

UTI (adult)

References:
1. Public Health England Urinary tract infection guidance June 2017
2. Infection Prevention Control advice bulletin for GP practice staff, Oct 2017
3. Public Health England Summary table Infections in primary care Nov 2017
4. Microbiology consultant lecture, Walsall, Mar 2019

- Dysuria.
- Frequency.
- Suprapubic tenderness.
- Urgency.
- Polyuria.
- Haematuria.
- Loins, back pain.
- Low-grade fever
- Night sweats, shaking, or chills
- In an elderly person, new onset of confusion or delirium can be a urinary symptom.

- Smelly or dark urine alone are not signs of UTI.
- May be dehydration.

- Do not dip stick.



- Pregnant.

- Send MSU.
- Abx if positive culture.
- First line: nitrofurantoin, unless at term.
- Second line: trimethoprim; (give folate if 1st trimester)
- Third line: cefalexin.

???if dip stick +ve, treat. Even if asymptomatic???

- Adult male < 65 yr.

- Consider prostatitis and send MSU.
OR
- If symptoms mild or non-specific, use negative dipstick to exclude UTI.

- Children.

- See UTI in children algorithm.

- No symptoms of a UTI.

- Do not dip stick.

- A positive nitrate result does not distinguish between asymptomatic bacteriuria and a genuine UTI.
- If asymptomatic bacteriuria, the dipstick will be positive and bacteria will grow on culture.
- Abx are not needed for this.
- Many people >65y, will have bacteria in their urine (bacteriuria) which, even though present is not an infection (similar to having bacteria on your skin, but not having cellulitis).
- Asymptomatic bacteriuria is not a disease and does not require treatment, (except in pregnant women).
- Risk of multi-resistant organisms which will require a hospital admission for further treatment of UTI, or precipitate C.diff.

- Studies in care homes have shown bacteria in urine:
- 40 % of men
- 50 % of women
- And 100 % catheterised patients.
- This is bacteria in their urine, without having an infection.
- i.e. Bacteria in urine does not equal infection !

When NOT to dipstick

- > 65y.
- Catheterised.

When to dipstick

- Children and < 65y.

When NOT to send MSU

Low risk of resistance

- Adult female < 65y.
AND
- Not pregnant.
AND
- Acute UTI.
AND
- No features of pyelonephritis.
AND
- No resistance risks (see right).

Everyone else

Resistance risks

- Care home resident.
- Recurrent UTI (>2 in 6/12 OR >3 in 1 yr).
- Un-resolving urinary symptoms.
- Hospitalisation in the last 6/12.
- Recent travel to a country with increased resistance.
- Previous UTI resistant to trimethoprim, cephalosporin s or quinolone.
- Renal impairment.
- Abnormalities in genitourinary tract.

Once MSU sent there are three options

- Systemically well patient (16-65y).
AND
- Safety net for deterioration.
- Do not commence empiric antibiotics.
- Instead treat according to culture report.

- Commence an empiric UTI antibiotic.
- Safety net for deterioration.
- Culture report confirms sensitivity to antibiotic.
- No change required and the patient completes the course.

- Commence an empiric UTI antibiotic.
- Safety net for deterioration.
- Culture report confirms resistance to antibiotic.
- Switch according to sensitivity to next most appropriate antibiotic.
- Some pt's symptoms may improve on an Abx despite the culture reporting resistance.
- However, they are more likely to develop recurrence of their symptoms or pyelonephritis.
- Hence, the need to switch.

- Urinary catheter.

- Systemic infection symptoms.

- CSU (not dip stick!).

- Asymptomatic bacteriuria.

- This is not an indication of infection.
- All catheters will be positive for bacteria eventually.
- This is called colonisation, not infection.
- No Abx needed.

- Urinary catheter sample cloudy or offensive smell.

- This is not an indication of infection.
- Only send CSU if systemic infection.
- If the catheter has been in place for more than 1/52, consider changing it before/when starting antibiotic treatment.
- Do not give Abx prophylaxis for catheter changes unless history of symptomatic UTIs due to catheter change.

Mild or <= 2 symptoms.

Severe or >= 3 symptoms.
AND
NO vaginal discharge or irritation.

Investigations

90% culture positive

- Women:
- Midstream.
- Cleansing with water and holding the labia apart are not essential.
- Men:
- Midstream.
- Catheters:
- Using aseptic technique, drain a few mL of urine, then collect a sample from catheter sampling port

- Urine sample.

- Abx empirically.

- Urine dip.

- A clear urine sample has up to a 97% negative predictive value.
- Hence, do not dip.
- Consider other diagnosis.

- Nitrite +ve
AND
- Leukocytes +ve
AND
- Blood +ve

- Nitrite +ve

- Nitrite -ve
AND
- Leukocyte +ve

- Nitrite -ve
AND
- Leukocytes -ve
AND
- Blood -ve

- Nitrite -ve
AND
- Leukocyte -ve

- Blood +ve

- Protein +ve

Probable UTI

- Abx.
- No need to send for culture.

UTI or other diagnosis equally likely

- Review time of specimen (morning is most reliable).
- Treat if severe symptoms, or consider delayed Abx and send MSU.

- Nitrite is produced by the action of bacterial nitrate reductase in urine.
- Sufficient contact time between bacteria and urine is needed to allow reduction of nitrates to nitrites.
- Hence, morning specimens are most reliable.

UTI unlikely

- Consider other diagnosis
- Reassure and give advice on management of symptoms.

Management

Interpreting results

- White blood cells:
- WCC >104/mL is considered to represent inflammation.
- No white cells present indicates no inflammation and reduces culture significance.
- Pregnancy is associated with physiological pyuria (presence of WCC).

- Mixed growth:
- Indicates perineal contamination, which reduces significance of culture.

Repeat MSU

- Follow-up urine samples are not usually indicated, except when treating asymptomatic bacteriuria in pregnancy.