Suspected Urinary Tract Infection

Clinical Assessment/ Management tool for Children

Management - Primary Care and Community Settings

Patient presents

If fever ≥38°C in child under 5 years, **see fever pathway**

Suspected UTI ?

- Fever with no clear focus
- Vomiting
- Poor feeding
- Lethargy
- Irritability
- Abdominal pain
- Dysuria/frequency
- Loin pain

SEPSIS or FEVER ≥38°C UNDER 3 MONTHS OF AGE → Yes → Urgent Action

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)

Green – Low risk

Able to obtain urine sample? (see 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. 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 bottle for urine collection for storage in fridge - attend own GP when next open for dipstick +- send for culture. Provide **fever safety netting sheet.**

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

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

Amber – Intermediate risk

Able to obtain urine sample? (see 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 bottle and store in fridge until collection)

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)
Think **Safeguarding**

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 bottle 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

Red – high risk

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

GMC Best Practice recommends: Record your findings (See "Good Medical Practice" http://bit.ly/1DPXI2b)

First Draft Version: November 2017 Review Date: November 2019.

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

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:

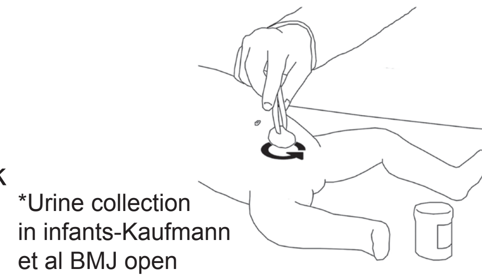
(APLS*)	Respiratory Rate at rest (b/min)	Heart Rate (b/min)
< 1 year	30 - 40	110 - 160
1 - 2 years	25 - 35	100 - 150
> 2 -5 years	25 - 30	95 - 140
5 - 12 years	20 - 25	80 - 120
Over 12	15 - 20	60 - 100

* 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*
- 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 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 preceding 3 months, use nitrofurantoin 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).
- For more information about treatment, see **Wessex guidelines for antibiotic prescribing** in the community 2017

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: https://pathways.nice.org.uk/pathways/urinary-tract-infection-in-under-16s#path=view%3A/pathways/urinary-tract-infection-in-under-16s/diagnosing-urinary-tract-infection-in-under-16s.xml&content=view-index

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