Management of suspected Urinary Tract Infection in Children —Primary Care & Community

NHS Cheshire Clinical Commissioning Group

Patient Presents

Suspected UTI?		
Fever with no clear focus*	Irritability	Dysuria / frequency
Poor Feeding	Lethargy	Loin pain
Vomiting	Abdominal Pain	
* If fever $\geq$ 38°C in child under 5 see fever pathway		

Consider Differential Diagnosis

sepsis, meningitis, GI obstruction, appendicitis, gastroenteritis.
Other differentials for Dysuria / discomfort include vulvovaginitis / Threadworm

Low Risk	Intermediate Risk	High Risk
Systemically unwell. 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 (table 1)

Low Risk

Able to obtain Urine Sample? (box 1)

Yes

If nitrites and/or leuk +ve on dip-stick, assume UTI. Send sample for culture if nit or leuk

+ve, and in all children under 3 years of age. Hold off Abs awaiting urine micro/ culture in children under 3 years with – ve dipstick

No

Provide family with collection pot (to return with sample within next 6 -12 hours). If OOH setting, give family red top sample pot or green monovette bottle for urine collection storage in fridge - attend own GP when next open for dip-stick +- send for culture.

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

Treat as presumed lower UTI (see box 2)
Arrange follow-up / imaging as required (see boxes 3-4)
If recurrent UTI's, r/v risk factors (box 5)
Think **Safeguarding**

Intermediate Risk

Able to obtain Urine Sample? (box 1)

Yes

If nitrites and/or leuk +ve on dipstick, assume UTI. Send sample for culture if nit or leuk +ve and in all children under 3 years of age (start Abs awaiting urine micro/ culture if strong clinical suspicion of UTI). If OOH setting, place in red top sample pot or green monovette bottle and store in fridge until collection)

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, prescribe Abs but give family red top sample pot or green monovette for urine collection before starting Abs- for storage in fridge - attend own GP when next open for dipstick +- send for culture. Provide fever safety netting sheet.

Treat as presumed upper UTI (see box 2) Provide family with **UTI safety netting sheet** Review with urine micro/culture results.
Arrange follow-up / imaging as required (see boxes 3-4)
If recurrent UTI's, r/v risk factors (box 5)

High Risk

URGENT ACTION

Refer immediately to emergency care, consider 999.

- Countess of Chester - 01244 365000, bleep Paediatric Registrar
- Macclesfield District Hospital - 01625 42100 bleep 3494
- Leighton Hospital—01270 255141, bleep Paediatric Registrar

Alert the paediatricians
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)

URGENT ACTION

Hospital Emergency Department, Paediatric Unit

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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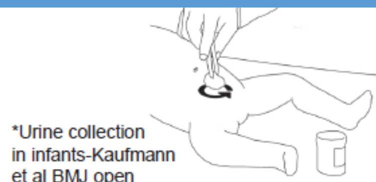
Table 1: Normal paediatric values

APLS[T]	Respiratory rate at rest (b/min)	Heart rate (bpm)
<1	30-40	110—160
1-2 yrs	25-35	100—150
>2-5 yrs	25-30	95—140
5-12 yrs	20-25	80-120
>12 yrs	15-20	60—100

[T] Advanced paediatric Life Support The Practical Approach 5th 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*
- If absolutely unavoidable pads / bags must be put on clean skin and checked regularly to minimise contamination risk.
- Unless urine can get straight to lab preservation in a boric acid (red top sample pot or green top monovette) container will allow a 48 hour delay.



*Urine collection in infants-Kaufmann et al BMJ open

Box 2: Treatment

≤ 3 months: 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 preding 3 months, use nitrofurantonin 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)

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 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

- Contstipation (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

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