Managing Recurrent UTI and Reviewing Long-Term and Repeat Antibiotic Therapy

TARGET Antibiotics Webinar
March 2025

Presenter notes
Hello everyone, welcome

Thank you for joining this TARGET webinar today

I can't see any of you, but I know we have quite a few people subscribed.

I am *(chair introduce themselves)*. I will be chairing the session today and will be introducing our speakers and panelists in a moment

This is our 11th webinar in our collaborative series with the RCGP, looking at 'Managing Recurrent UTI and Reviewing Long-Term and Repeat Antibiotic Therapy'. You can find all our previous webinars on the TARGET toolkit on the RCGP website, and the recordings and slides of this webinar will be uploaded there in the next few weeks.

Following some introductions, our speaker will present for around 40-45 minutes, and we will aim to have 15 minutes at the end dedicated to Q&A discussion with our panellists.

Housekeeping:
- The chat function is disabled, so anonymous box before submitting your question. We will answer as many questions as possible in the allotted time.

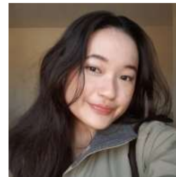
- Panellists can provide written answers to questions through the webinar, and we will save some questions for the discussion at the end.
- As mentioned, the recording of this webinar will be uploaded to the TARGET toolkit
- You will be sent a link with a brief survey from RCGP directly to your email shortly after the webinar, please do assist us in improving our webinars by filling this out.

Introductions – TARGET and RCGP

Dr Donna Lecky

Emily Cooper

Catherine Hayes


Ming Lee

Emily Whitehorne

Julie Brooke

Liam Clayton

Joseph Besford

Camilla Stevenson

Dr Dharini Shanmugabavan

We would first like to highlight some of the amazing TARGET and RCGP team who are responsible for the work that underpins the TARGET toolkit.

Introductions – Speakers and Panellists

Dr Leigh Sanyaolu
General Practitioner
and Doctoral Fellow
at Cardiff University

Speaker/Panellist

Naomi Fleming
Regional Antimicrobial
Stewardship Lead
East of England
Region, NHS England

Panellist

Avril Tucker
Antimicrobial
Pharmacist,
NHS Wales

Panellist

Dr Philippa Moore
Consultant Medical
Microbiologist,
Gloucestershire Hosp.
NHS Foundation Trust

Panellist

Next a big thank you to our speakers and panellists for supporting this event

I will ask them to turn on their cameras and introduce themselves now

(panellists introduce themselves)

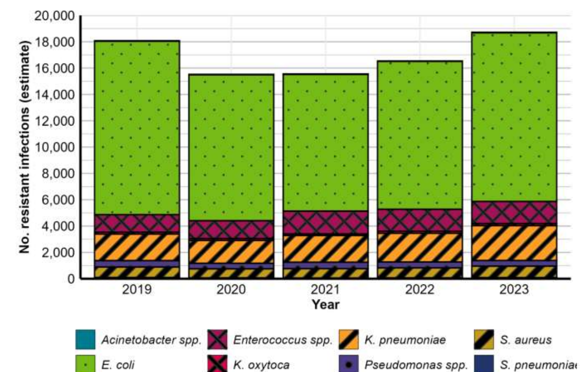
Aims

1. Explore the dynamics of recurrent UTI through the lens of patient and healthcare providers.
2. Highlight recent changes to national guidance for recurrent UTI management.
3. Discuss the process for reviewing patients on long-term antibiotics for the prevention and treatment of recurrent UTI using the TARGET 'how to' guide

Linking UTIs to health outcomes

- Rates of antibiotic-resistant *E. coli* blood stream infections have been rising over the last two years.[1]
- **51%** of *E. coli* blood stream infections are linked to the urogenital tract.[2]
- After RTIs, UTIs are the most prescribed for infection in primary care.[3]
- Longer duration and multiple courses of antibiotics for UTI is associated with greater odds of resistance. This can last for a year after treatment.[4]

Figure 2.2. Annual estimated total of the burden of antibiotic-resistant bacteraemia episodes, England 2019 to 2023



[1]UKHSA, ESPAUR Report, 2024
[2]Abernethy et al. J. Hosp. Infect, 2017

[3]Dolk et al. Journal of Antimicr Chem., 2018
[4]Costelloe C et al. BMJ, 2010

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We are going to very briefly highlight the impact of UTIs on some health outcomes and the impact they can have

- Data from the latest ESPAUR report shows that rates of *E. coli* blood stream infections are rising (see graph) and have now surpassed pre-pandemic levels
- 51% of *E. coli* blood stream infections are linked to the urogenital tract
- UTIs contribute the highest number of deaths in people with *E. coli* blood stream infection
- Around half of *E. coli* blood stream infections occur in people over 75 years of age

We have shown that resistance is important and is increasing – but does our antibiotic use cause increased risk of antibiotic-resistant infections in our patients? Costelloe et al. conducted a systematic review and meta-analysis examining previous antibiotic use and subsequent resistance. It found that antibiotic use in the past 6 months increased the risk of resistance two times (2.18).
The meta-analysis showed that longer duration and multiple courses of antibiotics were associated with greater resistance.

This study also showed that odds for resistance were significantly higher for up to a year after the UTI was managed.

References

1. UKHSA 2024 ESPAUR Report - https://www.gov.uk/government/publications/english-surveillance-programme-antimicrobial-utilisation-and-resistance-espaur-report
2. Abernethy J, Guy R, Sheridan EA et al. Epidemiology of Escherichia coli bacteraemia in England: results of an enhanced sentinel surveillance programme. *Journal of Hospital Infection* 2017; 95(4): 365-375. ISSN 0195-6701
3. Dolk F C K, Pouwels K B, Smith D R M, Robotham J V,Smieszek T. Antibiotics in primary care in England: which antibiotics are prescribed and for which conditions?. *Journal of Antimicrobial Chemotherapy* 2018; 73(2): ii2–ii10. https://doi.org/10.1093/jac/dkx504
4. Costelloe C, Metcalfe C, Lovering A, Mant D, Hay AD. Effect of antibiotic prescribing in primary care on antimicrobial resistance in individual patients: systematic review and meta-analysis. BMJ. 2010 May 18;340:c2096. doi: 10.1136/bmj.c2096. PMID: 20483949. https://www.bmj.com/content/bmj/340/bmj.c2096.full.pdf

How are we defining Recurrent UTI?

2 or more UTIs in the last 6 months

or

3 or more UTIs in the last 12 months[1]

Urinary tract infection (recurrent): antimicrobial prescribing

NICE guideline
Published: 31 October 2018
Last updated: 12 December 2024

www.nice.org.uk/guidance/ng112

March 2025 www.rcgp.org.uk/TARGETantibiotics

[1]*NICE NG112, 2018*
[2]*NHS conditions, Urinary Tract Infections*

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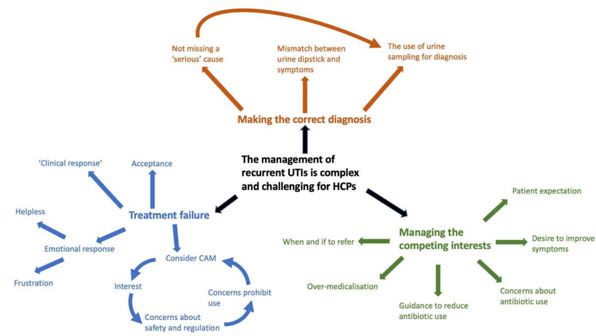
- According to NICE, patients are diagnosed with recurrent UTI if they experience 2 or more infections within 6 months, or 3 or more infections within a year

References:

1. Urinary tract infection (recurrent): antimicrobial prescribing NG112. Available from: Urinary tract infection (recurrent): antimicrobial prescribing (nice.org.uk)
2. NHS conidiations – Urinary tract infections. Urinary tract infections (UTIs) - NHS

Patients’ and Healthcare Professionals’ Experiences and Views of Recurrent UTI in Women

- Recurrent UTI is a ‘chronic’ condition with a significant impact on the lives of those affected
- Patients have serious concerns about prophylactic antibiotic use and feel that non-antibiotic options need further research and discussion
- HCPs find the management of rUTIs complex and challenging



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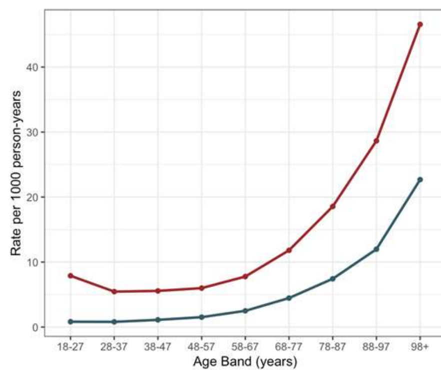
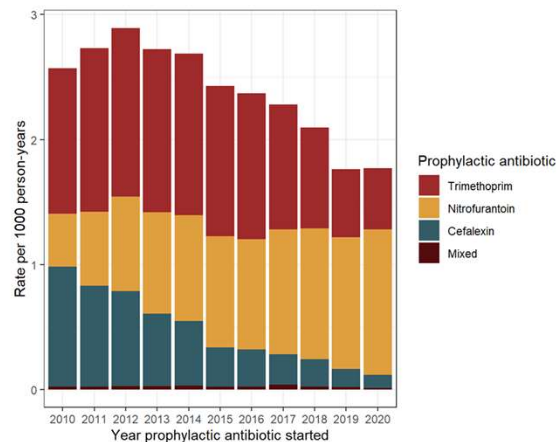
- Prophylactic antibiotic use can be “transformative”; however many patients have concerns about their use, and feel that more research and discussion on non-antibiotic options should be explored
- Healthcare professionals share similar views about the impact of rUTIs, and find the management to be complex and challenging

Reference

Sanyaolu et al. Patients’ and Healthcare Professionals’ Experiences and Views of Recurrent Urinary Tract Infections in Women: Qualitative Evidence Synthesis and Meta-Ethnography. *Antibiotics* 2023; 12(3): 434. https://doi.org/10.3390/antibiotics12030434

Recurrent UTI and prophylactic antibiotic use in women: a cross-sectional study in primary care





Sanyaolu et al. BJGP, 2024

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A retrospective cross-sectional study in Welsh general practice using the Secure Anonymised Information Linkage (SAIL) Databank aimed to describe the prevalence, characteristics, and urine profiles of women with rUTIs with and without prophylactic antibiotic use in Welsh primary care

- In total, 6% of women had recurrent UTIs & 1.7% were prescribed prophylactic antibiotic use
- Only 49% of women who took prophylactic antibiotics met the definition of rUTIs before initiation
- 64% of women had urine cultured before starting prophylaxis

- Suggests a potential to improve urine culture testing for antibiotic sensitivity
- Evidence of resistance on urine culture prior to initiation of prophylactic antibiotics

Reference

Sanyaolu et al. Recurrent urinary tract infections and prophylactic antibiotic use in women: a cross-sectional study in primary care. *BJGP* 2024; 74(746): e619-e627. https://doi.org/10.3399/BJGP.2024.0015

TARGET ‘How to…?’ Booklet for Recurrent UTI

TARGET

The ‘How to…?’ Series

How to undertake a structured clinical review with patients aged 16 and over who experience:

Recurrent Urinary Tract Infection

First Edition

March 2025

1

TARGET is operated by the UK Health Security Agency Version CD1.0 Pub: March 2025 Rev: Sep 2025

+ Worked examples
+ Quick-reference checklists

Time constraints of consultations in practice makes it difficult to provide a targeted review

Need for structured approach to medication review with relevant treatment guidelines, patient facing material, self-care and digital apps

Role play of ‘typical consultation’ with production of the resource

Developed by expert stakeholders and reviewed by representatives across the country

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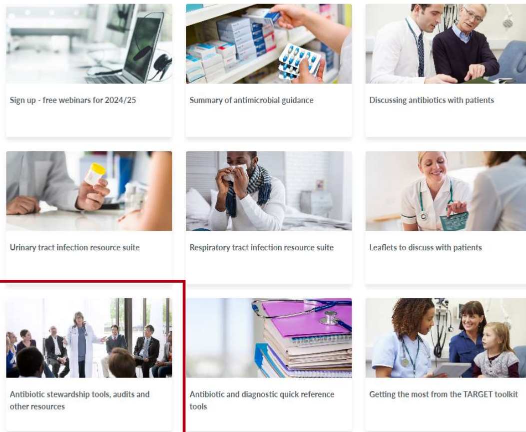
- TARGET has produced a How to...? Booklet to support primary care teams to carry out evidence-based structured clinical reviews of patients with recurrent UTIs
- It provides steps and resources to review patients who have received antimicrobials for the prevention or treatment of recurrent UTI
- The tool development was done through collaboration between UKHSA and NHS England. The development team included, general practitioners, pharmacists, nurses, patient representatives, microbiologists and other clinical and policy stakeholders.
- Alongside the booklet will be a slide deck containing worked examples, as well as quick-reference checklists which follow the structure of the guidance
- The booklet, checklists and worked examples will be published on the TARGET toolkit this month, and will undergo a six-month user consultation period to ensure the resources are fit for purpose
    - If you would like to provide feedback on the how to resources, please follow the QR code here

Reference

https://elearning.rcgp.org.uk/mod/book/view.php?id=12649

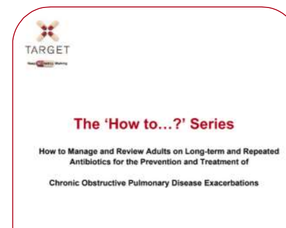
Access the ‘How to…?’ guides via the TARGET Toolkit



https://elearning.rcgp.org.uk/mod/book/view.php?id=12649

Chronic obstructive pulmonary disease (COPD)

- How to... ? resource for COPD V1.1 (PDF file, 402 KB)
- How to... ? worked examples for COPD V1 (PPT)



Acne Vulgaris

- How to... ? resource for Acne Vulgaris V1.1 (PDF file, 362 KB)
- How to... ? worked examples for Acne Vulgaris V1 (PPT)

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- The recurrent UTI how to guide adds to the series hosted on the TARGET toolkit, which also includes guides on Acne and COPD
- The how to guides are published on the TARGET toolkit on the RCGP website – this slide shows how to navigate the toolkit to access them

Reference

https://elearning.rcgp.org.uk/mod/book/view.php?id=12649

Clinical Scenarios

Guideline based management

Urinary tract infection (recurrent): antimicrobial prescribing

NICE guideline
Published: 31 October 2018
Last updated: 12 December 2024

www.nice.org.uk/guidance/ng112

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- We will now look at how you can use the TARGET rUTI How to guide to review different clinical scenarios
- These treatments are based on NICE recurrent UTI guidance – this guidance was recently reviewed and updated in December 2024

Reference

Urinary tract infection (recurrent): antimicrobial prescribing NG112. Available from: Urinary tract infection (recurrent): antimicrobial prescribing (nice.org.uk)

Scenario – Mei Ling

Consider the following details:

- A 64-year-old female, postmenopausal with recurrent UTI
- Has tried personal hygiene measures and self-care treatments including OTC cranberry capsules

On examination/review:

- Abdominal examination normal
- Has experienced 3 UTIs in the last 12 months
- Feels cranberry capsules are not helpful

Please consider the following scenario…

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Patient centred review

	Item to consider	Patient response
Condition and consultation history	Establish history of patients' condition	• Experienced recurrent UTIs since going through the menopause (3 in the last 12 months) • Vaginal dryness in the last 3 months • No haematuria
	Patient baseline habits	• Practicing personal hygiene measures • Eats well and sleeps well
	Are they under a specialist consultant	• Not currently under a specialist consultant
Treatment History	Treatment/Prescription history	• OTC cranberry capsules • No other relevant medications • Acute: 3 courses of nitrofurantoin within last 12 months (MSU completed each time and confirm susceptibility)
	Side effects to treatment	• None reported
	Adherence to treatment	• Compliant with GP advice
	Patient's perception of their condition	• Feels current prevention strategies have had minimal effect
Patient Impact and preference	Explore impact UTIs have had on self-esteem or mental health	• Patient feels concerned with risk of UTIs coming back, creating anxiety and reluctance to plan holidays
	What are the patient's preferences and expectations from treatment?	• Aim is to prevent the UTI infections from occurring • Would be happy to trial oral or topical treatment • Would like treatment for vaginal dryness

Presenter notes

This table gives an overview of the factors that need to be considered when guiding the discussions with the patient and deciding on the most appropriate course of action

Over the counter (OTC) treatments can be purchased but are not available on prescription, these include cranberry products and D-mannose.

Confirm self-care hygiene advice as per NICE, but remember to be sensitive in this as many people have already tried these things:

- Wipe from front to back when going to the toilet
- Do not hold urine too long, pass urine when needed
- Pass urine after sex to flush out any bacteria
- Drink enough fluids not to be dehydrated

Perfumed products may be irritant and vaginal douching is not recommended

Poll (to appear interactively during the webinar)

Based on the information above, which treatment option would be best to discuss with Mei?

a) Methenamine hippurate
b) Vaginal oestrogen

c) Daily antibiotic prophylaxis
d) Referral to specialist

Management

Prescribing

- Discuss options with patient
- Consider prescribing **vaginal oestrogen**
  - Explain possible benefits for related symptoms such as vaginal dryness
  - Vaginal oestrogen use for recurrent UTI prevention is off-licence but is recommended by NICE[1]

Prevention/Advice

- Continue to practice prevention measures and maintain adequate hydration
- Explain 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
- Signpost patient to NHS menopause help and support groups[2]
- Provide TARGET Treating Your UTI patient information leaflet

[1]*NICE, 2018*
[2]*NHSE*

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- In this case, we should consider vaginal oestrogen as the patient is postmenopausal and self-care measures alone have not proven effective
  - Explain that this may benefit potential symptoms such as vaginal dryness, and that adverse effects on the body are unlikely as only a minimal amount is absorbed into the bloodstream
  - Explain that the it can take up to 3 months for the vaginal oestrogen to become effective and that the patient should re-consult if they still don't feel better after this point
- Prevention measures should be continued, and you may also signpost to the NHS website for help and support with the menopause

References

1. National Institute for Health and Care Excellence. Urinary tract infection (recurrent): antimicrobial prescribing 2018. https://www.nice.org.uk/guidance/ng112
2. NHS. Menopause: help and support. https://www.nhs.uk/conditions/menopause/help-and-support/

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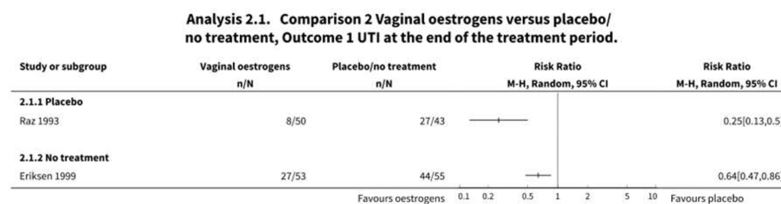
Evidence for Vaginal Oestrogens

Oestrogens for preventing recurrent urinary tract infection in postmenopausal women

Vaginal oestrogen cream significantly reduced the risk of recurrent UTI in postmenopausal women compared with placebo

- Oestrogen creams were significantly more effective than antibiotics in reducing the risk of recurrent UTI over a 3-month period
- Oestrogen administered via a pessary was not as effective as antibiotics over a 9-month period



Analysis 2.1. Comparison 2 Vaginal oestrogens versus placebo/ no treatment, Outcome 1 UTI at the end of the treatment period.

Study or subgroup	Vaginal oestrogens n/N	Placebo/no treatment n/N	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
2.1.1 Placebo				
Raz 1993	8/50	27/43		0.25[0.13,0.5]
2.1.2 No treatment				
Eriksen 1999	27/53	44/55		0.64[0.47,0.86]
		Favours oestrogens	0.1 0.2 0.5 1 2 5 10	Favours placebo

Perrotta et al. Cochrane Reviews, 2008

Presenter notes

- A Cochrane review found that vaginal oestrogen cream for 8 months significantly reduced the risk of recurrent infection in postmenopausal women compared with placebo
- One study reported that vaginal oestrogen creams were significantly more effective than oral antibiotics in reducing the risk of recurrent UTI over a 3-month period (no difference seen 2 months after treatment had stopped)
- Vaginal oestrogen administered via a pessary were not as effective as oral antibiotics over a 9-month period

Reference

Perrotta C, Aznar M, Mejia R, Albert X, Ng CW. Oestrogens for preventing recurrent urinary tract infection in postmenopausal women. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD005131. DOI: 10.1002/14651858.CD005131.pub2.

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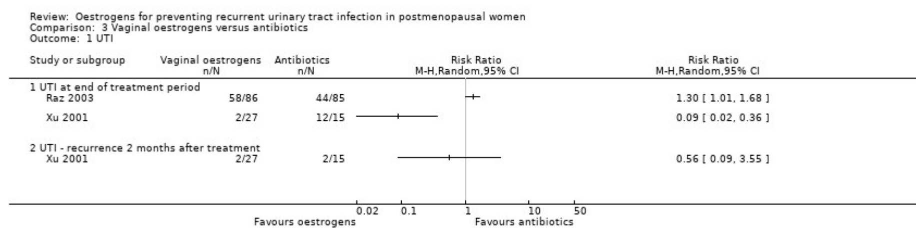

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Presenter notes

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Perrotta C, Aznar M, Mejia R, Albert X, Ng CW. Oestrogens for preventing recurrent urinary tract infection in postmenopausal women. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD005131. DOI: 10.1002/14651858.CD005131.pub2.

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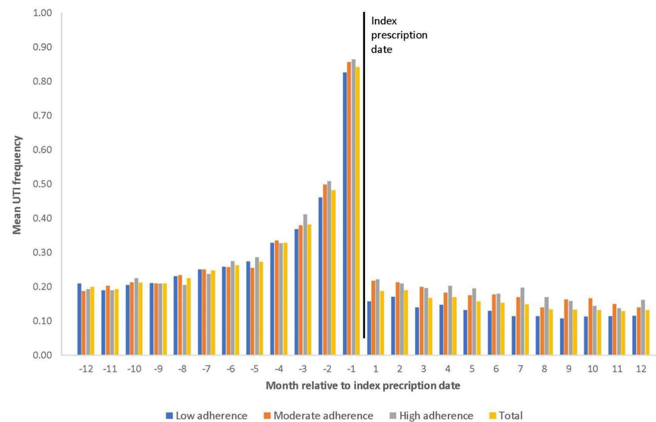
Evidence for Vaginal Oestrogens

Efficacy of vaginal oestrogen for recurrent urinary tract infection prevention in hypoestrogenic women

- Women with recurrent UTIs who were prescribed vaginal oestrogen experienced a 52% reduction in UTI frequency (from 3.9 to 1.8) in the following year



Mean UTI frequency in 12 months before and after vaginal estrogen prescription

Tan-Kim et al. Am J Obstet Gynecol., 2023

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- In a retrospective cohort study of over 5000 women with recurrent UTI who were prescribed vaginal oestrogen, the frequency of infection reduced by more than 50% in the following year
- Were unable to capture information on other prophylactic agents eg methenamine, prophylactic antibiotics, urine culture evidence of UTI (miss symptomatic UTIs not cultured) (LS)

Reference

Tan-Kim J, Shah NM, Do D, Menefee SA. Efficacy of vaginal estrogen for recurrent urinary tract infection prevention in hypoestrogenic women. Am J Obstet Gynecol. 2023; 229(2): 143.e1-143.e9. doi:10.1016/j.ajog.2023.05.002

TARGET Treating Your UTI Leaflets

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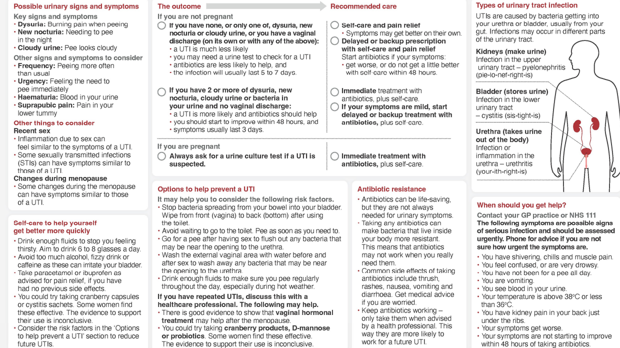
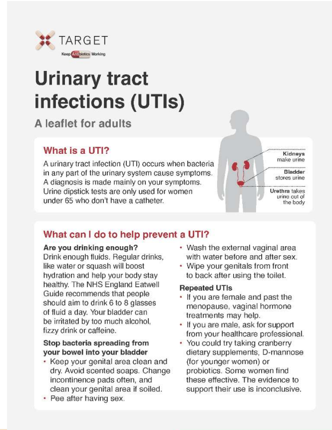
UTI Leaflet – Women Under 65 Years


Treating your
Urinary tract infection (UTI)
For women under 65 years with suspected lower urinary tract infections (UTIs) or lower recurrent UTIs (cystitis or urethritis)

UTI Leaflet – All Adults


Urinary tract infections (UTIs)
A leaflet for adults
What is a UTI?
What can I do to help prevent a UTI?

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- The TARGET Treating Your UTI patient information leaflets have been designed to be used during consultation with adults who have a suspected UTI
    - One leaflet is designed specifically for the management of suspected UTI in women under 65
    - The ‘All Adults’ leaflet provides information that is applicable to women of all ages, including those over 65 where the advice differs
- This leaflets are endorsed by NICE to use with the prescribing guidelines and is a useful tool to explain the treatment decision pathway, which can therefore be helpful for less experienced staff.
- They include information on the types of UTI, illness duration, self-care and prevention advice and some advice on recurring UTIs and when to re-consult.
- The leaflets are available on the TARGET website and can also be linked to your computer clinical systems. For instance, Accurx has embedded all TARGET leaflets into their SMS services

References

1. https://elearning.rcgp.org.uk/mod/book/view.php?id=12647&chapterid=441
2. https://elearning.rcgp.org.uk/mod/book/view.php?id=12647&chapterid=443

Review

Review treatment within the next 12 months, or earlier if agreed with the patient[1]

During the review…

- assess if patient has experienced any UTIs and if there have been any side effects to treatment
- if relevant, discuss other symptoms of the menopause that may have improved, such as vaginal dryness, referring to NICE guidelines[2]
- if no further (or few mild) UTIs experienced, discuss continued vaginal oestrogen use weighing up benefits and risk. Continue with prevention behaviours (hydration, post coital voiding, personal hygiene etc…)
- if UTIs experienced, consider change in treatment or addition of another agent

[1]NICE NG112
[2]NICE NG23

Presenter notes

- Review effectiveness of treatment with vaginal oestrogen within 12 months, or earlier if agreed with the person
- Discuss the following key points to ensure shared decision making when prescribing vaginal oestrogen:
  - 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
  - the possible adverse effects such as breast tenderness and vaginal bleeding (which should be reported because it may require investigation)
  - the uncertainty of endometrial safety with long-term or repeated use
  - preferences of the woman for treatment with vaginal oestrogen.

References

1. National Institute for Health and Care Excellence. Urinary tract infection (recurrent): antimicrobial prescribing 2018. https://www.nice.org.uk/guidance/ng112
2. National Institute for Health and Care Excellence. Menopause: identification and management 2015. https://www.nice.org.uk/guidance/ng23

Scenario – Robert Smith

Consider the following details:

- 45-year-old male, labourer by profession

On examination/review:

- Now experiencing 2nd UTI episode within 6-month period

In this scenario…

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Patient centred review

	Item to consider	Patient response
Condition and consultation history	Establish history of patient's condition	• Experiencing 2nd UTI within 6-month period • Experiencing more frequent urination at night
	Patient baseline habits	• Smoker: 10/day for the past 5 years • Alcohol: 15-20 units over the weekends • Reports drinking very little water throughout the day (difficult due to job role) • Not sleeping well due to job stress and UTI symptoms
	Are they under a specialist consultant?	• Not currently under a specialist
Treatment History	Treatment/Prescription history	• Nil OTC/other relevant medications • Acute: Nitrofurantoin course 3 months ago
	Side effects to treatment	• None reported
	Adherence to treatment	• Completed full course of antibiotics 3 months ago
	Patient's perception of their condition	• Concerned about new UTI episode causing time off work
Patient Impact and preference	Explore impact UTIs have had on self-esteem or mental health	• Patient is suffering with sleeping issues and anxiety since experiencing 2nd UTI
	What are the patient's preferences and expectations from treatment?	• Would like another course of antibiotics • Patient cannot afford to have time off work for sickness

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Poll (to appear interactively during the webinar)
Of the choices below, what is one of the next management option you need to consider?

a) Methenamine hippurate
b) A trial of daily antibiotics
c) D-mannose tablets
d) Referral to specialist

Management

Prescribing

- Prescribe for acute UTI as per NICE guidance and **refer the patient to specialist**
  - Ask patient for MSU sample for culture and susceptibility testing
  - Prescribe an empirical course of antibiotics for acute UTI whilst patient awaits review by specialist, review with susceptibility result
  - Further preventative management options can be guided by a specialist

Prevention/Advice

- Avoid too much alcohol – advise on cutting down
- Drink enough fluids to stop the patient feeling thirsty (6-8 glasses per day)
- Take paracetamol or ibuprofen at regular intervals for pain relief
- Discuss and explore anxiety and impacts of UTIs on mental health

NICE NG112, 2018

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- As the patient is male, we would refer this case to a specialist
- In the meantime, prescribe for an acute UTI according to the NICE guidance and relay advice on hydration, pain relief and alcohol
- Need for MSU as complicated UTI (LS)
- Consider whether the patient is under psychological distress from the UTI, discussions may include mental health referral if appropriate

Recurrent UTI – urine sample

- Patients with rUTIs should have a mid-stream urine (MSU) sample sent for culture when symptomatic. [1,2]
  - Empirical antibiotic therapy can be started whilst awaiting results.
  - Patients should be counselled on how to provide a specimen to minimise the chance of contamination.
  - Urine culture should be repeated with each symptomatic episode to provide susceptibility results and guide treatment.
  - Do not send a sample after treatment for test of cure. Urine cultures sent in the absence of symptoms are unlikely to be helpful, may detect asymptomatic bacteriuria and lead to inappropriate antibiotic use.

[1]*NICE NG112, 2018*
[2]*Sanyalou et al. BJGP, 2024*

Presenter notes

Patients with rUTIs should have a mid-stream urine (MSU) sample sent for culture when symptomatic, prior to antibiotics being initiated, to provide susceptibility results and guide antibiotic treatment. [2]

Empirical antibiotic therapy can be started whilst awaiting results.

Patients should be counselled on how to provide a specimen to minimise the chance of contamination. Refer to local resources you can use to discuss this information with patients.

Urine culture should be repeated with each symptomatic episode to provide susceptibility results and guide treatment.

Do not send a sample after treatment for test of cure. Urine cultures sent in the absence of symptoms are unlikely to be helpful, may detect asymptomatic bacteriuria and lead to inappropriate antibiotic use.

References:

1. Urinary tract infection (recurrent): antimicrobial prescribing NG112. Available

from: Urinary tract infection (recurrent): antimicrobial prescribing (nice.org.uk)
2. Sanyaolu et al. Recurrent urinary tract infections and prophylactic antibiotic use in women: a cross-sectional study in primary care. BJGP 2024; 74(746): e619-e627. https://doi.org/10.3399/BJGP.2024.0015

Referral to specialist care

Referral and seeking specialist advice for recurrent UTI

1.1.4 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, in line with NICE's guideline on urinary tract infection in under 16s
- people with suspected cancer, in line with NICE's guideline on suspected cancer: recognition and referral
- anyone who has had gender reassignment surgery that involved structural alteration of the urethra. **[2018, amended 2024]**

 NICE NG112, 2018

Presenter notes

This slide shows the list of patient groups who should be referred to specialist care, as per NICE guidelines

Reference

National Institute for Health and Care Excellence. Urinary tract infection (recurrent): antimicrobial prescribing 2018. https://www.nice.org.uk/guidance/ng112

Scenario – Angela Carter

Consider the following details:

- 30-year-old female, non pregnant with recurrent UTI
- Completed 6-month course of nitrofurantoin 50mg at night

On examination/review:

- No breakthrough UTIs within the last 6 months
- No adverse effects to treatment

The next scenario shows…

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Patient centred review

	Item to consider	Patient response
Condition and consultation history	Establish history of patient's condition	• Has experienced recurrent UTIs since early 20s
	Patient baseline habits	• Generally well
	Are they under a specialist consultant?	• Not currently under a specialist consultant
Treatment History	Treatment/Prescription history	• Taking nitrofurantoin 50mg at night for the last 6 months • Has had repeated courses of antibiotics over the last 2 years prior to prophylaxis • Continues to practice personal hygiene measures
	Side effects to treatment	• None reported
	Adherence to treatment	• Patient is compliant to treatment
	Patient's perception of their condition	• Concerned about coming off antibiotics and UTIs returning
Patient Impact and preference	Explore impact UTIs have had on self-esteem or mental health	• Does not report any negative impact on mental health or self-esteem
	What are the patient's preferences and expectations from treatment?	• Would be willing to trial coming off antibiotics with support • Does not want UTIs to return

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Poll (to appear interactively during the webinar)
Of those listed below, which course of action would you discuss with Angela?

a) Discontinue the antibiotic prophylaxis
b) Continue with the nightly antibiotic prophylaxis
c) Change prophylaxis to methenamine hippurate
d) Refer to specialist

Management

Prescribing

- Discuss **discontinuing repeat antibiotic prophylaxis** – shared care decision
  - Advise of potential side effects/AMR
  - 48% of patients who stop continuous antibiotic prophylaxis at 6-months, did not return to suffering rUTIs in the next 6 months[1]
  - Test of cure is not required in asymptomatic patients at the end of a course of prophylaxis

Prevention/Advice

- Discuss OTC products such as **cranberry products** or **D-mannose**
- Supply urine sample bottle with instructions of when to use
- Provide a 'self-start' prescription of stand-by antibiotics based on most recent sensitivities
- Provide information on self-management and stand-by pack advice sheet
- Provide TARGET Treating Your UTI patient information leaflet

[1]*Harding et al. BMJ, 2022*

Presenter notes

- Whilst the antibiotics have proven effective, the patient should be advised of the potential side effects and resistance and encouraged to discontinue the repeat antibiotic prophylaxis
- A recent trial found that half of patients who stopped continuous antibiotic prophylaxis after 12 months, did not return to suffering rUTIs in the following 6 months
- Over the counter products, such as cranberry and D-mannose, can be suggested to prevent further infections if the patient wishes to try them
- Patient should also be provided with a urine sample bottle and self-start prescription of standby antibiotics if an infection returns

References

1. Harding C, et al. Alternative to prophylactic antibiotics for the treatment of recurrent urinary tract infections in women: multicentre, open label, randomised, non-inferiority trial. *BMJ* 2022; 376: e068229. https://doi.org/10.1136/bmj-2021-0068229

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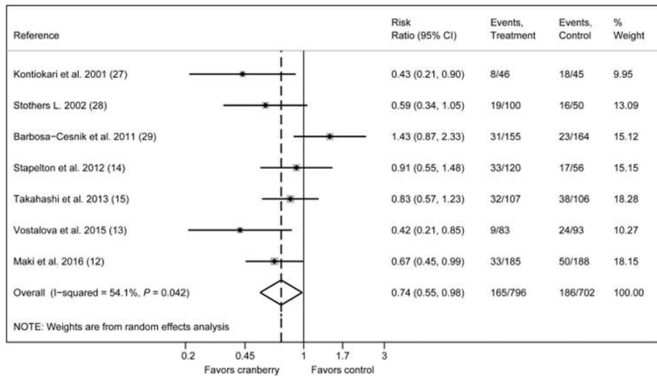
Evidence for Cranberry Products

Cranberry **reduced the risk of UTIs by 26%** vs. placebo, in [younger] women with recurrent UTIs[1]



- Cranberry is **contraindicated in patients taking warfarin** – patients should be advised to consider the sugar content of cranberry products[2]
- Cranberry **reduced the number of UTIs** in some groups (women with rUTI, children), but not others (elderly people in care homes, pregnant women)[3]

[1]*Fu et al. J Nutr., 2017*
[2]*NICE NG112, 2018*
[3]*Williams et al. Cochrane Reviews. 2024*

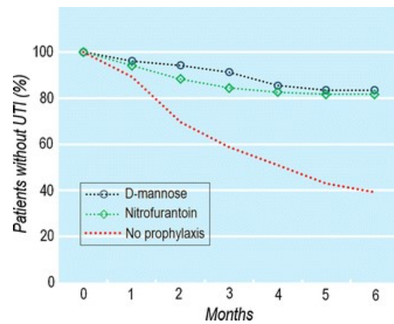
Presenter notes

- NICE summarise that the evidence for cranberry products is conflicting in different patient groups
- A 2017 systematic review found that cranberry products reduced the risk of UTIs by 26% in younger women with recurrent UTIs
    - However evidence has found no benefits for other patient groups (i.e. pregnant women, children and elderly people in care homes)
- There is currently no established regimen for what dose to use and no formal regulation by health authorities of cranberry products. In particular, the dose suggested may not be included on the package

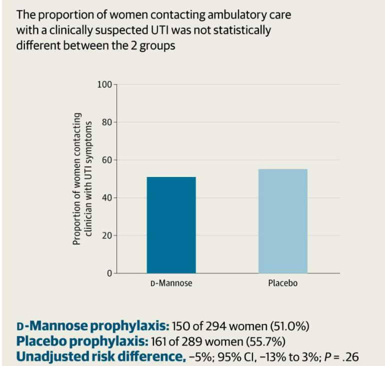
References

1. Reducing the chance of recurrent urinary tract infection (UTI). Decision aid: user guide and data sources, NICE. Available at: [NG112 Patient decision aid user guide for healthcare professionals (nice.org.uk)]
2. Fu Z, Liska D, Talan D, Chung M. Cranberry Reduces the Risk of Urinary Tract Infection Recurrence in Otherwise Healthy Women: A Systematic Review and Meta-Analysis. *J Nutr*. 2017; 147(12): 2282-2288. doi: 10.3945/jn.117.254961. Epub
3. Williams G, Stothart CI, Hahn D, Stephens JH, Craig JC, Hodson EM. Cranberries for preventing urinary tract infections. *Cochrane Database of Systematic Reviews* 2023, Issue 11. Art. No.: CD001321. DOI:10.1002/14651858.CD001321.pub7.

Evidence for D-mannose



(Kranjčec et al. World J Urol., 2014)



(Hayward et al. JAMA, 2024)

Evidence on D-mannose in combination with other treatments can be found in a 2022 Cochrane Review[1]

[1]Cooper et al. Cochrane Reviews. 2022

Presenter notes

Similarly, the evidence for D-mannose is conflicting, but some women may wish to try it.

(click) D-mannose for 6 months **significantly reduced the risk** of recurrent UTI in non-pregnant women with a history of recurrent UTI compared with no treatment

- D-mannose was also equally **effective in reducing rUTI** when compared with antibiotic prophylaxis (nitrofurantoin 50mg a day) over 6 months
- Dosage was 2g of D-mannose powder diluted in 200ml of water once daily in the evening

(click) However, in a recent randomised controlled trial, the number of antibiotic courses for UTI **did not significantly differ** between D-mannose and placebo

(click) A 2022 Cochrane review concluded that there was a lack of sufficient evidence to support or refute the use of D-mannose to prevent or treat UTIs in all populations

- NICE recommends advising patients about the sugar content of D-mannose, which should be considered as part of the person's daily sugar intake, especially if they are diabetic
- Neither D-mannose or cranberry products are covered under prescription, therefore cost may be a factor to consider for these treatments

References

Hayward G et al. D-Mannose for prevention of recurrent urinary tract infection among women. *JAMA* 2024; 184(6): 619-628. https://doi.org/10.1001/jamainternmed.2024.0264
Kranjčec, B., Papeš, D. & Altarac, S. D-mannose powder for prophylaxis of recurrent urinary tract infections in women: a randomized clinical trial. *World J Urol* 2014; 32: 79–84. https://doi.org/10.1007/s00345-013-1091-6
Cooper TE, Teng C, Howell M, Teixeira-Pinto A, Jaure A, Wong G. D-mannose for preventing and treating urinary tract infections. *Cochrane Database Syst Rev.* 2022: 30; 8(8). https://doi.org/10.1002/14651858.cd013608.pub2

Preventative Actions

Recommended activities with **good** evidence

- Maintain **adequate hydration**[1]
  - The amount will depend per person, but NHS recommends about 6-8 glasses per day

Recommended activities with **limited** evidence

- Continue to practice **personal hygiene measures**
  - Wash the perineum with water and not scented cleaning products
  - Encourage wiping from front to back
  - For those who are sexually active, encourage post-coital voiding

[1]*Hooton et al. JAMA Int. Med., 2018*

Presenter notes

- Patients should be advised to maintain adequate hydration
- In a 12-month RCT of 140 healthy women with recurrent UTI who were drinking less than 1.5L of fluid per day, increasing the fluid intake resulted in:
  - Fewer UTI episodes
  - Fewer antibiotic courses used to treat UTI episodes
  - Longer time between UTI episodes

- Correct personal hygiene measures are to be advised, however there is currently little evidence to support their effectiveness

Reference

Hooton et al, 2018. Effect of increased daily water intake in premenopausal women with recurrent urinary tract infections. JAMA Internal Medicine. doi: 10.1001/jamainternmed.2018.4204

Review

Review within 3-6 months to assess progress

- If UTI recurs on cessation of antimicrobial therapy, review sooner
- Consider underlying causes (e.g. prolapse, retention)
- Management options on review include **single-dose prophylaxis** (based on MSU culture and sensitivities) if trigger can be identified, or **methenamine hippurate (Hiprex)**
- Consider referring patients to urology who relapse after stopping continuous prophylaxis, if not already recently investigated

Presenter notes

To provide patient reassurance, discuss review frequency but ensure that this is within 3-6 months to assess progress (monthly phone calls may be considered for the first 3 months).

When to Consider Antibiotic Prophylaxis

Consider a trial of daily antibiotics if there has been no improvement after:

- Vaginal oestrogen, or
- Single-dose antibiotics, or
- Methenamine hippurate

Review daily antibiotics at least every 6 months:

- Assess the success of prophylaxis
- Remind about behavioural and personal hygiene measures and self-care treatments

First-choice antibiotics	
Trimethoprim	200 mg single dose when exposed to a trigger, **or** 100 mg nightly
Nitrofurantoin (if eGFR 45 ml/min or more)	100 mg single dose when exposed to a trigger, **or** 50 to 100 mg nightly
Second-choice antibiotics	
Amoxicillin	500 mg single dose when exposed to a trigger, **or** 250 mg nightly
Cefalexin	500 mg single dose when exposed to a trigger, **or** 125 mg nightly

Presenter notes

If vaginal oestrogen, methenamine and single-dose antibiotics prove ineffective, then prophylactic antibiotics can be considered

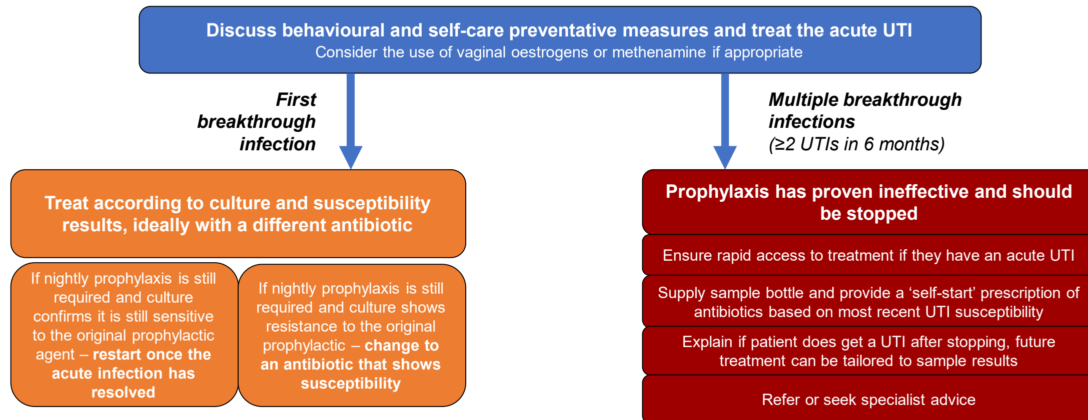
- NICE guidance suggests Trimethoprim or Nitrofurantoin as first line antibiotics
- These could be administered when exposed to a trigger, or nightly

Reference

National Institute for Health and Care Excellence. Urinary tract infection (recurrent): antimicrobial prescribing 2018. https://www.nice.org.uk/guidance/ng112

Breakthrough UTIs

An acute UTI which occurs whilst the patient is being treated with prophylactic antibiotics is known as a breakthrough infection



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Presenter notes

If a patient experiences an infection during a course of antibiotic prophylaxis, this is known as a "breakthrough UTI"

- In all scenarios discuss behavioural and self-care preventative measures, treat the acute UTI and consider the use of vaginal oestrogens if appropriate or trying methenamine if not already tried.
- The first breakthrough infection should be treated according to culture and susceptibility results, ideally with a different antibiotic.
    - If nightly prophylaxis still required, it can be re-started once the acute infection has resolved, if the culture confirms it is still sensitive to the original prophylactic agent.
    - If the culture shows resistance to the original prophylactic agent and nightly prophylaxis is still required, it should be changed to an antibiotic that shows susceptibility.
- If multiple breakthrough UTIs occur (≥2 UTIs in 6 months), prophylaxis has proved ineffective and should be stopped
- If antibiotic prophylaxis is stopped, ensure that patients have rapid access to treatment if they have an acute UTI.
- Supply sample bottle with instructions of when to use and provide a 'self-start' prescription of antibiotics based on most recent UTI susceptibility.
- Explain if patients do get a UTI after stopping, future treatment can be tailored to sample

results.

- Refer or seek specialist advice on further investigation and management

Scenario – Busola Akinwale

Consider the following details:

- 40-year-old female pre-menopausal woman with recurrent UTI

On examination/review:

- MSU has shown resistance to trimethoprim
- Chronic kidney disease (eGFR = 30ml/min), nitrofurantoin not suitable

For the final scenario…

Patient centred review

	Item to consider	Patient response
Condition and consultation history	Establish history of patient's condition	• Experiencing 2nd UTI within 6-month period
	Patient baseline habits	• Practising personal hygiene measures • Eats well and sleeps well
	Are they under a specialist consultant?	• Not currently under a specialist consultant
Treatment History	Treatment/Prescription history	• Previous UTIs treated with trimethoprim • Nil OTC/other relevant medications
	Side effects to treatment	• None reported
	Adherence to treatment	• Compliant with GP advice and acute antibiotic courses
	Patient's perception of their condition	• Concerned about new UTI episode and resistance to trimethoprim causing treatment failure
Patient Impact and preference	Explore impact UTIs have had on self-esteem or mental health	• Patient is concerned with limited treatment options due to her chronic kidney disease
	What are the patient's preferences and expectations from treatment?	• Would like treatment for recurrent UTIs • Patient cannot afford to have time off work for sickness

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Poll (to appear interactively during the webinar)
Based on what is listed below, what option would you discuss with Busola first?

a) Methenamine hippurate
b) A trial of single-dose antibiotic to be used when exposed to an identifiable trigger
c) A trial of daily antibiotics
d) Referral to specialist

Management

Prescribing

- Ensure current acute UTI is treated based on sensitivities
- Offer **methenamine hippurate (Hiprex)** in preference to daily antibiotic prophylaxis for rUTI that has not been adequately improved by hygiene measures, vaginal oestrogen or single-dose antibiotic prophylaxis (if appropriate)

Prevention/Advice

- Continue to practice personal hygiene measures and maintain adequate hydration
- Report any side effects to the GP

Presenter notes

If single antibiotics, self-care measures and vaginal oestrogen have been applicable and ineffective, consider methenamine hippurate as an alternative to daily antibiotics

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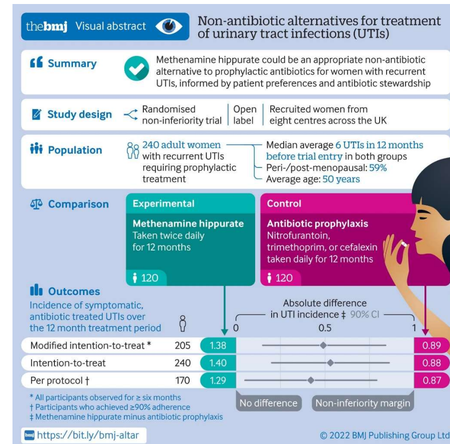
Methenamine Hippurate (Hiprex) Information

Dosing[1]	1g every 12 hours *For patients with catheters: 1g every 8-12 hours*
Contraindications	Gout; metabolic acidosis; severe dehydration
Side effects (uncommon[2])	Epigastric discomfort; skin reactions



[1]*BNF, 2024*
[2]*Harding et al. BMJ, 2022*

Presenter notes

Methenamine (hexamine) hippurate is a urinary antiseptic which requires an acidic urine for its antimicrobial activity, therefore products that alkalinise the urine should be avoided.

- It is ineffective for upper urinary-tract infections
- The ALTAR trial found that methenamine treatment was comparable to antibiotic prophylaxis in terms of UTI incidences and adverse reactions, with the benefit of reduced antimicrobial resistance development
- Please check to see if local guidance aligns with methenamine use

References

1. Methenamine Hippurate. British National Formulary (BNF). Accessed 8th February 2024. Available at: https://bnf.nice.org.uk/drugs/methenamine-hippurate/
2. Harding C, Chadwick T, Homer T, Lecouturier J, Mossop H, Carnell S et al. Methenamine hippurate compared with antibiotic prophylaxis to prevent recurrent urinary tract infections in women: the ALTAR non-inferiority RCT. Health Technology Assessment. 2022 May 26(23). doi: 10.3310/QOIZ6538.

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Evidence for Methenamine Hippurate

Antibiotic prescribing for UTI significantly increased following a national shortage of methenamine hippurate in Norway *(Heltveit-Olsen et al., 2024)*

Fig 1. Number of prescriptions of methenamine hippurate per month for the study population for the period January 2015 to May 2020.

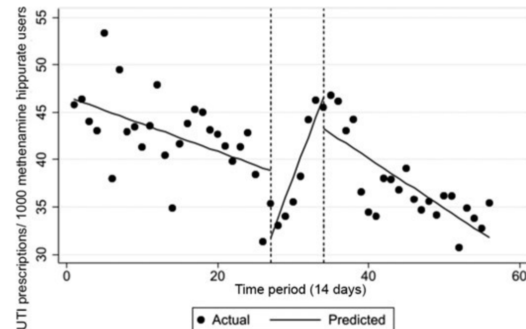

Fig 2. Prescriptions of UTI antibiotics among women ≥50 years who had received ≥2 prescriptions of methenamine hippurate in the study period before the drug shortage

Presenter notes

A national discontinuation of methenamine hippurate treatment due to a 4-month drug shortage in 2019 presented an opportunity to evaluate its preventive effect on UTIs among regular users

- During the shortage, there was a significant increase in prescribing for UTI antibiotics, followed by a significant decrease in prescribing after reintroduction
- The graph on the left shows the drop in methenamine prescriptions as a result of the shortage
- The graph on the right shows the effect that this had on antibiotic prescribing, with the dotted lines indicating the period of the shortage

Reference

Heltveit-Olsen SR, Gopinathan U, Blix HS, Elstrøm P, Høye S. Effect of methenamine hippurate shortage on antibiotic prescribing for urinary tract infections in Norway-an interrupted time series analysis. J Antimicrob Chemother. 2024 Mar 28:dkae078. doi: 10.1093/jac/dkae078. Epub ahead of print. PMID: 38635298.

More Evidence for Methenamine Hippurate

- Cochrane Review suggested methenamine use contributed to a **significant reduction of symptomatic UTIs**[1]
- In a recent UK RCT, both methenamine and antibiotic prophylaxis were effective at **reducing the incidence of UTIs** during a 12-month period[2]
- In 150 older adults (≥60 years) with rUTI, **time to UTI extended** from 3.3 months pre-methenamine to 11.2 months post-methenamine[3]

[1]*Lee et al. Cochrane Reviews, 2012*
[2]*Harding et al. BMJ, 2022*
[3]*Snellings et al. Pharmacotherapy, 2019*

Presenter notes

- A Cochrane review of 13 studies in 2012 suggested that methenamine hippurate may be beneficial for preventing UTI in patients without renal tract abnormalities (symptomatic UTI: RR 0.24, 95% CI 0.07 to 0.89; bacteriuria: RR 0.56, 95% CI 0.37 to 0.83)[1]
- There was a significant reduction in symptomatic UTI for short-term treatments (<1 week) in those without renal tract abnormalities (RR 0.14, 95% CI 0.05 to 0.38)
- In the ALTAR trial, incidence of antibiotic treated urinary tract infections during the 12-month treatment period was 0.89 episodes per person year (95% confidence interval 0.65 to 1.12) in the antibiotics group and 1.38 in the methenamine hippurate group, with an absolute difference of 0.49 (90% confidence interval 0.15 to 0.84), confirming non-inferiority[2]
- A 2023 systematic review of 11 studies suggests that methenamine generally appears to be an effective and well-tolerated antibiotic-sparing option for UTI prophylaxis[3]

References

1. Lee BS, Bhuta T, Simpson JM, Craig JC. Methenamine hippurate for preventing urinary tract infections. Cochrane Database Syst Rev. 2012 Oct 17;10(10):CD003265. doi: 10.1002/14651858.CD003265.pub3. PMID: 23076896; PMCID: PMC7144741. Analysis 1.1.
2. Harding et al, 2022. *BMJ* 2022;376:e068229 https://doi.org/10.1136/bmj-2021-0068229
3. Snellings MS, Linnebur SA, Pearson SM, Wallace JI, Saseen JJ, Fixen DR. Effectiveness of Methenamine for UTI Prevention in Older Adults. Annals of Pharmacotherapy; 2019 24(4).

https://doi.org/10.1177/1060028019886308

Review

Review treatment within 6 months

- Assess if patient has experienced any UTIs and if there has been any side effects to treatment
- If no further UTIs experienced, discuss option to stop treatment
- Continue personal hygiene measures. If UTIs recur on cessation of methenamine hippurate, review to re-start methenamine
- If UTIs experienced, consider change in treatment and/or specialist referral

NICE NG112

Reference

National Institute for Health and Care Excellence. Urinary tract infection (recurrent): antimicrobial prescribing 2018. https://www.nice.org.uk/guidance/ng112

Take home messages

1. Recurrent UTIs can have a significant impact on quality of live and wellbeing for individuals who suffer from them
2. Long-term antibiotic use can lead to resistance and side effects, and this may be concerning to patients
3. Use shared care decision-making and a step-wise approach when managing patients with recurrent UTI
4. Self-care advice on hydration and hygiene measures important for all patients, but be sensitive to repetition
5. Recent changes to NICE rUTI guidance suggest that:
   - Peri-menopausal, menopausal and post-menopausal patients may benefit from vaginal oestrogen
   - Methenamine could be tried for some patients before prescribing daily antibiotic prophylaxis
6. Key groups need to be referred for specialist care
7. Side effects are less likely if single-dose antibiotics are used with an identified trigger for UTI compared with daily antibiotic prophylaxis.

Presenter notes

Key groups that should be referred to specialist care:

- 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 people
- Children and young people under 16 years in line with the NICE guideline on urinary tract infection in under 16s
- Failure to respond to appropriate antibiotic therapy
- Anyone who has had gender reassignment surgery that involved structural alteration of the urethra

Panel Discussion

Dr Leigh Sanyaolu
General Practitioner and Doctoral Fellow at Cardiff University

Speaker/Panellist

Naomi Fleming
Regional Antimicrobial Stewardship Lead East of England Region, NHS England

Panellist

Avril Tucker
Antimicrobial Pharmacist, NHS Wales

Panellist

Dr Philippa Moore
Consultant Medical Microbiologist, Gloucestershire Hosp. NHS Foundation Trust

Panellist