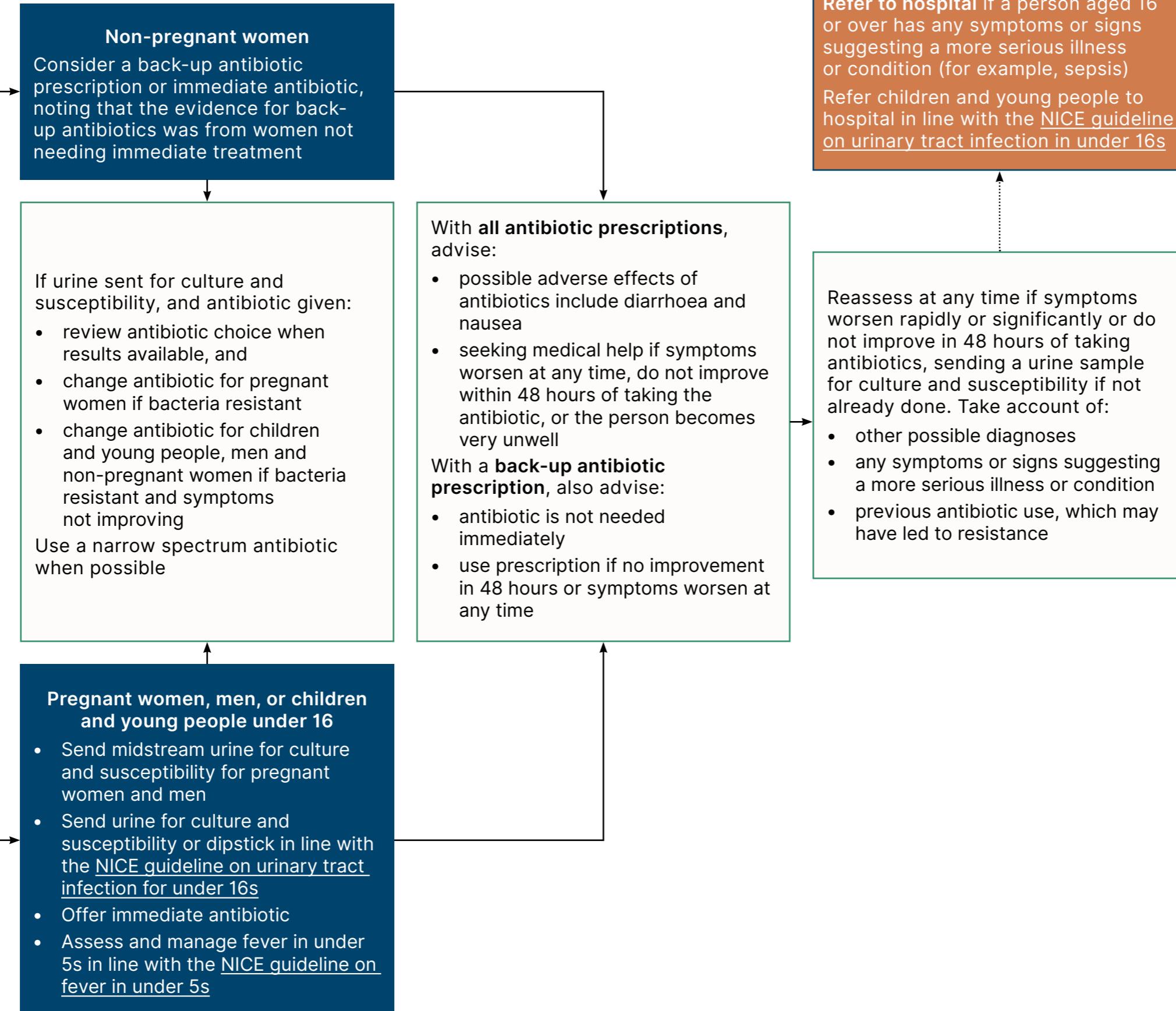


# UTI (lower): antimicrobial prescribing

**Presentation:**  
lower  
urinary tract  
infection  
(UTI)



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## Background

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

## 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

## 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

## Asymptomatic bacteriuria

- Asymptomatic bacteriuria is significant levels of bacteria in urine with no UTI symptoms
- 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

# UTI (lower): antimicrobial prescribing

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

Antibiotic	Dosage and course length
If there are symptoms of pyelonephritis (such as fever) or a complicated UTI, see the <a href="#">NICE guideline on acute pyelonephritis</a> for antibiotic choices	
First choice	
Nitrofurantoin: if estimated glomerular filtration rate (eGFR) 45 ml/minute or more	100 mg modified-release twice a day (or if unavailable, 50 mg four times a day) for 3 days
Trimethoprim: if low risk of resistance	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)	
Nitrofurantoin: if eGFR 45 ml/minute or more and not first choice	100 mg modified-release twice a day (or if unavailable, 50 mg four times 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

### Notes

For all antibiotics: See [BNF](#) for use and dosing in specific populations, for example, hepatic impairment, renal impairment and breast-feeding. Doses given are by mouth using immediate-release medicines, unless otherwise stated. Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly.

**Nitrofurantoin:** See the [MHRA advice on monitoring for pulmonary and hepatic adverse reactions to nitrofurantoin](#). May be used with caution if eGFR 30 to 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).

**Trimethoprim:** A 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 suggests resistance is low. A higher risk of resistance may be more likely with recent use and in older people in residential facilities.

# UTI (lower): antimicrobial prescribing

Choice of antibiotic: children and young people under 16 years	
Antibiotic	Dosage and course length
If there are symptoms of pyelonephritis (such as fever) or a complicated UTI, see the <a href="#">NICE guideline on acute pyelonephritis</a> for antibiotic choices	
Refer <b>children under 3 months</b> to paediatric specialist and treat with intravenous antibiotics in line with the <a href="#">NICE guideline on fever in under 5s</a>	
Children aged 3 months and over: first choice	
Trimethoprim: if low risk of resistance	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 or more	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)	
Nitrofurantoin: if eGFR 45 ml/minute or more 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)	3 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

## Notes

For **all antibiotics**: See [BNF for children](#) (BNFC) for use and dosing in specific populations. Age 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. Check previous urine culture and susceptibility results and antibiotic prescribing. If receiving prophylactic antibiotics, treatment should be with a different antibiotic. If 2 or more antibiotics are appropriate, choose the one 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.

**Trimethoprim**: A 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 suggests resistance is low. Risk of resistance may be higher with recent use and in older people in care homes.

**Nitrofurantoin**: See the [MHRA advice on monitoring for pulmonary and hepatic adverse reactions to nitrofurantoin](#). May be used with caution if eGFR 30 to 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).

# UTI (lower): antimicrobial prescribing

Choice of antibiotic: pregnant women aged 12 years and over	
Antibiotic	Dosage and course length
If there are symptoms of pyelonephritis (such as fever) or a complicated UTI, see the <a href="#">NICE guideline on acute pyelonephritis</a> for antibiotic choices	
First choice for treating lower UTI	
Nitrofurantoin (avoid at term): if eGFR 45 ml/minute or more	100 mg modified-release twice a day (or if unavailable, 50 mg four times 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)	
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, amoxicillin or cefalexin based on recent culture and susceptibility results	

Choice of antibiotic: men aged 16 years and over	
Antibiotic	Dosage and course length
If there are symptoms of pyelonephritis (such as fever) or a complicated UTI, see the <a href="#">NICE guideline on acute pyelonephritis</a> for antibiotic choices	
First choice	
Trimethoprim	200 mg twice a day for 7 days
Nitrofurantoin: if eGFR 45 ml/minute or more	100 mg modified-release twice a day (or if unavailable, 50 mg four times 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): consider alternative diagnoses and follow recommendations in the <a href="#">NICE antimicrobial prescribing guidelines on acute pyelonephritis</a> or <a href="#">acute prostatitis</a> , basing antibiotic choice on recent culture and susceptibility results	

## Notes

For all antibiotics: See [BNF](#) for appropriate use and dosing in specific populations, for example, hepatic impairment and renal impairment. Doses given are by mouth using immediate-release medicines, unless otherwise stated. Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly.

**Nitrofurantoin:** See the [MHRA advice on monitoring for pulmonary and hepatic adverse reactions to nitrofurantoin](#). Avoid at term in pregnancy; may produce neonatal haemolysis (BNF, June 2018). Not recommended for men with suspected prostate involvement because it is unlikely to reach therapeutic levels in the prostate. May be used with caution if eGFR 30 to 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).