UTI (lower): antimicrobial prescribing



DRAFT May 2018



Self-care

- Consider paracetamol for pain or, if preferred and suitable, ibuprofen
- Advise an adequate intake of fluid
- Explain no evidence found for cranberry products



Background

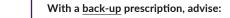
- Lower UTI (cystitis) is an infection of the bladder usually caused by bacteria travelling up the urethra from the gastrointestinal tract
- People at higher risk of complications include those with abnormalities of the genitourinary tract or underlying disease (such as diabetes or immunosuppression)



Asymptomatic bacteriuria

- Asymptomatic bacteriuria is clinically significant levels of bacteria in urine with no UTI symptoms
- Screened for and treated in pregnant women because risk factor for pyelonephritis and premature delivery
- Not screened for or treated in non-pregnant women, men, children or young people

NICE uses 'offer' when there is more certainty of benefit and 'consider' when evidence of benefit is less clear.



- antibiotic is not needed immediately
- use prescription if no improvement in 48 hours or symptoms worsen at any time
- possible adverse effects include diarrhoea and nausea
- seeking medical help if symptoms worsen rapidly or significantly, do not improve within 48 hours of taking the antibiotic, or the person becomes very unwell

If urine sent for culture and susceptibility, and antibiotic given:

 review antibiotic choice when results available, and

antibiotic prescription

and susceptibility,

or immediate antibiotic

considering waiting for

results before prescribing

- change antibiotic for pregnant women if bacteria resistant
- change antibiotic for children and young people. men and non-pregnant women if bacteria resistant and symptoms not improving

Use narrow spectrum antibiotics when possible



- Offer immediate antibiotic
- Send midstream urine for culture and susceptibility for pregnant women and men before prescribing
- Send midstream urine for culture and susceptibility or dipstick test for under 16s

With an immediate antibiotic, advise:

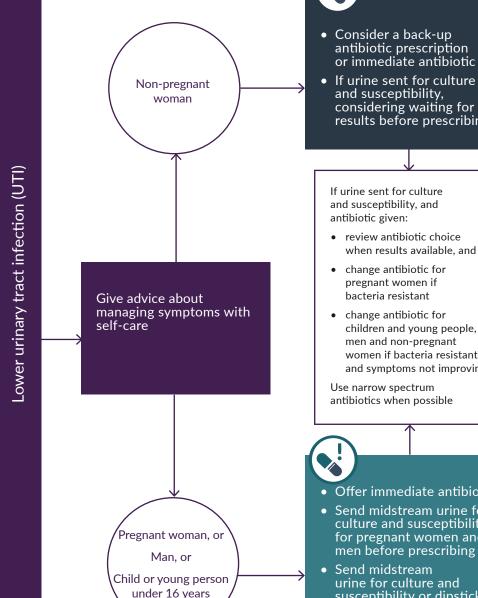
- possible adverse effects include diarrhoea and nausea
- seeking medical help if symptoms worsen rapidly or significantly, do not improve within 48 hours of taking the antibiotic or the person becomes very unwell

Reassess at any time if symptoms worsen rapidly or significantly or do not improve in 48 hours of taking antibiotics, sending a urine sample for culture and susceptibility if not already done. Take account of:

- other possible diagnoses
- any symptoms or signs suggesting a more serious illness or condition
- previous antibiotic use, which may have led to resistance



Refer to hospital if severe systemic infection or for children and young people in line with the NICE guideline on urinary tract infection in under 16s



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Choice of antibiotic: non-pregnant women aged 16 years and over

Antibiotic ¹	Dosage and course length ²	
First choice ³		
Nitrofurantoin - if eGFR ≥45 ml/minute	50 mg four times a day or 100 mg modified-release twice a day for 3 days	
Trimethoprim - if low risk of resistance and not used in past 3 months	200 mg twice a day for 3 days	
Second choice (no improvement in lower UTI symptoms on first choice taken for at least 48 hours, or when first choice not suitable) ^{3, 4}		
Nitrofurantoin - if eGFR ≥45 ml/minute and not first choice	50 mg four times as day or 100 mg modified-release twice a day for 3 days	
Pivmecillinam	400 mg initial dose, then 200 mg three times a day for a total of 3 days	
Fosfomycin	3 g single dose sachet	
impairment and breast-feeding ² Doses given are by mouth usir ³ Check any previous urine cultu choose antibiotics accordingly.	ng immediate-release medicines, unless otherwise stated. ure and susceptibility results and antibiotic prescribing and onephritis or sepsis, see the recommendations on choice of	

Abbreviations: eGFR, estimated glomerular filtration rate.

Choice of antibiotic: children and young people under 16 years

Antibiotic ¹	Dosage and course length ²	
Refer children under 3 months to paediatric specialist and treat with intravenous antibiotics in line with the NICE guideline on <u>fever in under 5s</u>		
Children aged 3 months and over - First choice ^{3, 4}		
Trimethoprim – if low risk of resistance and not used in past 3 months	3 to 5 months, 4 mg/kg or 25 mg twice a day for 3 days 6 months to 5 years, 4 mg/kg or 50 mg twice a day for 3 days 6 to 11 years, 4 mg/kg or 100 mg twice a day for 3 days 12 to 17 years, 200 mg twice a day for 3 days	
Nitrofurantoin - if eGFR ≥45 ml/minute ⁵	3 months to 11 years, 750 micrograms/kg four times a day for 3 days 12 to 17 years, 50 mg four times a day or 100 mg modified-release twice a day for 3 days	
	rer - Second choice (worsening lower UTI symptoms on first choice hen first choice not suitable) ^{3,4,5}	
Nitrofurantoin – if eGFR ≥45 ml/minute and not first choice	3 months to 11 years, 750 micrograms/kg four times a day for 3 days 12 to 17 years, 50 mg four times a day or 100 mg modified-release twice a day for 3 days	
Cefalexin	3 to 11 months, 12.5 mg/kg or 125 mg twice a day for 3 days 1 to 4 years, 12.5 mg/kg twice a day or 125 mg three times a day for 3 days 5 to 11 years, 12.5 mg/kg twice a day or 250 mg three times a day for 3 days 12 to 17 years, 500 mg two or three times a day for 3 days	
Amoxicillin (only if culture results available and susceptible)	1 to 11 months, 125 mg three times a day for 3 days 1 to 4 years, 250 mg three times a day for 3 days 5 to 11 years, 500 mg three times a day for 3 days 12 to 17 years, 500 mg three times a day for 3 days	

¹ See <u>BNF for children</u> for use and dosing in specific populations, for example, hepatic impairment and renal impairment.

Abbreviations: eGFR, estimated glomerular filtration rate.

 $^{^2}$ The age bands apply to children of average size and, in practice, the prescriber will use these 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.

³ Check previous urine culture and susceptibility results and antibiotic prescribing. Where a child or young person is receiving prophylactic antibiotics, treatment should be with a different antibiotic, not a higher dose of the same antibiotic.

⁴ If 2 or more antibiotics are appropriate, choose the antibiotic with the lowest acquisition cost.

⁵ If symptoms of pyelonephritis or sepsis, see the NICE guideline on acute pyelonephritis.

UTI (lower): antimicrobial prescribing



Choice of antibiotic: pregnant women aged 12 years and over

Antibiotic ¹	Dosage and course length ²	
First choice for treating lower UTI ³		
Nitrofurantoin - if eGFR ≥45 ml/minute	50 mg four times as day or 100 mg modified-release twice a day for 7 days	
Second choice for treating lower UTI (no improvement in lower UTI symptoms on first choice taken for at least 48 hours or when first choice not suitable) ^{3,5}		
Cefalexin	500 mg twice a day for 7 days	
Amoxicillin (only if culture results available and susceptible)	500 mg three times a day for 7 days	
Alternative second choices	Consult local microbiologist, choose antibiotics based on culture and susceptibility results	
Treating asymptomatic bacteriuria		
Choose from cefalexin, amoxicillin or nitrofurantoin based on recent culture and susceptibility results		
¹ See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment and renal impairment. ² Doses given are by mouth using immediate-release medicines, unless otherwise stated. ³ Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly. ⁴ Avoid at term in pregnancy; may produce neonatal haemolysis (BNF, April 2018). ⁵ If there are symptoms of pyelonephritis or sepsis, see the recommendations on choice of antibiotic in the NICE guideline on acute pyelonephritis.		
Abbreviations: eGFR, estimated glomerular filtration rate.		

Choice of antibiotic: men aged 16 years and over

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Antibiotic ¹	Dosage and course length ²	
First choice ³		
Trimethoprim	200 mg twice a day for 7 days	
Nitrofurantoin - if eGFR ≥45 ml/minute ⁴	50 mg four times as day or 100 mg modified-release twice a day for 7 days	
Second choice (no improvement in UTI symptoms on first choice taken for at least 48 hours or when first choice not suitable) ³		
Consider alternative diagnoses and follow recommendations in the NICE guideline on acute pyelonephritis or acute prostatitis, basing antibiotic choice on recent culture and susceptibility results.		

¹See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment and renal impairment.

²Doses given are by mouth using immediate-release medicines, unless otherwise stated.

³Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly.

⁴Nitrofurantoin is not recommended for men with suspected prostate involvement because it is unlikely to reach therapeutic levels in the prostate.

Abbreviations: eGFR, estimated glomerular filtration rate.