Urinary Tract Infections in Children

Urine Testing

1. Routine screening for UTI in well children with no risk factors is not recommended. UTIs in children may have a non-specific presentation or be asymptomatic.

Test for UTI in any child presenting with:

- Possible symptoms of UTI (see case definition)
- Unwell child – no obvious cause (particularly in children with recurrent UTIs or history of renal tract abnormalities)
- Fever over 38°C especially lasting over 24hrs (particularly in children under 3 months old or in an older child with no obvious cause)
- Failure to thrive (see FTT protocol)

2. Standard urine collection:

- *Child not yet toilet trained:* Clean catch urine (CCU) - wash genital area with water & dry. Encourage child to drink lots of water. Ask parent to observe child & catch urine in cup when child passes urine.
- *Child able to pass urine on request:* Midstream urine (MSU) – wash genital area with water & dry. Allow first few mls of urine to pass and then collect specimen.
- *Bag urine* - unreliable for diagnosis and should not be used.

3. If UTI suspected in acutely unwell child and unable to obtain CCU or MSU:

CSU - catheter specimen urine – use sterile feeding tube (5-Fr for babies under 6 months old & 6-Fr in children over 6 months old) - should only be performed by a doctor or nurse trained in the catheterisation of children.

SPA - Suprapubic aspirate – children under12 months - should only be performed by trained doctor, ideally with an ultrasound machine.

4. Urine testing:

- Dipstick urinalysis - Routine testing (flow chart page 2) .
- Urine - MC&S – Child under 5yrs old, abnormal urinalysis, acutely unwell child or high clinical suspicion despite negative urinalysis.
- Urine – NAT (PCR) testing - chlamydia & gonorrhoea – consider in teens or suspicion of child sexual abuse - discuss testing with parent, carer or teen (if they are a mature minor) - see Child Sexual Abuse protocol.

Case definition

1. Lab diagnosis – Significant growth of bacteria on urine culture with symptoms / signs of UTI.

2. Clinical diagnosis – Clinical signs / symptoms of UTI & +ve urinalysis - Nitrites (+/-) Leucocytes (+/-) RBC (+/-)

A normal urinalysis does not exclude UTI, especially in children under 3 years old.

Young children may have non-specific symptoms and signs.

Older children may have more localized symptoms and signs.

- **POSSIBLE SYMPTOMS OF UTI** - Abdo pain, vomiting, lethargy, irritability, fever, poor feeding, diarrhoea, dysuria, frequency, incontinence, inability to void, smelly urine, haematuria
- **POSSIBLE SIGNS OF UTI** - Fever, suprapubic or loin tenderness, failure to thrive, neonatal jaundice

BOX 1

ATYPICAL UTI:

- Seriously ill / septicaemia.
- Raised creatinine.
- Abdo / bladder mass or poor urine flow.
- Failure to respond to appropriate therapy within 48hrs.
- Infection with atypical (non E-coli) organism.

RECURRENT UTIS:

- 2 or more episodes of urinary tract infection.

Principles of Management

1. Clinical diagnosis of UTI needs to be confirmed with laboratory testing (MC&S) on an appropriate urine specimen.
2. If there is a strong suspicion of UTI, it is important to initiate antibiotic treatment immediately while awaiting lab results.
3. A normal urinalysis does not exclude UTI, especially in children under 3 years old.
4. In an acutely unwell child it is important to exclude all major causes of sepsis, even if urinalysis is abnormal.
5. Children with UTIs are more likely to have an underlying renal tract abnormality or renal stone.

Management of UTI

1. Baseline investigations:

- Urine MC&S

2. Admit to hospital:

- All children under 6 months old (discuss with paediatrician).
- Children over 6 months old with:
- Fever over 38°C & systemically unwell.
- Vomiting or diarrhoea & unable to tolerate oral fluids & medications.
- Atypical UTI (See Box 1).

3. Tests in children admitted to hospital:

- Blood pressure – using appropriate cuff size (See Renal Disease in Children protocol for BP values)
- FBP, CRP, UEC, blood cultures
- Urgent ultrasound in children with atypical UTI (Box 1).

4. Antibiotic therapy:

IV / IM therapy - Ceftriaxone 50mg/kg daily (max 1g daily)

- Children admitted to hospital, systemically unwell - Once afebrile for 48 hrs, change to oral therapy.
- Stat dose prior to commencing oral therapy in children 6-12 months old.

Oral therapy - Cephalexin 12.5mg/kg/dose (max 500mg) four times a day.

- Children 6-12 months old who are systemically well, following stat dose IV / IM antibiotic (must complete 10 days total antibiotic therapy).
- Children over 12 months who are systemically well. (must complete 7 days total antibiotic therapy).

5. General measures:

- Ensure adequate fluid intake
- Discuss toileting practices – ensure child empties bladder regularly and maintains good hygiene – wipe from front to back.
- Assess for constipation & treat as needed.

6. Ongoing review:

- Review child after 24hrs of therapy.
- Check antibiotic sensitivity in 24-48hrs & adjust therapy as needed.

UTIS IN CHILDREN

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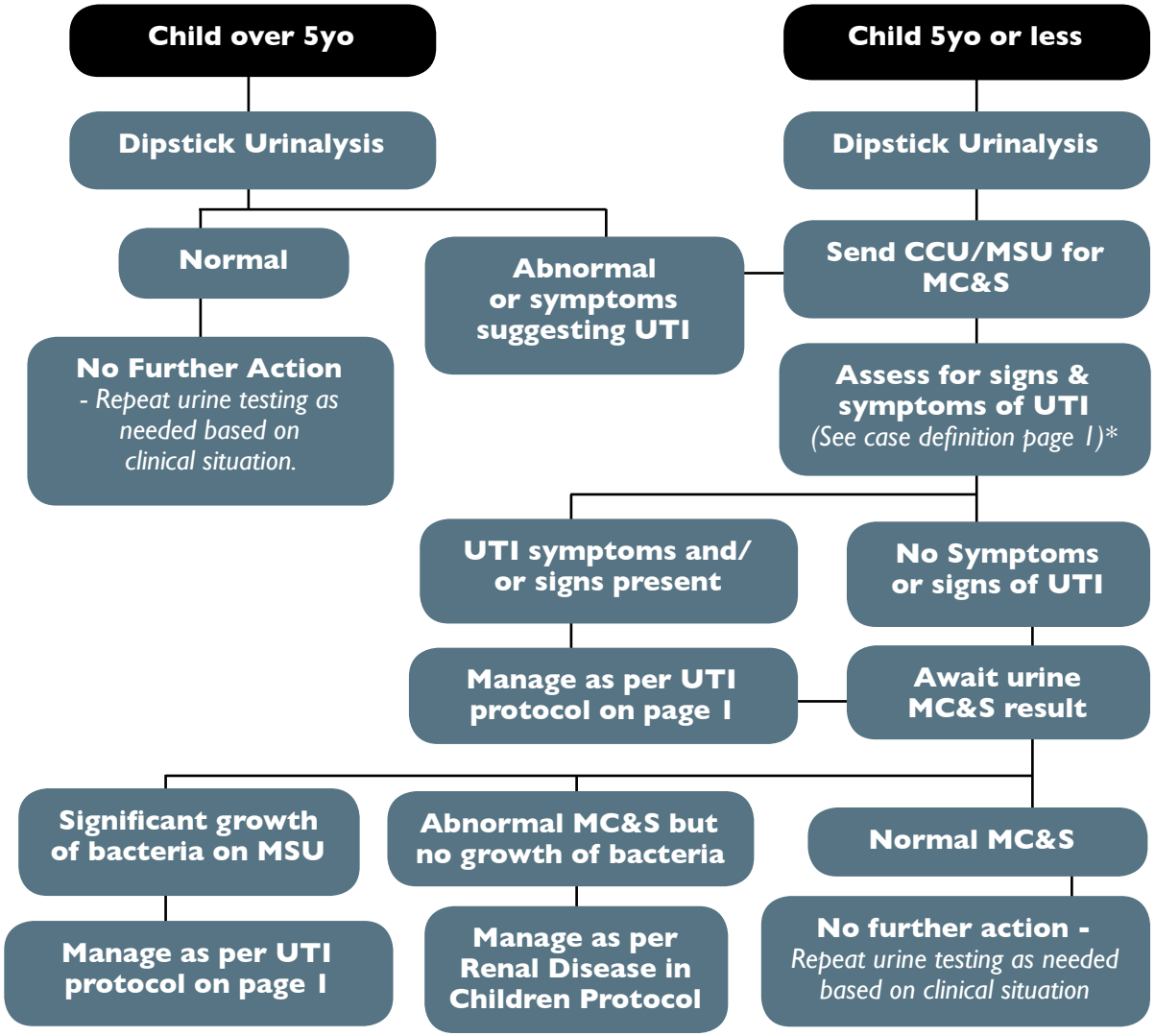
Urine Testing in Children



*Remember, young children may have non-specific symptoms & signs.

Older children / teens

- Consider possibility of pregnancy.
- Consider possibility of STI / sexual abuse and offer screening - NAT – chlamydia / gonorrhoea - discuss testing with parent, carer or teen (if they are a mature minor) - see Child Sexual Abuse protocol.

Follow up

- Repeat urine specimen 2 weeks to ensure cure.
  - *If ongoing UTI symptoms or bacteria in urine, discuss with paediatrician.*
  - *If persistent haematuria and / or proteinuria, manage according to Renal Disease in Children Protocol.*
- Renal ultrasound scan following first UTI in children under 3 years old or in children 3 years of age or older with atypical or recurrent UTI (See box 1, page 1) or requiring hospitalisation.
- Discuss antibiotic prophylaxis with paediatrician in children under 3 years of age and children with recurrent / atypical UTIs (see box 1, page 1).

Refer / Discuss

PAEDIATRICIAN:

Call immediately if:

- Evidence of urinary outflow obstruction.

Prompt discussion & referral:

- Atypical or recurrent UTI (see box 1, page 1).- imaging of the urinary tract required.
- Failure to respond to appropriate therapy.
- Anatomical abnormality of the urinary tract or renal stone – diagnosed previously or seen on imaging.
- First UTI in child under 6 months old - imaging of the urinary tract required.

Routine referral:

- First UTI in child under 3 years old.

UTIS IN CHILDREN