UNCOMPLICATED URINARY TRACT INFECTION AUDIT IN PRIMARY CARE

Aim

To evaluate the diagnosis of uncomplicated urinary tract infections using urine dipsticks and/or urine cultures and to assess antibiotic prescribing using Public Health England guidance on the diagnosis and antibiotic treatment.

Audit requirements

Search for consultation records with the following clinical conditions or Read code. At least 20 consultations should be analysed to determine overall compliance.

K15	Cystitis
K190	Urinary tract Infection
1J4	Suspected UTI
K190z	UTI, site not specified NOS

Method

Please view Figure 1: PHE Quick reference guide for primary care to assess your practice's or your individual compliance with the recommended algorithm or visit the website for more information and the rationale behind the recommendations https://www.gov.uk/government/collections/primary-care-guidance-diagnosing-and-managing-infections

Please view Table 2: PHE management for infection guidance in primary care to determine the proportion of your patients who have been prescribed the recommended antibiotics, including dose, frequency and duration. You can visit the website for more information and the rationale behind the recommendations https://www.gov.uk/government/collections/primary-care-guidance-diagnosing-and-managing-infections

You may wish to use your local primary care organisation's guidance as an alternative.

Results

Table 1 shows the results that should be recorded.

Table 1: Assessing Compliance with PHE guidance

Total number of patients being audited	**A**
Antibiotics: Use Figure 1 to determine the total number of patients in whom decision to prescribe <u>or not,</u> was in line with guidance	**B**
Dipsticks: Use Figure 1 to determine the total number of patients in which urine dipsticks were used <u>or not,</u> in line with guidance	**C**

Total number of patients prescribed an antibiotic	**D**
Use Table 2 to determine the total number of correct antibiotics chosen	**E**
Use Table 2 to determine the total number of correct doses	**F**
Use Table 2 to determine the total number of correct treatment frequencies	**G**
Use Table 2 to determine the total number of correct antibiotic course lengths	**H**

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Calculations:

% compliance with PHE UTI diagnostic guide = (B+C/2A) x 100

% compliance with PHE antibiotic Primary Care guidance = ((E + F + G + H) / 4D) x 100

Actions:

1. Record actions required, especially when compliance with UTI diagnostic or primary care guidance is less than 80%.
2. Identify a date when you will repeat the audit.

The TARGET Antibiotics Toolkit provides guidance and other support to clinicians and commissioners to improve responsible antimicrobial prescribing in primary care. The Toolkit can be accessed at: www.rcgp.org.uk/targetantibiotics

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Table 1: Diagnosis of UTI quick reference guide for primary Care

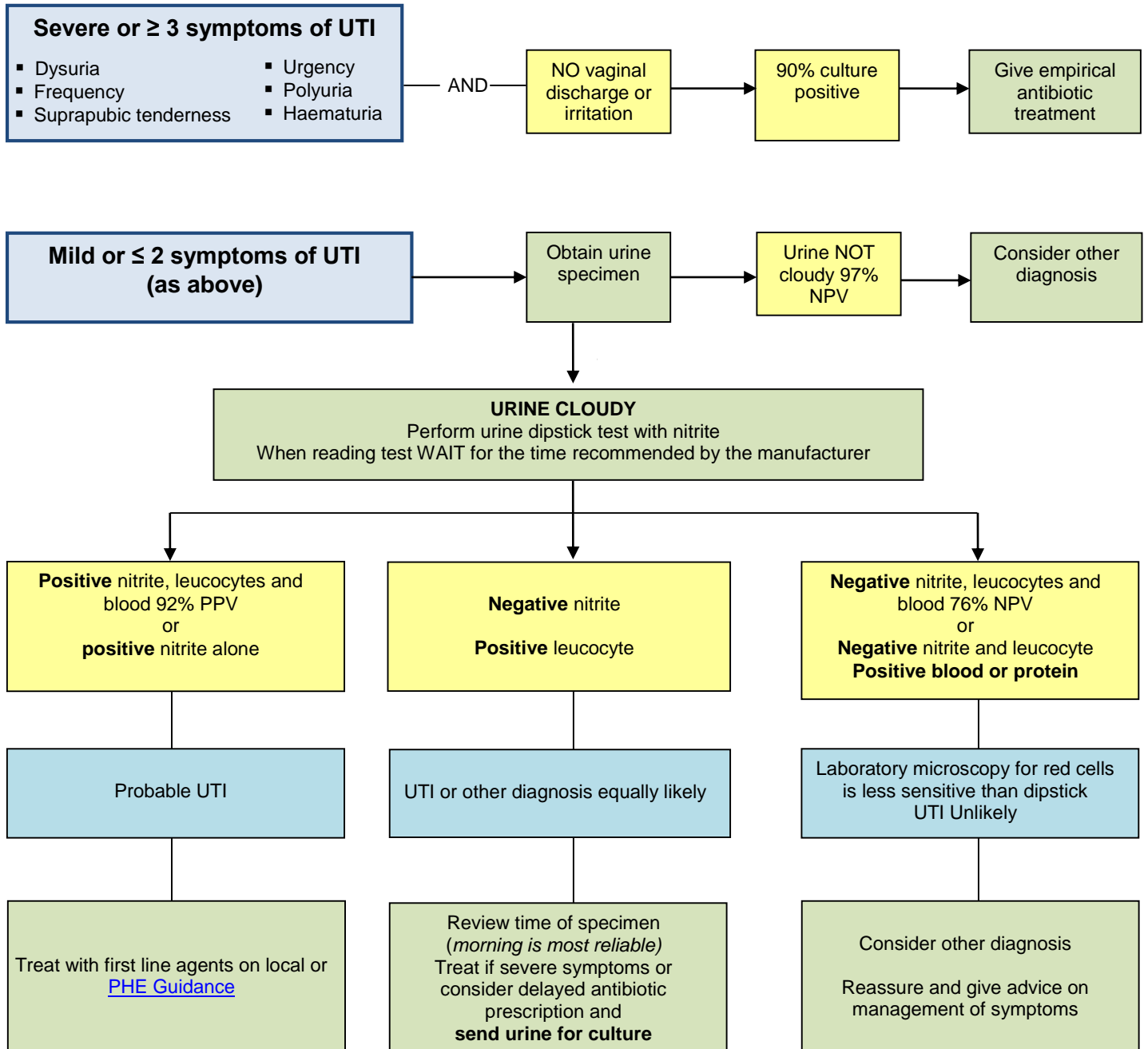**Public Health England**

Diagnosis of UTI
Quick Reference Guide for Primary Care

BIA British Infection Association

URINARY SYMPTOMS IN ADULT WOMEN <65 DO NOT CULTURE ROUTINELY
In sexually active young men and women with urinary symptoms consider *Chlamydia trachomatis*

Severe or ≥ 3 symptoms of UTI

- Dysuria
- Frequency
- Suprapubic tenderness
- Urgency
- Polyuria
- Haematuria

— AND — → NO vaginal discharge or irritation → 90% culture positive → Give empirical antibiotic treatment

Mild or ≤ 2 symptoms of UTI (as above) → Obtain urine specimen → Urine NOT cloudy 97% NPV → Consider other diagnosis

URINE CLOUDY
Perform urine dipstick test with nitrite
When reading test WAIT for the time recommended by the manufacturer

Positive nitrite, leucocytes and blood 92% PPV or **positive** nitrite alone	**Negative** nitrite **Positive** leucocyte	**Negative** nitrite, leucocytes and blood 76% NPV or **Negative** nitrite and leucocyte **Positive blood or protein**
Probable UTI	UTI or other diagnosis equally likely	Laboratory microscopy for red cells is less sensitive than dipstick UTI Unlikely
Treat with first line agents on local or PHE Guidance	Review time of specimen (*morning is most reliable*) Treat if severe symptoms or consider delayed antibiotic prescription and **send urine for culture**	Consider other diagnosis Reassure and give advice on management of symptoms

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Table 2: [PHE management for infection guidance in Primary Care](#) – 12/08/2015. Please click link for most recent updates.

URINARY TRACT INFECTIONS – refer to PHE UTI guidance for diagnosis information
As *E. coli* bacteraemia in the community is increasing ALWAYS safety net and consider risks for resistance [1C]

UTI in adults **(no fever or** **flank pain)** PHE URINE SIGN CKS women, CKS men RCGP UTI clinical module SAPG UTI	**Treat women** with severe/or ≥ 3 symptoms[1, 2A, 3C] **Women** mild/or ≤ 2 symptoms AND a)Urine NOT cloudy 97% negative predictive value, do not treat unless other risk factors for infection. b)If cloudy urine use dipstick to guide treatment. Nitrite plus blood or leucocytes has 92% positive predictive value; nitrite, leucocytes, blood all negative 76% NPV[4A-] c)Consider a back-up / delayed antibiotic option[20A] **Men**: Consider prostatitis and send pre-treatment MSU[1,5C] OR if symptoms mild/non-specific, use negative dipstick to exclude UTI.[6C] **Always safety net.** **First line**: nitrofurantoin if GFR <u>over</u> 45ml/min[24-5] GFR 30-45:only use if resistance & no alternative *In treatment failure*: always perform culture[1B]	nitrofurantoin[8B+ 9C 10B+] trimethoprim[7B+] pivmecillinam[13,21,22,29,30 A&B] *If organism susceptible* amoxicillin[14B+]	100mg m/r BD [11C] 200mg BD 400mg TDS[13,29,30 A] 500mg TDS	Women all ages 3 days[2,12,13A+] Men 7 days[1,5C]
		Use nitrofurantoin first line as general resistance and community multi-resistant Extended-spectrum Beta-lactamase *E. coli* are increasing. Trimethoprim (if low risk of resistance) and pivmecillinam are alternative first line agents. **Risk factors for increased resistance include:** care home resident, recurrent UTI, hospitalisation >7d in the last 6 months, unresolving urinary symptoms, recent travel to a country with increased antimicrobial resistance (outside Northern Europe and Australasia) especially health related, previous known UTI resistant to trimethoprim, cephalosporins or quinolones[19] **If increased resistance risk**, send culture for susceptibility testing & give safety net advice. If GFR<45 ml/min or elderly consider pivmecillinam[7,21-3, 28] or fosfomycin (3g stat in women[15,16B,17A] plus 2nd 3g dose in men 3 days later[18])		

People > 65 years: do not treat asymptomatic bacteriuria; it is common but is not associated with increased morbidity [1B+]	

Catheter in situ: antibiotics will not eradicate asymptomatic bacteriuria; only treat if systemically unwell or pyelonephritis likely[2B+] Do not use prophylactic antibiotics for catheter changes unless history of catheter-change-associated UTI or trauma[3B] (NICE & SIGN guidance).	

Acute prostatitis BASHH, CKS	Send MSU for culture and start antibiotics[1C] 4-wk course may prevent chronic prostatitis[1C] Quinolones achieve higher prostate levels[2]	ciprofloxacin[1C] *or* ofloxacin[1C] 2nd line: trimethoprim[1C]	500mg BD 200mg BD 200mg BD	28 days[1C] 28 days[1C] 28 days[1C]
UTI in pregnancy PHE URINE CKS	Send MSU for culture and start antibiotics[1A] Short-term use of nitrofurantoin in pregnancy is unlikely to cause problems to the foetus[2C] Avoid trimethoprim if low folate status[3] or on folate antagonist (eg antiepileptic or proguanil)[2]	*First line*: nitrofurantoin if susceptible, amoxicillin *Second line*: trimethoprim *Give folate if 1st trimester* *Third line*: cefalexin[4C, 5B-]	100mg m/r BD 500mg TDS 200mg BD (off-label) 500mg BD	All for 7 days[6C]
UTI in Children PHE URINE CKS NICE	**Child <3 mths**: refer urgently for assessment[1C] **Child ≥ 3 mths**: use positive nitrite to guide Start antibiotics,[1A+] *also* send pre-treatment MSU. **Imaging**: only refer if child <6 months, or recurrent or atypical UTI[1C]	*Lower UTI*: trimethoprim[1A]☺ *or* nitrofurantoin[1A]☺ If susceptible, amoxicillin[1A]☺ Second line: cefalexin[1C]☺ *Upper UTI*: co-amoxiclav[1A]☺ Second line: cefixime[2A]☺		*Lower UTI* 3 days[1A+] *Upper UTI* 7-10 days[1A+]
Acute pyelonephritis CKS	If admission not needed, send MSU for culture & susceptibility and start antibiotics[1C] If no response within 24 hours, admit[2C] **If ESBL risk** and with microbiology advice consider IV antibiotic via outpatients (OPAT)[6C]	ciprofloxacin[3A-] *or* co-amoxiclav[4C] *if lab report shows sensitive:* trimethoprim[3A]	500mg BD 500/125mg TDS 200mg BD	7 days[5A+] 7 days[5A+] 14 days[5A]
Recurrent UTI in non pregnant women ≥ 3 UTIs/year	To reduce recurrence first advise simple measures[6] including hydration, cranberry products.[4A+, 5A+] Then standby[3B+] or post-coital antibiotics[1, 2B+] Nightly prophylaxis reduces UTIs but adverse effects and long term compliance poor[1A+]	*Antibiotics:* nitrofurantoin *or* trimethoprim	50–100mg 100mg	*Post coital* stat (off-label)[2B+,3C] *Prophylaxis* OD at night[1A+] review at 6 months[4]