Treatment

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

>3 months of age:

If unable to tolerate oral Abs or systemically unwell (suggestive of bacteraemia), requires consideration of IV antibiotics– refer urgently to paediatrics. Otherwise start oral antibiotics.

Refer NICE guidance for more information on treatment of both lower UTI and upper UTI (pyelonephritis).

Scenario: UTI in children | Management | Urinary tract infection - children | CKS | NICE

Refer to BNFC for antibiotic dosing.

Urinary-tract infections | Treatment summaries | BNFC | NICE

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 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: UTI Management guidance for Under 16s

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