Management of UTIs in Catheterised Adults in Primary Care

Covers Catheterised Non-pregnant Adults (over 16 years) - COMPLICATED UTI

Between 2% and 7% of patients with indwelling urethral catheters acquire bacteriuria each day, even with the application of best practice for insertion and care of the catheter. All patients with a long term indwelling catheter are bacteriuric, often with two or more organisms.

- Do not treat asymptomatic bacteriuria in those with indwelling catheters, as antibiotics will not eradicate asymptomatic bacteriuria but can increase side effects and antibiotic resistance.
- Only treat bacteriuria if the patient is systemically unwell or pyelonephritis is likely (also refer to management of pyelonephritis in adults guideline if pyelonephritis suspected).
- Only send urine for culture in catheterised adults if features of systemic infection.
- Exclude other sources of infection.
- Consider need for continued catheterisation. Refer to the bladder/bowel continence service.
- The presence of a short or long term indwelling catheter is associated with a greater incidence of fever of urinary tract origin.
- Accurate diagnosis of UTI can be particularly difficult if the patient has a long-term indwelling urinary catheter.
- Considerable clinical judgement is required to diagnose urinary tract infection (UTI) in patients with indwelling urinary catheters.
- Diagnosis is difficult because in these situations bacteriuria is often present but is not related to the signs and symptoms; see opposite page.

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dosage</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Lower UTI in catheterised adults (no fever or flank pain)</td>
<td></td>
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<tr>
<td>trimethoprim or nitrofurantoin*</td>
<td>200mg BD</td>
<td>7-14 days</td>
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<tr>
<td></td>
<td>100mg m/r caps BD</td>
<td>7-14 days</td>
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</tbody>
</table>

*avoid if patient is febrile or clinical evidence of prostatitis

*eGFR should be over 45ml/min; eGFR 30-45: only use if resistance & no alternative

Avoid in G6PD deficiency and upper UTI/pyelonephritis

Second line: use MSU result to guide treatment – use suitable antibiotics with lowest risk for C. difficile infection. Amoxicillin resistance is common; only use if organism susceptible Community multi-resistant Extended-spectrum Beta-lactamase E. coli are increasing: nitrofurantoin or pivmecillinam are options

- Nitrofurantoin dementia
- Pivmecillinam MR capsule

# Trimethoprim is still the most cost-effective option in primary care;
- If a patient has received trimethoprim within the previous 2 months use nitrofurantoin as patient is more likely to have a resistant organism.

- For nitrofurantoin the 100mg MR capsules are currently the most cost effective option.

Trimethoprim resistance – there is good data from two centres in the UK that primary care resistance rate of trimethoprim ascertained passively by laboratories is likely to overestimate the true prevalence of trimethoprim resistance by 100%. Therefore the estimated true trimethoprim resistance within primary care in Oxfordshire is likely to be approximately 20%. Trimethoprim therefore remains the first line choice for a number of UTIs.

If increased resistance risk:
- Send culture for susceptibility testing & give safety net advice.
- Use nitrofurantoin, if suitable or, if eGFR <45ml/min consider pivmecillinam (400mg STAT then 200mg TDS, women 3 days and men 7 days) avoid if penicillin allergy.

Risk factors for increased resistance:
- Care home resident
- Recurrent UTI
- Hospitalisation >7d in last 6m
- Unresolving symptoms
- Recent travel to country with increased antimicrobial resistance (especially health related)
- Previous UTI resistant to trimethoprim, cephalosporins or quinolones

If symptoms recur, treat with an antibiotic shown to cover the infecting organism choosing the most suitable antibiotic with the lowest C. difficile infection risk.
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Prevention of Urinary Tract Infections in Adults with indwelling Catheters

- Ensure an indwelling urinary catheter is appropriate, regularly review and remove catheter as soon as possible.
- Use an indwelling catheter only after alternative methods of management have been considered.
- Prevent the introduction of infection:
  - Healthcare personnel should be trained and assessed in their competence to perform urethral catheterization using aseptic procedures.
  - Urine samples should be obtained from a sampling port using an aseptic technique.
  - Catheters should be changed only when clinically necessary (for example, to prevent blockage), or according to the manufacturer’s recommendations.
- Do not use:
  - Bladder instillations or washouts.
  - Topical antiseptics or antibiotics applied to the catheter, urethra, or meatus; daily washing of the meatus with soap and water is sufficient.
  - Prophylactic antibiotics are not required when changing catheters.

Urine Sampling

- Using an aseptic technique drain and discard a few millilitres of urine, then collect a sample from the catheter sampling port.
- Do not take the specimen from the collection bag, as this is more likely to be contaminated.

Interpreting a culture result

The following indicates UTI in a patient with urinary symptoms.

Higher counts have even higher positive predictive values:

- Single organisms ≥ 10^4 colony forming units (CFUs)/mL.
- Mixed growths’ indicates perineal contamination which reduces the significance of the culture. If a culture is still required, an MSU should be repeated.
- Culture results should be interpreted in the light of near patient dipstick testing.

Microscopy

- Microscopy is not available for the diagnosis of UTI except in children <3 years to comply with NICE guidelines.
- Use near patient testing with dipsticks to assess likelihood of UTI, they are as sensitive and specific as microscopy for predicting the presence of infection.
- Urine microscopy is only performed for glomerulonephritis, SLE, endocarditis, haematuria, casts, crystals, candiduria & schistosomiasis and must be specifically requested with the relevant clinical details.

Catheters

- Duration of catheterisation is strongly associated with the risk of infection.
- The longer the catheter is in place the greater the likelihood of infection.
- Intermittent catheterisation is associated with a lower incidence of asymptomatic bacteriuria.
- The presence of a short or long term indwelling catheter is associated with a greater incidence of fever of urinary tract origin.
- Fever without any localising signs is a common occurrence in catheterised patients and urinary tract infection accounts for about a third of these episodes.
- In patients with short or long term catheters fever is associated with a higher occurrence of local urinary tract and systemic complications such as bacteraemia.
- Further information is available from the bladder/bowel continence service - 01993 209434.

Prevention and Maintaining Adequate Hydration

Care should be taken for those patients for whom fluid restriction is required.

If urine matches the colours numbered 1, 2, or 3 they are hydrated.

If urine matches the colour numbered 4 through 8 they are dehydrated and need to drink far more fluid.

Some medicines and vitamins can discolor urine.

Whilst drinking more water may encourage patients to go to the toilet more often, achieving a healthy toilet function for patients can result in fewer soiling incidents, prevention of urinary tract infections, less need for time-consuming enemas and less need for laxative products.

Dr Ian Bowler (Consultant and Deputy Clinical Lead Microbiology - OUH); Dr Andrew Woodhouse (Consultant in Clinical Infection - OUH); Jo Stanney (Medicine Management); Louisa Griffiths (Medicines Management); Dr David Grimshaw (CCG Pathology lead)

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