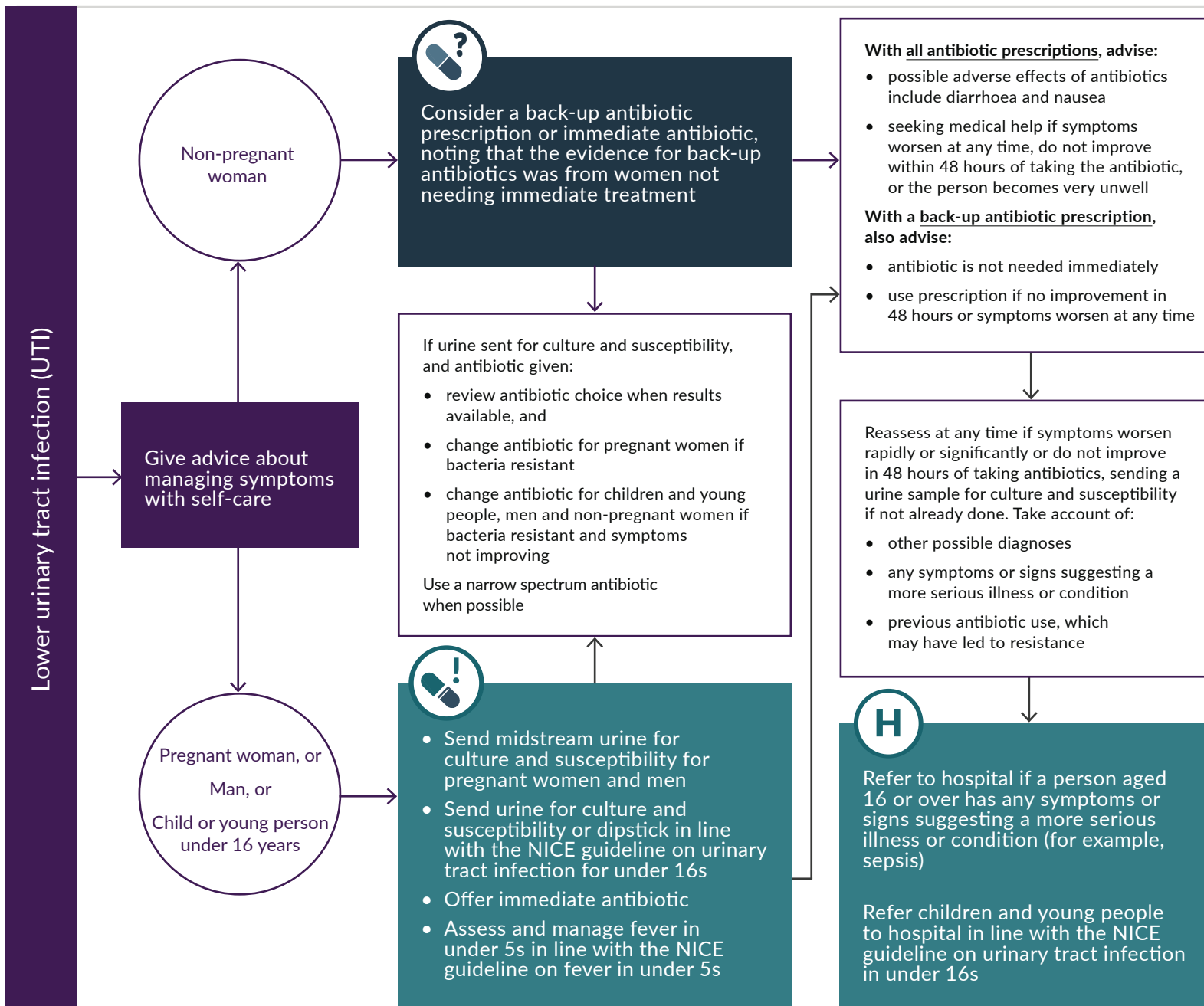


UTI (lower): antimicrobial prescribing



i Background

- Lower UTI (cystitis) is a bladder infection usually caused by bacteria travelling up to the urethra from the gastrointestinal tract

i Self-care

- Advise paracetamol for pain or, if preferred and suitable, ibuprofen
- Advise drinking enough fluid to avoid dehydration
- No evidence found for cranberry products or urine alkalinising agents to treat lower UTI

i Antibiotics

- When considering antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data

i Asymptomatic bacteriuria

- Asymptomatic bacteriuria is 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

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

UTI (lower): antimicrobial prescribing

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 ⁴	100 mg modified-release twice a day for 3 days
Trimethoprim - if low risk of resistance ⁵	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) ^{3,6}	
Nitrofurantoin – if eGFR ≥45 ml/minute ⁴ and not first choice	100 mg modified-release twice a day for 3 days
Pivmecillinam (a penicillin)	400 mg initial dose, then 200 mg three times a day for a total of 3 days
Fosfomycin	3 g single dose sachet
<p>¹See BNF for use and dosing in specific populations, for example, hepatic impairment, renal impairment and breast-feeding.</p> <p>²Doses given are by mouth using immediate-release medicines, unless otherwise stated.</p> <p>³Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly.</p> <p>⁴May be used with caution if eGFR 30-44 ml/minute to treat uncomplicated lower UTI caused by suspected or proven multidrug resistant bacteria and only if potential benefit outweighs risk (BNF, August 2018).</p> <p>⁵A lower risk of resistance may be more likely if not used in the past 3 months, previous urine culture suggests susceptibility (but this was not used), and in younger people in areas where local epidemiology data suggest resistance is low. A higher risk of resistance may be more likely with recent use and in older people in residential facilities.</p> <p>⁶If there are symptoms of pyelonephritis or the person has a complicated UTI (associated with a structural or functional abnormality, or underlying disease, which increases the risk of a more serious outcome or treatment failure), see the recommendations on choice of antibiotic in the NICE antimicrobial prescribing guideline on acute pyelonephritis.</p>	
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 fever in under 5s	
Children aged 3 months and over - First choice^{3,4}	
Trimethoprim – if low risk of resistance ⁵	3 to 5 months, 4 mg/kg (maximum 200 mg per dose) or 25 mg twice a day for 3 days; 6 months to 5 years, 4 mg/kg (maximum 200 mg per dose) or 50 mg twice a day for 3 days; 6 to 11 years, 4 mg/kg (maximum 200 mg per dose) or 100 mg twice a day for 3 days; 12 to 15 years, 200 mg twice a day for 3 days
Nitrofurantoin - if eGFR ≥45 ml/minute ⁶	3 months to 11 years, 750 micrograms/kg four times a day for 3 days 12 to 15 years, 50 mg four times a day or 100 mg modified-release twice a day for 3 days
Children aged 3 months and over - Second choice (worsening lower UTI symptoms on first choice taken for at least 48 hours or when first choice not suitable)^{3,4,7}	
Nitrofurantoin – if eGFR ≥45 ml/minute ⁶ and not first choice	3 months to 11 years, 750 micrograms/kg four times a day for 3 days 12 to 15 years, 50 mg four times a day or 100 mg modified-release twice 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 15 years, 500 mg three times 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 15 years, 500 mg twice a day for 3 days
<p>¹See BNF for children (BNFC) for use and dosing in specific populations.</p> <p>²Age bands apply to children of average size; in practice the prescriber will use these with other factors. Doses given are by mouth using immediate release medicines, unless otherwise stated.</p> <p>³Check previous urine culture and susceptibility results and antibiotic prescribing. If receiving prophylactic antibiotics, treatment should be with a different antibiotic.</p> <p>⁴If 2 or more antibiotics are appropriate, choose the antibiotic with the lowest acquisition cost. Some children may also be able to take a tablet or part-tablet, rather than a liquid formulation if the dose is appropriate.</p> <p>⁵A lower risk of resistance may be more likely if not used in the past 3 months, previous urine culture suggests susceptibility (but this was not used), and in younger people in areas where data suggest resistance is low. Risk of resistance may be higher with recent use and in older people in care homes.</p> <p>⁶May be used with caution if eGFR 30-44 ml/minute to treat uncomplicated lower UTI caused by suspected or proven multidrug resistant bacteria and only if potential benefit outweighs risk (BNFC, August 2018).</p> <p>⁷If there are symptoms of pyelonephritis or the person has a complicated UTI, see the recommendations on choice of antibiotic in the NICE antimicrobial prescribing guideline on acute pyelonephritis.</p>	
Abbreviations: eGFR, estimated glomerular filtration rate.	

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 (avoid at term) - if eGFR ≥45 ml/minute ^{4,5}	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) ^{3,6}	
Amoxicillin (only if culture results available and susceptible)	500 mg three times a day for 7 days
Cefalexin	500 mg twice a day for 7 days
Alternative second choices	Consult local microbiologist, choose antibiotics based on culture and susceptibility results
Treating asymptomatic bacteriuria	
Choose from nitrofurantoin ^{4,5} , amoxicillin or cefalexin 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, June 2018). ⁵ May be used with caution if eGFR 30–44 ml/minute to treat uncomplicated lower UTI caused by suspected or proven multidrug resistant bacteria and only if potential benefit outweighs risk (BNF, August 2018). ⁶ If there are symptoms of pyelonephritis or the person has a complicated UTI (associated with a structural or functional abnormality, or underlying disease, which increases the risk of a more serious outcome or treatment failure), see the recommendations on choice of antibiotic in the NICE antimicrobial prescribing guideline on acute pyelonephritis.	
Abbreviations: eGFR, estimated glomerular filtration rate.	

Choice of antibiotic: men aged 16 years and over

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 ^{4,5}	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 antimicrobial prescribing guidelines on acute pyelonephritis or acute prostatitis , basing antibiotic choice 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 Nitrofurantoin is not recommended for men with suspected prostate involvement because it is unlikely to reach therapeutic levels in the prostate. ⁵ May be used with caution if eGFR 30–44 ml/minute to treat uncomplicated lower UTI caused by suspected or proven multidrug resistant bacteria and only if potential benefit outweighs risk (BNF, August 2018).	
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.