

Guidelines for Recurrent Urinary Tract Infections in Adults:

Definition

The symptoms of a lower urinary tract infection include: frequency, dysuria, urgency and suprapubic pain. Recurrent lower urinary tract infection (rUTI) is defined as:

**2 or more episodes of lower urinary tract infection in the last 6 months, or
3 or more episodes of lower urinary tract infection in the last 12 months**

It does not include bacteriuria in the absence of symptoms or in catheterised patients i.e. asymptomatic bacteriuria. Asymptomatic bacteriuria should not be screened for or treated, unless prior to urological surgery or in pregnancy (positive cultures in pregnancy should be confirmed with a second culture confirming the same organism prior to treating)².

Referral

Consider whether the patient requires specialist referral for the following factors:

Red Flags for Referral to Urology:

- All men
- Frank haematuria, even in the context of confirmed UTI (refer to current '2 week wait' guidelines for further information)
- Neurological disease e.g. spinal cord injury, spina bifida
- Pneumaturia or faecaluria
- Proteus on repeat urine cultures
- Suspected stone
- Obstructive symptoms, or structural/functional abnormality, causing >200ml residual urine on bladder scan
- All recurrent UTIs in pregnancy should be discussed with the Obstetrics team.

All patients to have a urinary tract ultrasound with post void residual

Consider risk factors:

A sexual history and investigations for sexually transmitted infections should be performed if appropriate. In peri- and post-menopausal women, atrophic vaginitis may cause urinary symptoms and may increase the risk of bacteriuria.

Microbiological Confirmation:

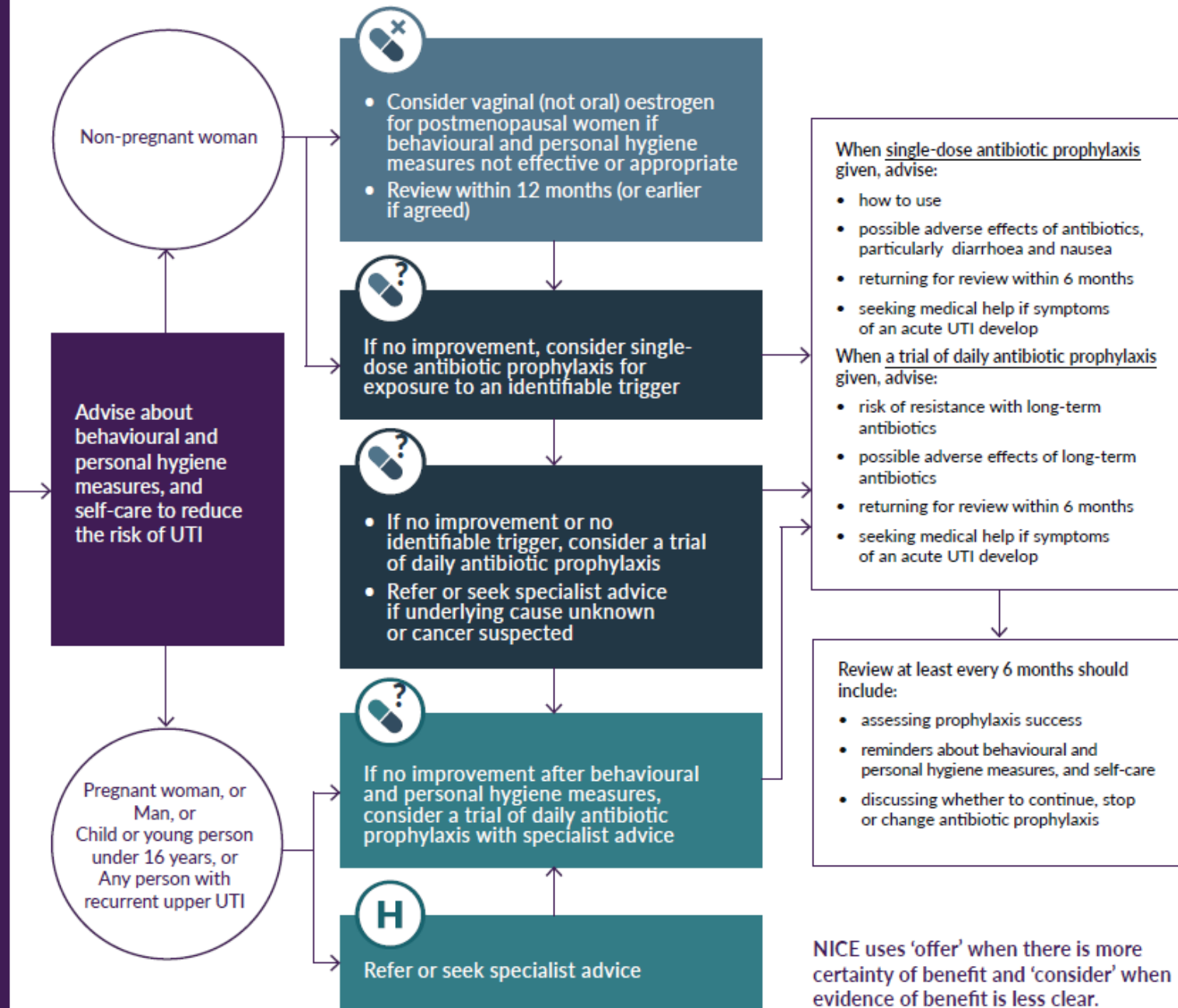
Patients with rUTIs should have a mid-stream urine (MSU) sample sent for culture **prior** to antibiotics being initiated, in order to confirm infection and guide antibiotic therapy. Patients should be counselled on how to provide a specimen to minimise the chance of contamination. <http://patient.info/health/midstream-specimen-of-urine-msu>

Urine cultures sent in the absence of symptoms are unlikely to be helpful, may detect asymptomatic bacteriuria and lead to inappropriate antibiotic use. Antibiotic treatment of asymptomatic bacteriuria is more likely to be harmful than beneficial.

'Clearance' cultures are not recommended if symptoms have resolved, with the exception of pregnant women.

UTI (recurrent): antimicrobial prescribing

Preventing urinary tract infection in people with recurrent UTI



Background

- Recurrent UTI includes lower and upper UTI
- Recurrent UTI may be due to relapse (same strain of bacteria) or reinfection (different strain or species of bacteria)



Self-care

- Non-pregnant women may wish to try D-mannose
- Non-pregnant women may wish to try cranberry products (evidence uncertain)
- Under 16s may wish to try cranberry products with specialist advice (evidence uncertain)
- Advise people taking cranberry products or D-mannose about the sugar content of these products
- Inconclusive evidence for probiotics



Treatments

- Vaginal oestrogen - take account of severity and frequency of symptoms, risk of complications, benefits for other symptoms (vaginal dryness), possible adverse effects (breast tenderness and vaginal bleeding), unknown long-term endometrial safety and preferences for treatment
- Antibiotics - ensure any current UTI is treated and take account of severity and frequency of symptoms, risk of complications and long-term antibiotic use, previous urine culture and susceptibility results, previous antibiotic use, local antimicrobial resistance, and preferences for treatment

October 2018

UTI (recurrent): antimicrobial prescribing

Choice of antibiotic: people aged 16 years and over

Antibiotic prophylaxis ^{1,2}	Dosage ³
First choice	
Trimethoprim ⁴	200 mg single dose when exposed to a trigger, or 100 mg at night
Nitrofurantoin - if eGFR \geq 45 ml/minute ⁵	100 mg single dose when exposed to a trigger, or 50 to 100 mg at night
Second choice	
Amoxicillin ⁶	500 mg single dose when exposed to a trigger, or 250 mg at night
Cefalexin	500 mg single dose when exposed to a trigger, or 125 mg at night
¹ See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breast-feeding. ² Choose antibiotics according to recent culture and susceptibility results where possible, with rotational use based on local policies. Select a different antibiotic for prophylaxis if treating an acute UTI. ³ Doses given are by mouth using immediate-release medicines, unless otherwise stated. ⁴ Teratogenic risk in first trimester of pregnancy (folate antagonist; BNF, August 2018). Manufacturers advise contraindicated in pregnancy (trimethoprim summary of product characteristics). ⁵ Avoid at term in pregnancy; may produce neonatal haemolysis (BNF, August 2018). ⁶ Amoxicillin is not licensed for preventing UTIs, so use for this indication would be off label. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Good practice in prescribing and managing medicines and devices for further information.	
Abbreviations: eGFR, estimated glomerular filtration rate.	

When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Choice of antibiotic: children and young people under 16 years

Antibiotic prophylaxis ^{1,2}	Dosage ³
Children under 3 months - Refer to paediatric specialist	
Children aged 3 months and over (specialist advice only) - First choice	
Trimethoprim ⁴	3 to 5 months, 2 mg/kg at night (maximum 100 mg per dose) or 12.5 mg at night 6 months to 5 years, 2 mg/kg at night (maximum 100 mg per dose) or 25 mg at night 6 to 11 years, 2 mg/kg at night (maximum 100 mg per dose) or 50 mg at night 12 to 15 years, 100 mg at night
Nitrofurantoin - if eGFR \geq 45 ml/minute ⁵	3 months to 11 years, 1 mg/kg at night 12 to 15 years, 50 to 100 mg at night
Children aged 3 months and over (specialist advice only) - Second choice	
Cefalexin	3 months to 15 years, 12.5 mg/kg at night (maximum 125 mg per dose)
Amoxicillin ⁶	3 to 11 months, 62.5 mg at night; 1 to 4 years, 125 mg at night; 5 to 15 years, 250 mg at night
¹ See BNF for children (BNFC) for appropriate use and dosing in specific populations, for example, hepatic impairment and renal impairment. ² Choose antibiotics according to recent culture and susceptibility results where possible, with rotational use based on local policies. Select a different antibiotic for prophylaxis if treating an acute UTI. If 2 or more antibiotics are appropriate, choose the antibiotic with the lowest acquisition cost. ³ The age bands apply to children of average size and, in practice, the prescriber will use the age bands in conjunction with other factors such as the severity of the condition and the child's size in relation to the average size of children of the same age. Doses given are by mouth using immediate release medicines, unless otherwise stated. ⁴ Teratogenic risk in first trimester of pregnancy (folate antagonist; BNFC, August 2018). Manufacturers advise contraindicated in pregnancy (trimethoprim summary of product characteristics). ⁵ Avoid at term in pregnancy; may produce neonatal haemolysis (BNFC, August 2018). ⁶ Amoxicillin is not licensed for preventing UTIs, so use for this indication would be off label. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Good practice in prescribing and managing medicines and devices for further information.	
Abbreviations: eGFR, estimated glomerular filtration rate.	

Antibiotic Prescribing Strategies

The relative risks and benefits of the following antibiotic prescribing strategies should be discussed with the patient. These strategies should be in addition to conservative measures. Some patients may find cranberry juice or products helpful, however the evidence for their benefit is variable and compliance is low, so they are not routinely recommended. It is also contraindicated in patients on Warfarin.

- **Post Coital Antibiotics**

- For rUTIs that are triggered by sexual intercourse, this strategy is as effective as continuous antibiotic prophylaxis, and limits antibiotic exposure and risk of resistance emerging.

- **Continuous Antibiotic Prophylaxis**

- Longer term antibiotic prophylaxis is strongly associated with the development of antimicrobial resistance.
- A **6 month trial** of low-dose continuous antibiotic treatment may be beneficial if rUTIs are occurring ≥ 1 per month and are not triggered by sexual intercourse.
- Patients should be counselled at an early stage that antibiotic prophylaxis is not usually a lifelong treatment. Documenting and triggering a review date in the patient's record, and on the repeat prescription, is strongly advised to avoid prolonged courses of antibiotics without review.

Managing 'breakthrough' UTIs in patients on antibiotic prophylaxis:

- The first breakthrough infection should be treated according to culture and sensitivity results, with the original prophylaxis being re-started once the infection has resolved if the culture confirms it is still sensitive to the prophylactic agent.
- If the culture shows resistance to the prophylactic agent, or multiple breakthrough UTIs occur (≥ 2 UTIs in 6 months), prophylaxis has therefore proved ineffective and should be stopped or changed.
- Consider referral to Urology at this point if not already been investigated.

Managing a patient who has had a prolonged course of prophylactic antibiotics:

Identifying patients for review:

- Patients should be reviewed after 6 months of prophylactic antibiotics with a view to stopping.
- 12 months is a suggested trigger for audit purposes for patients on long-term prophylaxis.
- Patients who have urine cultures confirming resistance to the prophylactic agent they are on, should have their prophylaxis stopped (exposure to antibiotic without benefit) and a clinical review to discuss ongoing management and/ or need for referral.

**Management of Recurrent Lower UTI's (in non-pregnant adults) Referral Pro-
forma**

STOP! Prior to onward referral, please ensure you have followed the NICE guidance provided in these guidelines and the below steps have been taken.

Have you?	Check
Offered verbal advice to the patient about behavioural and personal hygiene measures, and self-care to reduce the risk of UTI.	<input type="checkbox"/>
Provide the patient with the recurrent urinary tract infections information booklet?	<input type="checkbox"/>
Considered vaginal (not oral) oestrogen for post-menopausal women if behavioural and personal hygiene measures not effective or appropriate? (Review within 12 months, or earlier if agreed)	<input type="checkbox"/>
Considered <u>single-dose</u> antibiotic prophylaxis (<i>first choice: Trimethoprim or Nitrofurantoin, second choice: Amoxicillin or Cefalexin</i>) for exposure to an identifiable trigger? <i>Advised patient:</i> <ul style="list-style-type: none"> • How to use • Possible adverse effects of antibiotics, particularly diarrhoea and nausea • Returning for review within 6 months • Seeking medical help if symptoms of an acute UTI develop 	<input type="checkbox"/>
If no improvement or no identifiable trigger from single-dose antibiotic considered a trial of <u>daily</u> antibiotic prophylaxis? <i>Advised patient:</i> <ul style="list-style-type: none"> • Risk of resistance with long-term antibiotics • Possible adverse effects of long-term antibiotics • Returning for review within 6 months • Seeking medical help if symptoms of an acute UTI develop 	<input type="checkbox"/>

**Always refer or seek specialist advice if underlying cause unknown
or cancer is suspected**

References

Urinary tract infection (recurrent): antimicrobial prescribing NICE guideline [NG112]

Published date: October 2018 accessed online <https://www.nice.org.uk/guidance/ng112>

July 2019

Original version was provided by Nottingham Area Prescribing Committee for editing into a version that could be used for Joined Up Care Derbyshire. Permission has been granted for the original document to be used as necessary.