UTI in children interactive workshop

Log into **web.meetoo.com** and enter Meeting ID **194-518-924**

Case 1

- 5 year old girl
- Stinging on passing urine / urinary frequency since 24 hours
- Multiple previous episodes of UTI treated with oral trimethoprim since previous 6 months
- Apyrexial, systemically well
- Urine dipstick (clean catch) –ve for leukocytes and nitrites

QUESTIONS?

What would you do?

- Send urine for microscopy/culture and start antibiotics empirically
- Send urine for microscopy/culture and only start antibiotics if culture positive
- No need to send urine for culture – start antibiotics empirically
- No need to send urine for culture – no need to start antibiotics

Further information

- Significant vaginal itching, especially at night
- Thoughts?

Consider differential diagnoses: sepsis, meningitis, GI obstruction, appendicitis, gastroenteritis.

Other differentials for dysuria/discomfort include vulvovaginitis and threadworms.

Vulvovaginitis and threadworms

- In this case, vulvovaginitis exacerbated by presence of threadworms

- Threadworms (pinworms)
  - Treat with mebendazole
  - Break cycle (ingestion o f eggs after scratching bottom) by obsessive handwashing after using toilet, keeping nails short, wash sleepwear/sheets/towels and soft toys (at normal temperature) and make sure children wear underwear at night (change it in the morning)

- Vulvoganinitis
  - Recommend loose cotton underwear and avoid tight trousers
  - Avoid excessive soap in bath (rinse properly afterwards) and avoid bubble bath

Case 2

- 5 year old girl
- Dysuria
- No fever / systemically well
- Urine dipstick – nitrites +ve, leuk +ve

QUESTIONS?

What would you do?

- Send urine for microscopy/culture and start antibiotics empirically
- Send urine for microscopy/culture and only start antibiotics if culture positive
- No need to send urine for culture – start antibiotics empirically
- No need to send urine for culture – no need to start antibiotics

OOH urine sample

- If urine cannot be sent to the laboratory immediately, preservation in boric acid (red top) can allow delay of up to 48 hours

Which antibiotic would you start empirically (not penicillin allergic)?

- Trimethoprim
- Nitrofurantoin
- Cefalexin
- Augmentin
- Co-amoxiclav

Recurrent UTIs

- This child has had 5 lower UTIs (culture positive) in past 2 years

Does this child need renal imaging (USS)?

- Yes
- No

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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

ANY OTHER THOUGHTS?

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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

Constipation

- Hx of constipation
  - Managed previously with lactulose PRN
- Managed with movicol
- Resolution of constipation and UTIs

Case 3

- 6 week old baby with temperature 38.5° since this am
- HR 170, RR 54, capillary refill 2 seconds

- Previous child had recurrent UTIs in infancy
- Dipstick positive – leuk/nitrites

What would you like to know?

What would you do?

- Manage with oral trimethoprim
- Hold off antibiotics awaiting urine culture
- Transfer to hospital for urgent paediatric review
- Call 999

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Red – high risk

Fever ≥ 38°C in a child under 3 months or features suggestive of sepsis (**see sepsis pathway**) / haemodynamic instability (see table 1)

Febrile UTIs in infants and children

- Fever associated with a UTI suggests an upper renal tract infection (rather than simple cystitis) and should be managed accordingly.
- Likelihood of associated bacteraemia in infants with UTI = 5-10%
- Very low risk of concomitant meningitis in a child >1 month with UTI (+- bacteraemia)

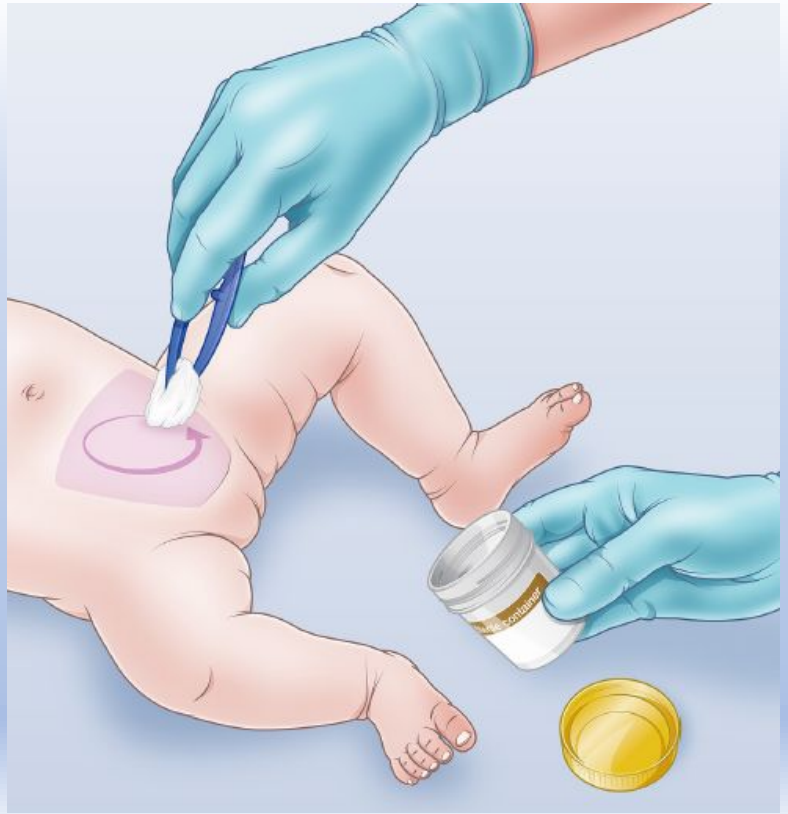
The Age-Related Risk of Co-Existing Meningitis in Children with Urinary Tract Infection

Bacteraemia common in young children with UTI (Schnadowner et al. Pediatrics 2010) – 6.5% in children aged 29-60 days

Age group	Number of episodes (n = 748)	Number of cases with co-existing meningitis (n = 2)
<1 month	163 (21.8%)	2 (1.2%; 95% CI: 0.15–4.36%)
1–2 months	304 (40.6%)	0 (95% CI: 0.00–1.25%)
3–5 months	129 (17.2%)	0 (95% CI: 0.00–2.82%)
6–11 months	66 (8.8%)	0 (95% CI: 0.00–5.44%)
12–23 months	32 (4.3%)	0 (95% CI: 0.00–10.89%)
24–59 months	21 (2.8%)	0 (95% CI: 0.00–16.11%)
≥5 years	33 (4.4%)	0 (95% CI: 0.00–10.58%)

Tebruegge M et al. PLoS One. 2011; 6(11)

Tips for collecting urine in infants



Intervention: suprapubic stimulation with gauze soaked in cool fluid.
Results: Rate of voiding within 5 mins = **31%** (versus 12% with conventional clean catch approach)

Quickwee method: Kaufmann at al. BMJ 2017

No justification for ever collecting urine in a urine bag

Case 4

- 13 year old girl
- Fever, loin pain, shivering since 2 days
  - Thought she had the flu initially
  - Temp 39.5°, HR 100, RR 20
  - Urine dipstick: nitrites +ve, leuk +ve

QUESTIONS?

Not vomiting, not haemodynamically unstable

What would you do?

- Manage in primary care with oral Abs
- Refer to secondary care

Would you send the urine for culture?

- Yes
- No

Choice of oral Abs (not penicillin allergic)

- Trimethoprim
- Ciprofloxacin
- Nitrofurantoin
- Cefalexin
- Augmentin

Treatment

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

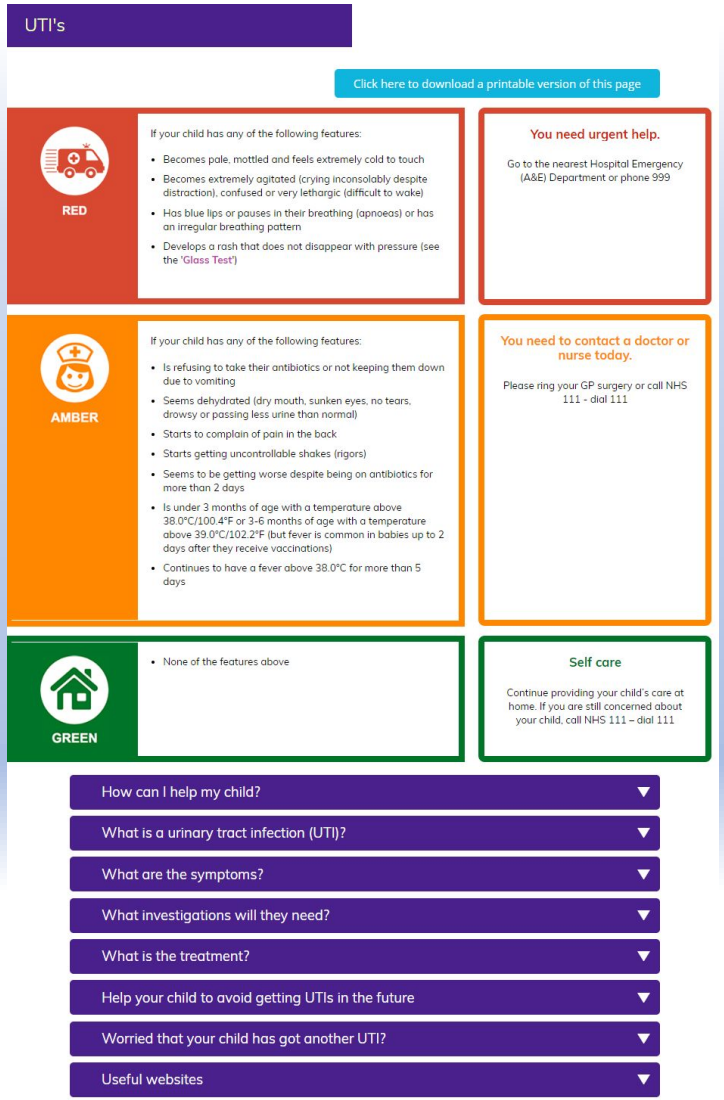
>3 months of age:

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

Safety netting

- Provide all families with a UTI safety netting sheet in case of deterioration at home:



UTI's

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RED

If your child has any of the following features:

- Becomes pale, mottled and feels extremely cold to touch
- Becomes extremely agitated (crying inconsolably despite distraction), confused or very lethargic (difficult to wake)
- Has blue lips or pauses in their breathing (apnoeas) or has an irregular breathing pattern
- Develops a rash that does not disappear with pressure (see the 'Glass Test')

You need urgent help.

Go to the nearest Hospital Emergency (A&E) Department or phone 999

AMBER

If your child has any of the following features:

- Is refusing to take their antibiotics or not keeping them down due to vomiting
- Seems dehydrated (dry mouth, sunken eyes, no tears, drowsy or passing less urine than normal)
- Starts to complain of pain in the back
- Starts getting uncontrollable shakes (rigors)
- Seems to be getting worse despite being on antibiotics for more than 2 days
- Is under 3 months of age with a temperature above 38.0°C/100.4°F or 3-6 months of age with a temperature above 39.0°C/102.2°F (but fever is common in babies up to 2 days after they receive vaccinations)
- Continues to have a fever above 38.0°C for more than 5 days

You need to contact a doctor or nurse today.

Please ring your GP surgery or call NHS 111 - dial 111

GREEN

- None of the features above

Self care

Continue providing your child's care at home. If you are still concerned about your child, call NHS 111 – dial 111

- How can I help my child?
- What is a urinary tract infection (UTI)?
- What are the symptoms?
- What investigations will they need?
- What is the treatment?
- Help your child to avoid getting UTIs in the future
- Worried that your child has got another UTI?
- Useful websites