

## Recurrent Urinary Tract Infection

Definition = 3 or more UTIs in 1 year

### General points:

1. Confirm the patient is actually symptomatic
2. ASymptomatic Bacteriuria (ASB) is common in and should not be treated (EXC in pregnancy).
3. Catheter-associated bacteriuria is inevitable; catheter-associated 'infections' are difficult to diagnose and manage (see below) – discourage Nursing Homes from sending CSUs except on clinical advice: we have a standard letter we can send out to Nursing Homes: email us if it would help – [rde-tr.MicroConsultants@nhs.net](mailto:rde-tr.MicroConsultants@nhs.net)
4. Only Dipstick urines in specific circumstances:

Do dipstick	Don't dipstick
<b>For WCC &amp; Nitrites:</b> <b><u>Symptomatic</u> patient with ?UTI (symptoms may include falls and confusion in frail older people)</b>	At Annual QOF – send urine to Chemistry for ACR (lab will add PCR automatically when indicated)
<b>For non-infectious reasons eg Renal disease, Hypertension</b>	Catheter Urines – send CSU to Microbiology ONLY if clinical signs of infection, never dip!
	In pregnancy – send screening MSU to Microbiology at 1 <sup>st</sup> trimester booking clinic

### Red flags: Consider

#### referral to Urology

- ♀ If symptoms persist beyond 6 months
- ♂ If >2 UTIs in 3 months
- Those with Risk factors such as a smoker, neuropathic bladder, previous bladder cancer, pneumaturia, previous pelvic radiation
- Unexplained visible haematuria
- Unexplained non-visible haematuria in over 60s: follow the NICE referral pathway [here](#)

## Management Pathway for Recurrent UTI:

1. Send an MSU:
  - (a) to confirm UTI
  - (b) to check for resistant organisms [organisms which cause recurrent UTI are generally more resistant than others]
2. Consider starting empirical antibiotics according to the Joint Formulary
3. Adjust treatment once MSU results are available
4. Consider a longer course of antibiotic treatment [to allow penetration into the bladder wall +/- the prostate]. Use the highest licensed doses.
  - a. 2 weeks for women
  - b. 4 weeks for men

### **In addition:**

### **Consider underlying causes/risk factors:**

This requires a thorough examination +/- PR / PV, +/- referral to Urology for post voiding ultrasound of the bladder +/- cystoscopy:

1. Constipation
2. Bubble baths
3. Atrophic vaginitis: consider treating with nightly Oestrogen creams for 2-3 weeks, then maintenance with twice weekly application.
4. Diabetes
5. Post sexual intercourse in women – give advice on post coital voiding, and avoid using diaphragm/spermicides; consider post coital prophylactic trimethoprim 100mg.
6. Sexually transmitted infections (e.g. Chlamydia can cause cystitis with negative urine culture)
7. Residual urine or other structural abnormality (e.g. stones, cysts or tumours)
8. Uterine prolapse
9. Prostatitis – tender prostate on PR

## FAQs

### **1. Ms U is pre-menopausal and has had 4 episodes of UTI this year – should I offer her prophylactic antibiotics?**

This lady meets the standard definition of recurrent UTI.

There are 3 options you can offer her dependant on whether UTIs are related to sexual intercourse. We favour the first 2 options, because of the risks of antimicrobial resistance, yeast super-infections and *C.difficile* with prolonged prophylaxis:

- i) Advise re: post-coital voiding, check not using diaphragm/spermicides +/- try post-coital antibiotics eg Trimethoprim 100mg within 2 hours of intercourse
- ii) Standby antibiotics – 3 day course dependant on current sensitivities
- iii) Regular prophylaxis – we only recommend this once all above risk factors have been excluded. Choose antimicrobial agent (eg Trimethoprim, Amoxil, Cephalexin, NOT nitrofurantoin) based on reported sensitivities. Stop after 6 months, if UTI frequency returns to pre-prophylaxis levels, restart prophylaxis, and refer to urology for assessment.

### **2. Mrs M is post-menopausal and has had 4 episodes of UTI this year – should I offer her prophylactic antibiotics?**

**AS**ymptomatic **B**acteriuria rates are so high (15-40%) in this age group that laboratory-based diagnosis of UTI is almost impossible – diagnosis should be based on clinical history and exclusion of other diagnoses (eg atrophic vaginitis, incontinence, incomplete bladder emptying). **Do not treat Asymptomatic Bacteriuria**. Whilst symptoms of UTI may be non-specific, there is little evidence that urinary infections actually cause symptoms such as anorexia, malaise, depression, fatigue and weakness. Unfortunately, there are no symptoms that are specific or sensitive for the diagnosis of UTI in this age group (even fever is neither specific nor sensitive for UTI)

The minimum criteria for initiating antibiotics for bacteriuria are [also see Q8]:

- acute dysuria alone or
- fever PLUS one of: new urgency/frequency/dysuria/haematuria/incontinence.

Action:

- i) Confirm each episode meets the clinical criteria for treatment & send MSU, examine for underlying causes as above
- ii) Try a longer course of treatment-dose antibiotic – initially 2 weeks, but up to 6 weeks may be needed.
- iii) Exclude underlying pathology eg treat atrophic vaginitis with nightly Oestrogen creams for 2-3 weeks, then maintenance with twice weekly application.
- iv) If all else fails, try prophylaxis as in Q1 above.

### **3. Ms/Mr R responds to antibiotics but becomes symptomatic again after a few days.**

This sounds like relapse (as opposed to re-infection). Check whether the same organism (+ same antibiogram) is growing each time – you may have to speak to one of the Microbiologists.

This is most likely due to a 'sanctuary site' of infection e.g. stone, residual urine, damaged bladder wall, prostate infection. Try treating for a longer period of time – initially 2 weeks, but up to 6 weeks may be needed, at standard doses. Examine / Investigate for underlying cause as above.

#### 4. *Child X has recurrent UTIs* (Ref: NICE CG: **Urinary tract infection in children**)

Refer paediatricians who need to assess and investigate. They will advise on use of antimicrobial prophylaxis. The NICE guidance recommends consider antimicrobial prophylaxis for recurrent UTI, but not for first-time UTI.

In the meantime, consider risk factors for recurrent UTI in infants and children:

- Dysfunctional elimination syndromes (includes many aspects of bladder malfunction, eg. a learned ability to delay voiding, resulting in poor emptying and high residual urine volume)
- Constipation
- Poor fluid intake

#### 5. *Mrs P is 26 weeks pregnant and has had x4 UTIs in this pregnancy – how should I manage this?*

Refer Obstetrics for recurrent UTI – they will consider prophylactic antimicrobials.

There is evidence that UTIs (and even **AS**ymptomatic **B**acteriuria) in pregnancy are associated with renal complications, chorioamnionitis and pre-term labour; antibiotic treatment has been shown to reduce these outcomes. [Pregnancy is one of the few situations where treatment of **ASB** is recommended]. Treat each episode with a 7 day course of antibiotics according to Joint Formulary; take MSU for a Test-of-Cure 1 week after stopping antibiotics, then screen monthly throughout the remainder of the pregnancy.

#### 6. *What is the specific risk with prophylactic nitrofurantoin?*

Nitrofurantoin is **not** recommended for prophylaxis in East Devon. Long term use of nitrofurantoin may be associated with lung fibrosis and hepatitis. It is ineffective when used in patients with low eGFR (<40).

#### 7. *Will cranberry products help?*

Probably not – NHS Clinical Knowledge Summaries do not recommend them for prevention of symptomatic UTI in adult women with a history of recurrent UTI, as evidence is limited. Cranberries prevent bacteria (particularly *E.coli*) from adhering to epithelial cells that line the wall of the bladder – active ingredient = proanthocyanidin A. Optimum doses and formulations have not been established but you probably need at least 200mg of cranberry extract.

#### 8. *Mrs C has a long-term catheter in situ which keeps getting infected – what should I do?*

There is no easy answer here I am afraid.

a) Confirm diagnosis:

This is difficult: in catheterised patients the common occurrence of fever, the consistent presence of bacteriuria, and the variable presence of a broad range of other associated clinical manifestations (new onset confusion, renal angle tenderness or suprapubic pain, chills/rigors etc) makes the diagnosis of symptomatic UTI difficult [also see Q2].

Current suggested criteria for diagnosing UTI in catheterised patients are not evidence based. A clinical algorithm for suspected UTI in catheterised residents in nursing homes suggests that the presence of one of the following symptoms should stimulate antibiotic therapy:

- i. new costovertebral tenderness
- ii. rigors
- iii. new onset delirium
- iv. fever greater than 37.9°C or 1.5°C above baseline on two occasions during 12 hours.

b) Treat:

Follow Joint Formulary or according to antimicrobial sensitivity pattern. Treat for 7-10 days as a complicated UTI.

For very resistant organisms: 80mg IM gentamicin OD for 3 days is an option (if normal renal function, there is no need to perform gent levels with this dose and duration).

Change the catheter during the period on antibiotics – this will remove the biofilm and hopefully delay / prevent further infections.

c) Don't offer Antimicrobial prophylaxis

A meta-analysis of antimicrobial prophylaxis for UTI in catheterised patients showed that prophylaxis did not significantly decrease symptomatic infections, (it did reduce asymptomatic bacteriuria among acute (<90 days after spinal injury) patients ( $p<0.05$ ), but not among non-acute patients). Overall there was an approximately twofold increase in antimicrobial-resistant bacteria.

d) Regular Gentamicin bladder washouts are sometimes offered by Urology. Refer Urology.

**9. *Why aren't Red Cells reported on urines anymore?***

In March 2015 we changed our analyser to a Particle Recognition System (IQ200 sprint, Beckman Coulter) for urine microscopy. At this time, and on discussion with urology, we decided to omit the Red Blood Cells from the report in line with NICE guidance (NICE recommends using dipsticks rather than microscopy to determine the presence of haematuria).