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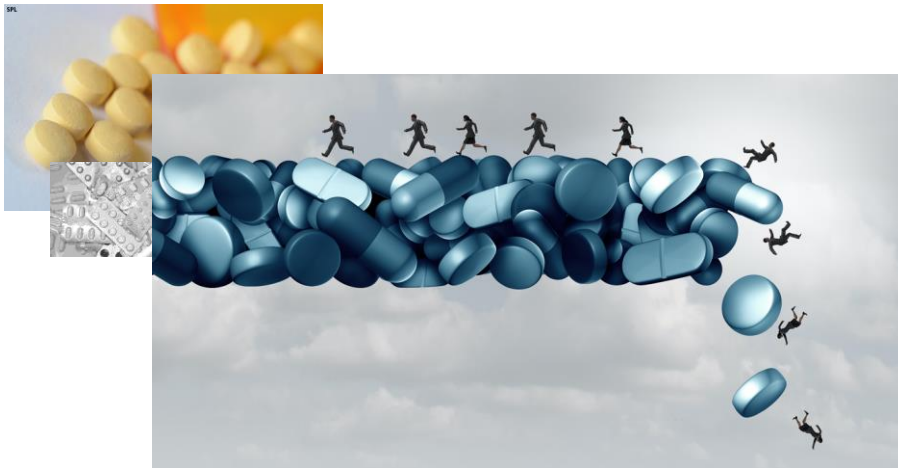
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# Bitesize Education and Training Session 1

## Antimicrobial Stewardship (AMS) Update

21<sup>st</sup> January 2025



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### Speakers:

- Kate Ward and Suzanne Penrose, ICB Medicines Optimisation Pharmacists

# Welcome & Housekeeping



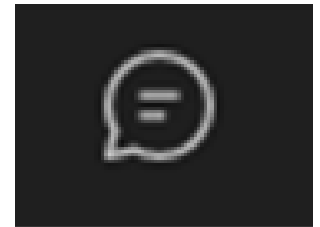
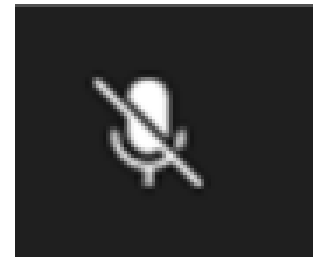
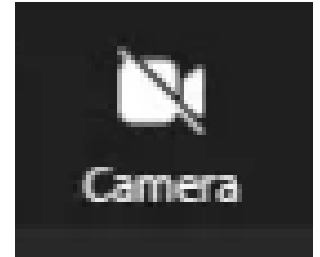
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## Thank you for joining us today!

- ✓ The session is for 30-minutes (20-minute presentation and 10-minute Q&A session).
- ✓ Please switch off your cameras and put yourselves on mute.
- ✓ Please use the chat function if you want to ask a question or for comments.
- ✓ Please respect others' views and opinions. (We have prescribers from across the system on the call – primary, secondary care and community).
- ✓ Please use the chat function to network with your peers and share ideas.
- ✓ At the end of the session there will be a short online poll (live!).



*Please note the 20-minute presentation will be recorded, and the slides and the recording will be uploaded to the LSC Training Hub website for you to download.*



# Disclaimer

- If you do access the slides and recordings to the bitesize sessions using the following link: [Independent Prescribing – Lancashire and South Cumbria Training Hub](#), please be aware that the sessions were intended to support Non-Medical Prescribers in their development and understanding of the subject area, however these sessions should not be considered the sole source of your learning. Please ensure that you also refer to your Trust/Employer guidance, up-to-date national guidance e.g. NICE guidance and professional body standards alongside these bitesize sessions.
- The information in the sessions are current and accurate at the time of creation.



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## In this session we will cover...

- NICE recurrent UTI update
  - Vaginal oestrogens
  - Methenamine
- Fluoroquinolones: avoiding patient harm
- L&SC Formulary: New Infections chapter now live

# NICE Recurrent UTI

- Updated guidelines Dec 2024
- Recommendations on referral and seeking specialist advice
- Choice of antibiotic or antiseptic prophylaxis
- Vaginal oestrogens



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**NICE** National Institute for  
Health and Care Excellence



## Urinary tract infection (recurrent): antimicrobial prescribing

NICE guideline

Published: 31 October 2018

Last updated: 12 December 2024

[www.nice.org.uk/guidance/ng112](http://www.nice.org.uk/guidance/ng112)

# Referral and seeking specialist advice



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- Refer or seek specialist advice on further investigation and management for:
- men, and trans women and non-binary people with a male genitourinary system, aged 16 and over
- people with recurrent upper UTI
- people with recurrent lower UTI when the underlying cause is unknown
- pregnant women, and pregnant trans men and non-binary people
- children and young people aged under 16 years ([NICE guideline on urinary tract infection in under 16s](#))
- people with suspected cancer ([NICE guideline on suspected cancer: recognition and referral](#))
- anyone who has had gender reassignment surgery that involved structural alteration of the urethra. **[2018, amended 2024]**

# Treatments for preventing recurrent lower UTI



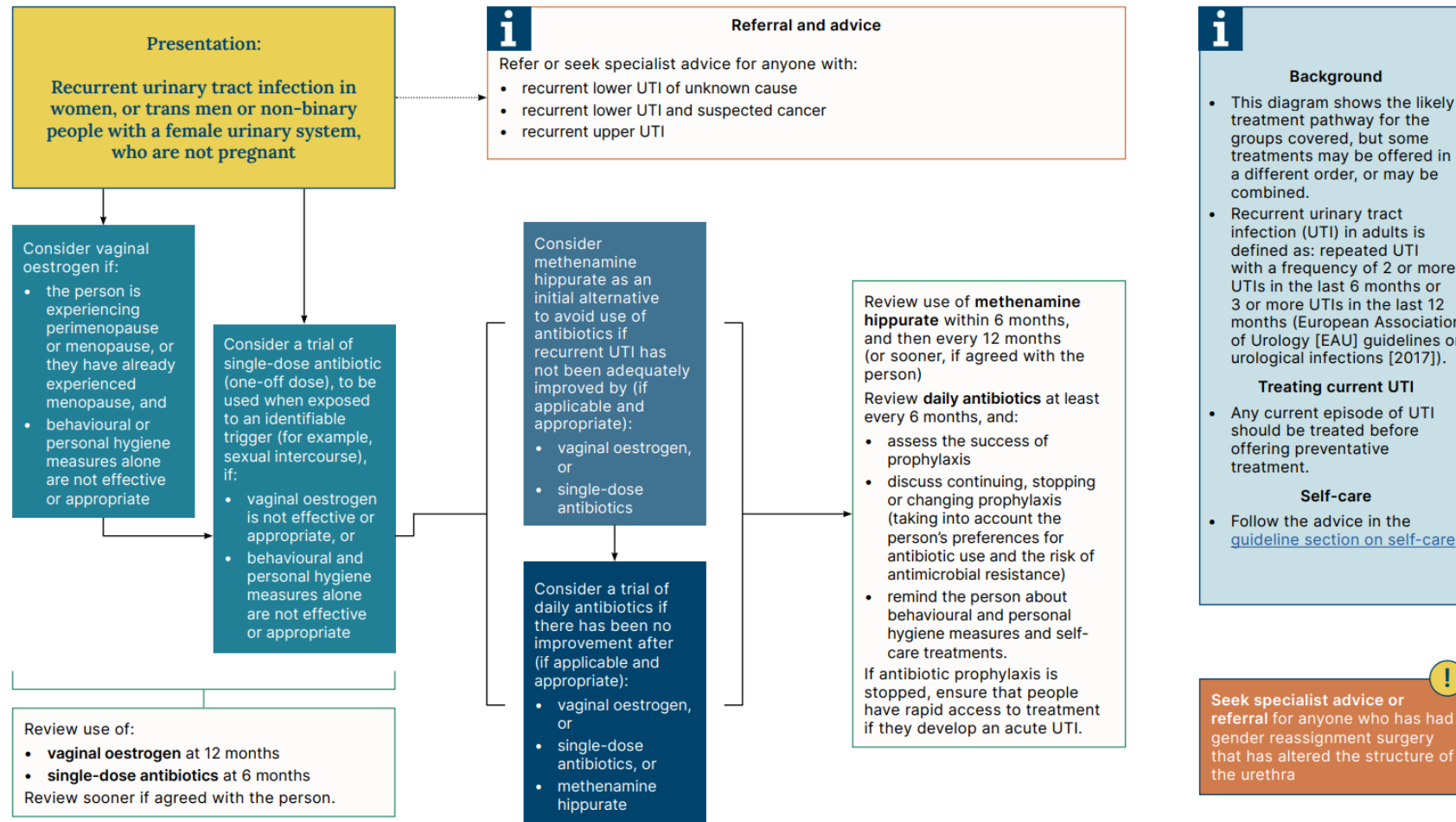
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- Women, trans-men or non-binary people with a female urinary system, who are not pregnant.
- Self-care & personal hygiene measures
- **Oestrogen**
- Single dose antibiotic prophylaxis
- **Methenamine Hippurate**
- Daily antibiotic prophylaxis

# Prevention of recurrent lower UTI in women, or trans men or non-binary people with a female urinary system, who are not pregnant





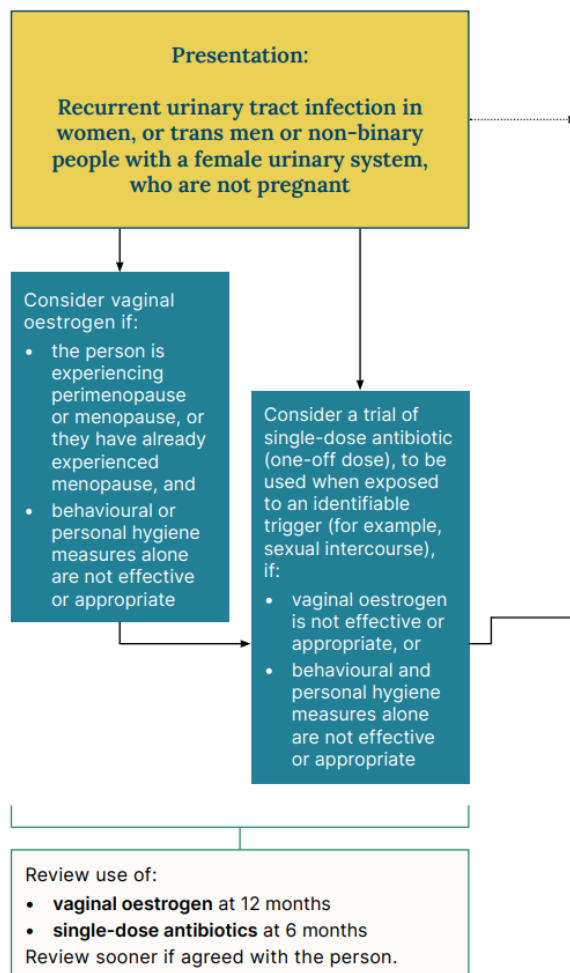
# Prevention of recurrent lower UTI in women, or trans men or non-binary people with a female urinary system, who are not pregnant



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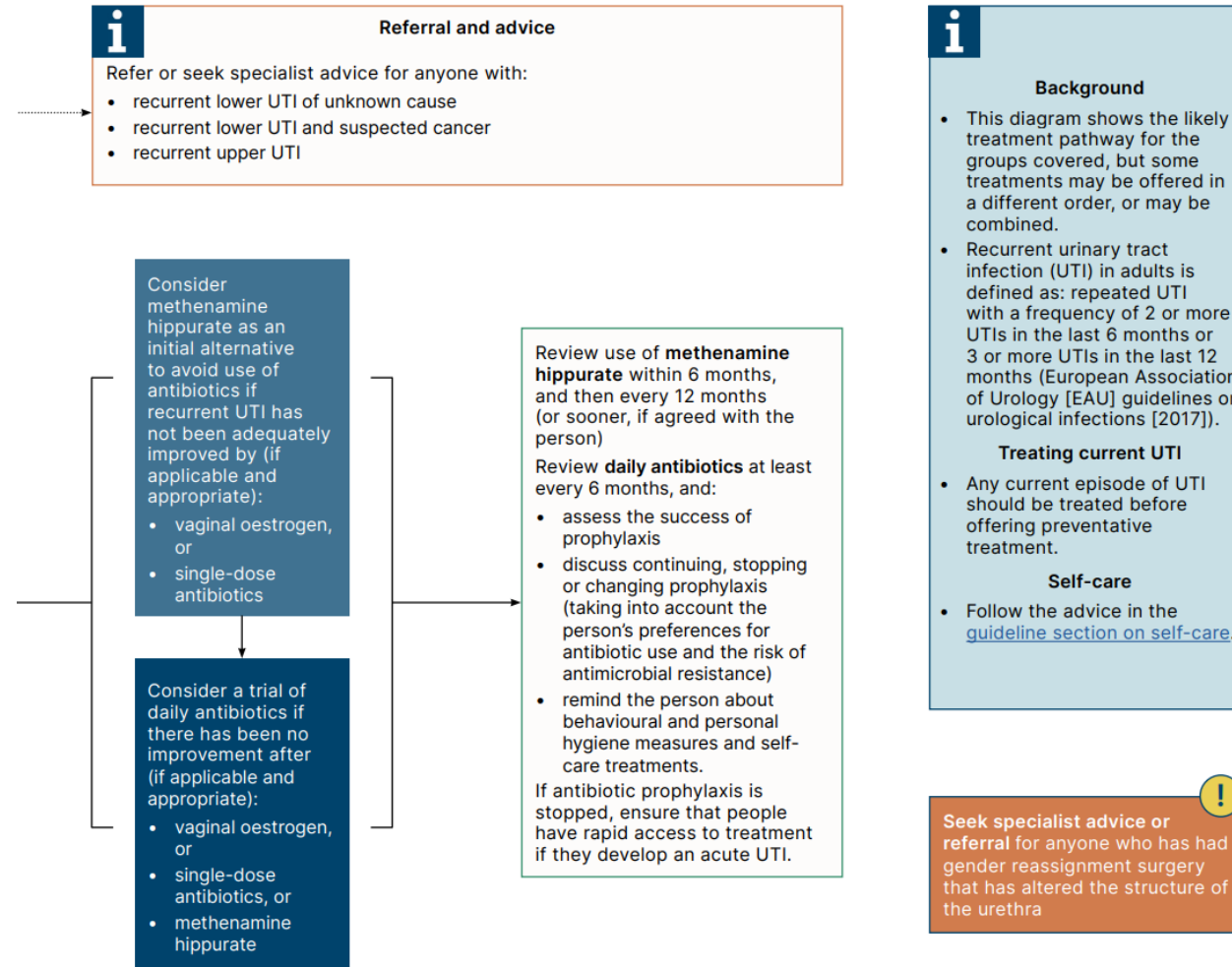


- Vaginal oestrogen
- Trial of single-dose antibiotic

# Prevention of recurrent lower UTI in women, or trans men or non-binary people with a female urinary system, who are not pregnant



- Methenamine hippurate
- Last-line:
- Trial of daily antibiotics



# Vaginal oestrogens



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- When discussing vaginal oestrogen for preventing recurrent UTI, cover the following to ensure shared decision making:
  - the severity and frequency of previous symptoms
  - the risk of developing complications from recurrent UTIs
  - the possible benefits of treatment, including for other related symptoms such as vaginal dryness
  - that serious side effects are very rare
  - that vaginal oestrogen is absorbed locally – a minimal amount is absorbed into the bloodstream, but this is unlikely to have a significant effect throughout the body
  - the person's preferred treatment option for vaginal oestrogen (e.g. cream, gel, tablet, pessary or ring) – [LSCMMG NetFormulary](#)
- Off-label use of vaginal oestrogen products
- Do not offer systemic hormone replacement therapy specifically to reduce the risk of recurrent UTI.
- Refer to NICE Menopause guidelines NG23 for those with personal history of breast cancer

# Methenamine hippurate



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- Urinary antiseptic
- Converted to formaldehyde & hippuric acid in an acidic urine environment
- Antibiotic resistance has not been demonstrated
- 1g twice daily
- Side effects – epigastric discomfort and some skin reactions (uncommon)
- *Pseudomonas*, *Proteus* & *Klebsiella* can result in alkaline urine and methenamine conversion may be hampered
- OTC cystitis relief sachets e.g. potassium citrate or sodium citrate should not be used while taking methenamine hippurate because these can make the medicine less effective
- LSCMMG NetFormulary – green
- Medical help should be sought for acute UTI symptoms



# Fluoroquinolones: Avoiding patient harm

- MHRA Drug Safety Update, further restricts the use of fluoroquinolones (FQ). January 2024
- FQs are useful and effective antibiotics & the **only oral antibiotic with pseudomonas cover**
- Given systemically can cause significant and irreversible side effects
- reported to cause serious side effects involving tendons, muscles, joints, nerves, or mental health
- Side effects can be delayed



## Restricted for certain circumstances:

Restricted:

- Resistance, side-effects, treatment failure or contra-indication to First-line antibiotics
- Remains a choice for limited indications -assess for appropriateness
- Ideally reserve for microbiology directed treatment where no suitable alternative exists

# General principals to FQ use



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- All patients who are prescribed an FQ should receive the MHRA PIL
- **Verbally discuss** the **potential risks and benefits** and document in notes
- Review long-term FQ prophylaxis: continue/stop/alternative
- Flagging high risk patients
- Assess any penicillin allergy label. True allergy or spurious label?
- Incorporate into SMR

# Advice to give to patients

- STOP taking and contact Dr immediately if experience:
- tendon pain or swelling
- joint pain or swelling in joints e.g., shoulders, arms, or legs
- abnormal pain or sensations, weakness in the legs or arms, or difficulty walking
- severe tiredness, depressed mood, anxiety, memory problems or severe sleeping problems
- changes in vision, taste, smell or hearing
- [FQ Patient Information Sheet MHRA](#)



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## Fluoroquinolone antibiotics (-oxacins): what you need to know about tendons, muscles, joints, nervous system, and psychological side effects

January 2024

### Key Information

- Fluoroquinolone medicines (ciprofloxacin, delafloxacin, levofloxacin, moxifloxacin, and ofloxacin) are effective **antibiotics** that treat serious and life-threatening infections
- Your doctor will advise you when and how to take antibiotics. Speak to your doctor if you think you are having a side effect
- Fluoroquinolones have been reported to cause serious side effects involving tendons, muscles, joints, and the nerves, and mental health effects which may include, but are not necessarily limited to, anxiety, panic attacks, and memory impairment – in a small proportion of patients, these side effects caused long-lasting or permanent disability
- From the currently available data it is not possible to calculate exactly how frequent these side effects occur. It appears that these side effects occur at least as often as between 1 and 10 people in every 10,000 who take a fluoroquinolone.
- There are no medicines that have been established to be effective for treating these side effects when associated with fluoroquinolones
- Fluoroquinolones have also been reported to cause psychiatric side effects including confusion, disorientation, anxiety, depression and suicidal thoughts or suicide attempts
- You may not notice some changes in your mood and behaviour so it is very important to tell your friends and family that you are taking these medicines, and that they have rare psychiatric side effects associated with them – others may notice changes and help you quickly identify any symptoms and that you need to talk to your doctor about
- If you develop thoughts of suicide or have attempted suicide, do not take any further doses of your fluoroquinolone, and talk to your doctor or another healthcare professional immediately

### Stop taking your fluoroquinolone antibiotic and contact your doctor immediately if you have the following signs of a side effect:

- Tendon pain or swelling, often beginning in the ankle or calf - if this happens, rest the painful area until you can see your doctor
- Pain in your joints or swelling in your shoulder, arms, or legs
- Abnormal pain or sensations (such as persistent pins and needles, tingling, pricking, numbness, or burning), weakness in your body, especially in the legs or arms, or difficulty walking
- Severe tiredness, depressed mood, anxiety, panic attacks, confusion, problems with your memory, or severe problems sleeping
- Changes in your vision, taste, smell, or hearing

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# Clinical case: Tendon rupture



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- **66yr male patient** with no known drug allergies. GP commenced Ciprofloxacin 500mg BD for 14/7 in February 2018. Indication: Infective exacerbation of Bronchiectasis. Added to repeat as '**Bronchiectasis Rescue Pack**'
- From 2018 to 2024 patient receives between: 4 to 9 rescue packs every year. No sputum culture prior to issue, or review following course for exacerbation
- **Sputum C&S:** May-17 isolated pseudomonas. All subsequent cultures: Normal
- **Sep-19:** GP advises pt on risk of tendon rupture. Pt happy to continue
- **Feb and Mar-24:** reports pain + swelling to left ankle. Management: NSAIDS + rest/physio/X-ray
- **May-24:** struggling with L ankle pain - referred to MSK
- **Sep-24:** US L ankle diagnosed ruptured tibialis posterior tendon. - now requiring surgery



# Clinical case: Tendon rupture

- Numerous contacts with primary secondary care clinicians. Nobody suggested a possible link with FQ use
- No individualised bronchiectasis action plan
- Pt risk factors for adverse effects: age >60 years, cumulative exposure
- MHRA March 2019: adverse reactions affecting musculoskeletal and nervous systems have been reported
- How would you proceed ?



# Tendon rupture case outcome

- MOT contacted pt to discuss. Initial disbelief
- GP consultation -discuss management options
- FQ was stopped - Doxycycline as rescue pack on acute (prompts review)
- Rescue pack process in-house review
- MHRA Yellow card report
  
- This case highlights:
  - Possible lack of awareness of tendon rupture and FQ or communication issues
  - A need for process review for rescue packs/any repeat antibiotic
  
- [Recommendations | Bronchiectasis \(non-cystic fibrosis\), acute exacerbation: antimicrobial prescribing | Guidance | NICE](#)



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## Lancashire & South Cumbria Medicines Management Group

Consensus decision-making and equity of access to medicines and optimisations for NHS organisations

[Find out more about LSCMMG](#)

## NHS Lancashire & South Cumbria Formulary

A new formulary for Lancashire and South Cumbria -

Search both LSCMMG and LSC NetFormulary from this site above or access the NetFormulary site below.

[Access LSC NetFormulary](#)



# L&SC Formulary



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net Formulary

Lancashire and South Cumbria Formulary

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**Introduction**

**Welcome to the Lancashire and South Cumbria ICB Formulary**

This formulary was developed with primary and secondary care clinicians with the aim of harmonising and consolidating the existing local formularies used within the region.

Please note that while some chapters have been fully reviewed by clinical groups, others were drafted in collaboration with the Formulary Working Group and have been reviewed via a consultation exercise so may be subject to change when fully reviewed. See 'news feed' below for more information.

Lancashire & South Cumbria Medicines Management Group

Search

- Direct Link: [Lancashire and South Cumbria Formulary](#)

## Useful Links

Prescribing Guidance		
<a href="#">Clinical Guidelines</a>	<a href="#">Information Leaflets</a>	<a href="#">Position Statements</a>
<a href="#">Shared-care Guidelines</a>	<a href="#">All Guidance</a>	<a href="#">LSCMMG Endorsed Secondary Care Guidelines</a>
LSCMMG Navigation		
<a href="#">LSCMMG Homepage</a>	<a href="#">LSCMMG Minutes and Meetings</a>	<a href="#">High Cost Drugs</a>
LSC Formulary Group		
<a href="#">Formulary</a>	<a href="#">LSCMMG New Drug Referral Form</a>	

## News Feed

### January 2025:

The 'Infections' chapter is now live.

### December 2024:

19.12.24 - Please find below the link to download the latest change log documenting any recent formulary changes.

[LSCMMG/Netformulary change log Dec 24 V1](#)

### November 2024:

28.11.24 - Please find below the link to download the latest change log documenting any recent formulary changes.

[LSCMMG/Netformulary change log Nov 24 V1.1](#)

### November 2024:

# L&SC Formulary: Chapter 5: Infections



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Formulary Chapter 5: Infections - Full Section

Notes:

**Prescribers must follow the relevant local and national guidance when treating an infection. Some anti-infectives require approval from the local Trust microbiology team for use, consult local guidance for further information.**

**Not all anti-infectives listed in this chapter will be available in all localities; availability will be guided by local need and resistance patterns.**

Useful Links

- [Blackpool Teaching Hospitals: Antimicrobial Formulary](#)
- [British Association for Sexual Health and HIV](#)
- [Central Lancashire/LSCFT/Morecambe Bay Primary Care: NICE Summary of antimicrobial prescribing guidance - managing common infections](#)
- [East Lancashire Primary Care: Antimicrobial guide primary care](#)
- [East Lancashire Secondary Care: Antimicrobial guide secondary care](#)
- [Lancashire Teaching Hospitals Secondary Care: Tap on the bugs app \(App store\)](#)
- [Lancashire Teaching Hospitals Secondary Care: Tap on the bugs app \(Google\)](#)
- [LSCMMG Recurrent UTI Prophylactic Antibiotic Pathway](#)
- [NICE CG165: Hepatitis B \(chronic\): diagnosis and management](#)
- [NICE CG97: Lower urinary tract symptoms in men: management](#)
- [NICE NG109: Urinary tract infection \(lower\): antimicrobial prescribing](#)
- [NICE NG112: Urinary tract infection \(recurrent\): antimicrobial prescribing](#)
- [NICE NG113: Urinary tract infection \(catheter-associated\): antimicrobial prescribing](#)
- [NICE NG120: Cough \(acute\): antimicrobial prescribing](#)
- [NICE NG125: Surgical site infections: prevention and treatment](#)
- [NICE NG19: Diabetic foot problems: prevention and management](#)
- [NICE NG191: COVID-19 rapid guideline: managing COVID-19](#)
- [NICE NG240: Meningitis \(bacterial\) and meningococcal disease: recognition, diagnosis and management](#)
- [NICE NG51: Sepsis: recognition, diagnosis and early management](#)
- [NICE NG78: Cystic fibrosis: diagnosis and management](#)
- [University Hospitals of Morecambe Bay: Antimicrobial guide secondary care](#)
- [West Lancashire Primary Care: Pan Mersey antimicrobial guide](#)
- [WHO: AWaRe classification of antibiotics for evaluation and monitoring of use, 2023](#)

<b>Methenamine Hippurate</b> BNF SPC BNF C	<b>Formulary</b> GREEN	Tablets 1g  For prevention of recurrent lower urinary tract infections (UTI) in women, in line with NG112.  Methenamine should only be used for prophylaxis and not for treatment.  <a href="#">NICE NG112: Urinary tract infection (recurrent): antimicrobial prescribing</a>
<b>Nitrofurantoin</b> BNF SPC BNF C	<b>Formulary</b> GREEN	Modified release capsules 100mg Capsules 50mg Liquid 25mg/5ml (paediatric use only, on approval by consultant microbiologist)  For patients with NG tubes or swallowing difficulties, please seek pharmacy advice.  <a href="#">MHRA: Nitrofurantoin now contraindicated in most patients with an estimated glomerular filtration rate (eGFR) of less than 45 ml/min/1.73m2</a> <a href="#">MHRA: Nitrofurantoin: reminder of the risks of pulmonary and hepatic adverse drug reactions</a>

# National Resources/Guidelines



Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Urinary tract infections						
<b>Lower urinary tract infection</b>  <b>NICE</b>  UK Health Security Agency  Last updated: Oct 2018	Advise paracetamol or ibuprofen for pain. <b>Non-pregnant women:</b> back up antibiotic (to use if no improvement in 48 hours or symptoms worsen at any time) or immediate antibiotic. <b>Pregnant women, men, children or young people:</b> immediate antibiotic. 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. If people have symptoms of pyelonephritis (such as fever) or a complicated UTI, see <a href="#">acute pyelonephritis</a> (upper urinary tract infection) for antibiotic choices. For detailed information click on the visual summary. See also the <a href="#">NICE guideline on urinary tract infection in under 16s: diagnosis and management</a> and the UK Health Security Agency <a href="#">urinary tract infection: diagnostic tools for primary care</a> .	<b>Non-pregnant women first choice:</b> nitrofurantoin (if eGFR ≥45 ml/minute) <b>OR</b>	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		trimethoprim (if low risk of resistance)	200mg BD	-		
		<b>Non-pregnant women second choice:</b> nitrofurantoin (if eGFR ≥45 ml/minute) <b>OR</b>	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		pivmecillinam (a penicillin) <b>OR</b>	400mg initial dose, then 200mg TDS	-	3 days	
		fosfomycin	3g single dose sachet	-	single dose	
		<b>Pregnant women first choice:</b> nitrofurantoin (avoid at term) – if eGFR ≥45 ml/minute	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days	
		<b>Pregnant women second choice:</b> amoxicillin (only if culture results available and susceptible) <b>OR</b>	500mg TDS	-	7 days	
		cefalexin	500mg BD	-		
<b>Treatment of asymptomatic bacteriuria in pregnant women:</b> choose from nitrofurantoin (avoid at term), amoxicillin or cefalexin based on recent culture and susceptibility results						
<b>Men first choice:</b> trimethoprim <b>OR</b>		200mg BD	-	7 days		
nitrofurantoin (if eGFR ≥45 ml/minute)		100mg m/r BD (or if unavailable 50mg QDS)	-			

- **NICE/UKHSA:** [Summary of antimicrobial guidance: Summary of antimicrobial prescribing guidance - managing common infections | RCGP Learning](#)



- *See visual summaries*

# Thank you for listening



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## Please complete our short online poll!



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### **Next session:**

*Role and benefits of Occupational Therapists*

Date: 18<sup>th</sup> February 2025

Speaker: Alison McCracken (Clinical  
Research Therapist - University Hospitals of  
Morecambe Bay NHS Foundation Trust)

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# Question and Answer



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