Healthcare Improvement Scotland | SAPG Safeguarding antibiotics

NHS SCOTLAND

Decision aid for diagnosis and management of suspected urinary tract infection (UTI) in older people

This flowchart has been designed to help nursing and care staff and prescribers manage patients/residents with urinary tract infection. Dipstick testing should not be used to diagnose UTI in patients over 65 years. If a patient/resident has a fever (defined as temperature > 37.9°C or 1.5°C increase above baseline occurring on at least 2 occasions in last 12 hours) this suggests they have an infection. Hypothermia (low temperature of <36°C) may also indicate infection, especially in those with co-morbidities (heart or lung disease, diabetes). Some patients/residents may also have non-specific symptoms of infection such as abdominal pain, alteration of behaviour, delirium (confusion) or loss of diabetes control. The information overleaf provides good practice points and evidence sources for prescribers.

Are there any symptoms suggestive of non-urinary infection?

Respiratory – shortness of breath, cough or sputum (phlegm) production, new pleuritic chest pain (sharp pain across ribs)

Gastrointestinal – nausea/ vomiting, new abdominal pain, new onset diarrhoea

Skin/soft tissue – new redness, warmth, swelling, purulent drainage (pus)

YES → **Contact medical/clinical staff to request review of patient/resident** (Y)

YES → **Take appropriate specimens and manage following local antibiotic policy** (R)

NO

Does the patient/ resident have a urinary catheter?

YES

Does patient/resident have one or more of following signs or symptoms?

- shaking chills (rigors)
- new costovertebral (central low back)tenderness
- new onset or worsening of pre-existing delirium (confusion) or agitation

NO

Does patient/resident have two or more of following signs or symptoms?

- dysuria (pain on urination)
- urgent need to urinate
- frequent need to urinate
- new or worsening urinary incontinence
- shaking chills (rigors)
- pain in flank (side of body) or suprapubic (above pubic bone)
- frank haematuria (visible blood in urine)
- new onset or worsening of pre-existing delirium (confusion) or agitation

NO

UTI unlikely but continue to monitor symptoms for 72 hours and ensure adequate hydration

Ongoing fever and development of one or more of above symptoms?

YES → **UTI likely**

YES

Ongoing fever and development of two or more of above symptoms?

NO

UTI unlikely but continue to monitor symptoms for 72 hours and ensure adequate hydration

Contact medical/clinical staff to request review of patient/resident (Y)

- Assess if retention or sub-acute retention of urine is likely – blocked catheter or distended bladder
- DO NOT use dipstick test in diagnosis of UTI in older people
- Obtain a sample for urine culture and send to Microbiology
- Catheter samples should be taken from the sample port
- Start antibiotic therapy following local policy or as advised by Microbiology
- If patient has a urinary catheter, remove and replace it. Do not allow catheter removal or change to delay antibiotic treatment. Consider the ongoing need for a long-term catheter in consultation with specialists.
- Consider use of analgesia (paracetamol or ibuprofen) to relieve pain
- Consider admission to hospital if patient has fever with chills or new onset hypotension (low blood pressure)
- Review response to treatment daily and if no improvement of symptoms or deterioration, consider admission to hospital or an increased level of care
- Ensure urine culture results are reviewed when available in order to streamline antibiotic therapy (R)

(Y) Yellow action boxes provide advice for nursing and care staff.

(R) Red action boxes provide advice for nursing staff and prescribers (medical and non-medical).

December 2018 Review date: **December 2021**

Good practice points

Urine culture

- Older people often have asymptomatic bacteriuria (no symptoms but bacteria in urine) which does not indicate infection.
- Dark or foul smelling urine alone does not mean infection, and may be a sign of dehydration.
- Do not perform urine dipsticks as they become more unreliable with increasing age over 65 years.
- Do not send catheter specimens of urine (CSU) unless patient has signs and symptoms of infection as CSU samples will almost always have bacteriuria (bacteria in urine).
- Review urine culture results to check organism is sensitive to antibiotic prescribed and change to an alternative antibiotic if necessary.
- Interpretation of the urine culture results – high epithelial cell count or heavy mixed growth may indicate contamination. Ensure correct sampling process is followed and take repeat urine sample if clinically indicated.
- Be alert to UTI due to resistant organisms such as Extended Spectrum Beta-Lactamase *E. coli*. Microbiology will provide advice on treatment options. In patients with a previous ESBL UTI discuss with Microbiology the potential treatment options should the patient become symptomatic again.
- Do not send urine samples for post-antibiotic checks or clearance of infection.

Antibiotic therapy

- Older people are vulnerable to infection, particularly *Clostridium difficile* infection, therefore use of broad spectrum antibiotics such as ciprofloxacin, co-amoxiclav and cephalosporins should be avoided if possible.
- First choice antibiotics for uncomplicated lower UTI in non-catheterised patients are trimethoprim 200mg twice daily or nitrofurantoin 50mg four times daily (or nitrofurantoin MR 100mg twice daily). Recommended course duration is three days for women and seven days for men.
- BNF suggests avoid nitrofurantoin if eGFR < 45ml/min/1.73m3 but can be used with caution if GFR 30-44ml/min/1.73m3 as a short course only (3-7 days). Nitrofurantoin should be used with caution in patients with interstitial lung disease due to the increased risk of adverse effects.
- In men, if there is clinical suspicion of acute prostatitis (suggested by fever and pain at the base of the penis, around the anus, just above the pubic bone and/or in the lower back), a 28 day course of ciprofloxacin or ofloxacin is recommended. Trimethoprim may be used if the organism is sensitive.
- In catheterised patients with symptoms of UTI, a seven day course of antibiotics, following local antibiotic guidelines is recommended in both men and women. The catheter should be removed then replaced if necessary.
- The national catheter passport should be used to support good practice
- Second choice antibiotics should always be guided by urine culture and history of antibiotic use.

Prophylaxis of UTI

- The evidence base supporting antibiotic use for prophylaxis of UTI is ***not strong***; all studies were conducted pre-2000 and none evaluated patients beyond one year.
- Female patients who do not have a catheter and have more than three UTIs within a 12 month period ***may*** be considered for a trial of nightly antibiotic prophylaxis with trimethoprim or nitrofurantoin. The risk of adverse effects versus the potential benefit needs to be considered carefully.
- Long term antibiotics prescribed for UTI prophylaxis do promote resistance and there is no evidence to support their use beyond 3-6 months. Therefore ongoing clinical need should be reviewed after 6 months.
- Cranberry products may be considered as an alternative but evidence of their efficacy is lacking.
- In post-menopausal women consider the possibility of recurrent symptoms being associated with vaginal atrophy.

References

1. Lohfeld L, Loeb M, Brazil K, Evidence-based clinical pathways to manage urinary tract infections in long-term care facilities: a qualitative case study describing administrator and nursing staff views. J Am Med Dir Assoc 2007; 8: 477–484
2. Loeb M, Brazil K, Lohfeld L, McGeer A, Simor A, Stevenson K, et al. Effect of a multifaceted intervention on number of antimicrobial prescriptions for suspected urinary tract infections in residents of nursing homes: cluster randomised controlled trial. BMJ 2005;331(7518):669.
3. Scottish Intercollegiate Guideline Network, Guideline 88 Management of Bacterial Urinary Tract Infection https://www.sign.ac.uk/sign-88-management-of-suspected-bacterial-urinary-tract-infection-in-adults.html
4. Health Protection Agency, Diagnosis of UTI – Quick Reference Guide for Primary Care http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947404720
5. Public Health England, Flowchart for men and women over 65 years with suspected UTI https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/755889/PHE_UTI_flowchart_-_over_65.pdf

Older People >65 years with Suspected Urine Infection (UTI) - Guidance for Care Home staff

Complete resident's details, flow chart and actions (file in resident's notes after). **DO NOT PERFORM URINE DIPSTICK** – No longer recommended in >65yrs.

Resident:..... **DOB:**.....

Carer:..... **Date:**.....

Care Home:.....

Any symptoms suggesting alternative diagnosis?	Tick if present
Increased breathlessness or new cough	
Diarrhoea and vomiting	
A new red warm area of skin	

Any ticks → **UTI unlikely** Seek guidance as appropriate

No ticks

Does the person have a catheter?

YES

New Problem	Tick if present
Inappropriate shivering/chills or High or low temperature >38°C or <36°C if measured document .....°C	
New lower back pain	
New or worsening confusion or agitation	

1 or more ticks

2 or more ticks

UTI possible – Actions needed	Tick when done
Phone and fax form to GP Practice.	
Obtain urine sample and arrange catheter change if catheterised: see reverse of form.	
Outside Mon-Fri normal working hours, phone 111 as normal	

NO

New Problem	Tick if present
Pain on passing urine	
Need to pass urine urgently or new or worse incontinence	
Need to pass urine much more often than usual	
Pain between belly button and pubic hair	
Blood in urine	
Inappropriate shivering/chills or High or low temperature >38°C or <36°C if measured document .....°C	
New lower back pain	
New or worsening confusion or agitation	

No ticks

Less than 2 ticks

UTI unlikely

If concerned about resident, please seek guidance from GP or Care Home Liaison Nurse

Residents with Urinary Catheters: Sampling & Changing

For Nursing Residents:

- Registered Nurse only to take catheter urine sample using aseptic non-touch technique.
- If antibiotics are commenced for UTI, catheter change should be performed by Registered Nurse as soon as possible.

For Residential Residents:

- Contact District Nursing Team to arrange for a sample to be taken.
- If antibiotics are commenced for UTI, catheter change should be arranged with District Nurses as soon as possible.

*If there is not enough urine to fill to 20ml line, then use a white top specimen bottle instead

Fill red top urine bottle to 20ml line

Fill in resident details carefully

Residents without a Urinary Catheter: Obtaining a Urine Sample

Urine cultures are very important in the elderly to guide antibiotic choice.

- Try to obtain a urine sample when the resident is in the middle of passing urine (rather than at the start).
- Put the urine in a <u>Red Top</u> urine bottle, filling to the 20ml line.
- Fill in the resident's details and type of sample carefully to help the lab to process the sample.
- Samples should be taken to the GP practice *as soon as possible*. If there is a delay, they can be refrigerated until taken to the GP practice at the next possible opportunity.
- Ensure the GP practice know what to write on the request card (the information from the assessment tool).