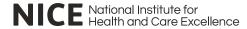
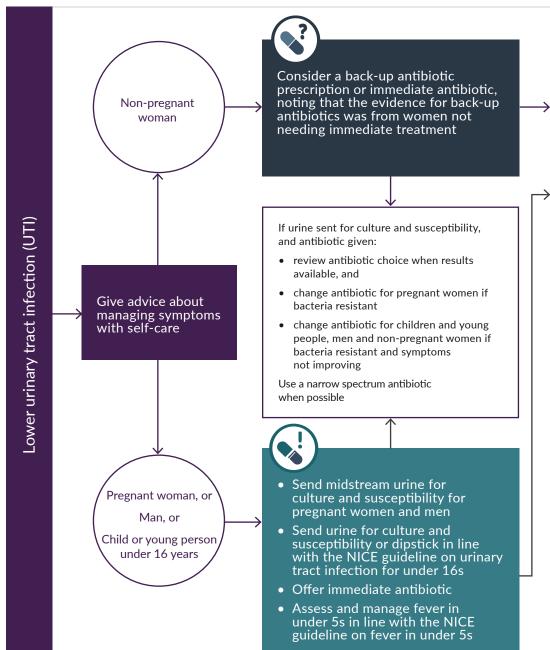
# **UTI** (lower): antimicrobial prescribing





#### With all antibiotic prescriptions, advise:

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

## With a <u>back-up antibiotic prescription</u>, also advise:

- antibiotic is not needed immediately
- use prescription if no improvement in 48 hours or symptoms worsen at any time

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 a person aged 16 or over has any symptoms or signs suggesting a more serious illness or condition (for example, sepsis)

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



#### 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

May 2022

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

# **UTI** (lower): antimicrobial prescribing

risk of resistance may be more likely with recent use and in older people in residential

facilities.



### Choice of antibiotic: non-pregnant women aged 16 years and over Choice of antibiotic: children and young people under 16 years

Antibiotic <sup>1</sup>	Dosage and course length <sup>2</sup>	Antibiotic <sup>1</sup>	Dosage and course length <sup>2</sup>		
If there are symptoms of pyelonephritis (such as fever) or a complicated UTI, see the NICE guideline on acute pyelonephritis for antibiotic choices		If there are symptoms of pyelonephritis (such as fever) or a complicated UTI, see the NICE guideline on acute pyelonephritis for antibiotic choices			
First choice <sup>3</sup>		Refer children under 3 months to paediatric specialist and treat with intravenous antibiotics in line with the			
Nitrofurantoin: if estimated glomerular filtration rate (eGFR) ≥45 ml/minute <sup>4</sup>	100 mg modified-release twice a day (or if unavailable, 50 mg four times a day) for 3 days	NICE guideline on fever in under 5s  Children aged 3 months and over - First choice <sup>3,4</sup>			
Trimethoprim: if low risk of resistance <sup>5</sup>	200 mg twice a day for 3 days	resistance <sup>5</sup>	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		
Second choice (no improvement in lower UTI symptoms on first choice taken for at least 48 hours, or when first choice not suitable) <sup>3</sup>			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		
Nitrofurantoin: if eGFR	100 mg modified-release twice a day (or if unavailable, 50 mg four times a day) for 3 days		12 to 15 years, 200 mg twice a day for 3 days		
≥45 ml/minute <sup>4</sup> and not first choice		Nitrofurantoin: if estimated glomerular filtration rate (eGFR) ≥45 ml/minute <sup>6</sup> 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 day for 3 days			
Pivmecillinam (a penicillin)	400 mg initial dose, then 200 mg three times a day				
	for a total of 3 days	Children aged 3 months and over - Second choice (worsening lower UTI symptoms on first choice taken for			
Fosfomycin	3 g single dose sachet	at least 48 hours or when first			
<sup>1</sup> See BNF for use and dosing in specific populations, for example, hepatic impairment, renal impairment and breast-feeding. <sup>2</sup> Doses given are by mouth using immediate-release medicines, unless otherwise stated. <sup>3</sup> Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly. <sup>4</sup> 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		Nitrofurantoin: if eGFR ≥45 ml/minute <sup>6</sup> 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
		<sup>5</sup> 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 suggest resistance is low. A higher			12 to 15 years, 500 mg twice a day for 3 days		

<sup>1</sup>See BNF for children (BNFC) for use and dosing in specific populations.

<sup>2</sup>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.

<sup>3</sup>Check previous urine culture and susceptibility results and antibiotic prescribing. If receiving prophylactic antibiotics, treatment should be with a different antibiotic.

<sup>4</sup>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.

<sup>5</sup>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 suggest resistance is low. Risk of resistance may be higher with recent use and in older people in care homes.

<sup>6</sup>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 (BNFC, August 2018).

# **UTI** (lower): antimicrobial prescribing



### Choice of antibiotic: pregnant women aged 12 years and over

Antibiotic <sup>1</sup>	Dosage and course length <sup>2</sup>	
If there are symptoms of pyelo guideline on acute pyelonephri	nephritis (such as fever) or a complicated UTI, see the <u>NICE</u> tis for antibiotic choices	
First choice for treating lower U	JTI <sup>3</sup>	
Nitrofurantoin (avoid at term): if estimated glomerular filtration rate (eGFR) ≥45 ml/minute <sup>4,5</sup>	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) <sup>3</sup>		
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 bacterio	ıria	
Choose from nitrofurantoin <sup>4, 5</sup> , susceptibility results	amoxicillin or cefalexin based on recent culture and	
impairment and renal impairme	nd dosing in specific populations, for example, hepatic	

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

<sup>3</sup>Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly.

<sup>4</sup>Avoid at term in pregnancy; may produce neonatal haemolysis (BNF, June 2018).

<sup>5</sup> 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).

### Choice of antibiotic: men aged 16 years and over

Antibiotic <sup>1</sup>	Dosage and course length <sup>2</sup>	
If there are symptoms of pyelonephritis (such as fever) or a complicated UTI, see the NICE guideline on acute pyelonephritis for antibiotic choices		
First choice <sup>3</sup>		
Trimethoprim	200 mg twice a day for 7 days	
Nitrofurantoin: if estimated glomerular filtration rate (eGFR) ≥45 ml/minute <sup>4, 5</sup>	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)<sup>3</sup>

Consider alternative diagnoses and follow recommendations in the NICE antimicrobial prescribing guidelines on <u>acute pyelonephritis</u> or <u>acute prostatitis</u>, basing antibiotic choice on recent culture and susceptibility results.

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

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

<sup>3</sup>Check any previous urine culture and susceptibility results and antibiotic prescribing and choose antibiotics accordingly.

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

<sup>5</sup>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).

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.