Guidance Notes:

Management of Lower UTI in Chronic Kidney Disease (CKD)

- This guidance applies to non-pregnant individuals who do not have an indwelling urinary catheter
- Where male and female are stated, it refers to sex assigned at birth
- In the case of renal transplant patients always seek advice from the renal service
- Always send urine for culture when UTI is suspected and use sensitivities to guide treatment
- Refer to table below for empiric management of UTI in CKD. It may be necessary to contact microbiology to obtain the full range of sensitivities available
- Does your patient have a true penicillin allergy? i.e. history of anaphylaxis or angiodema. If not consider penicillin allergy delabeling – click here for more information
- Ciprofloxacin should be reserved for patients where all other options are unsuitable – see cautions on p2
- Please note where cefalexin is an option but not available, using another oral cephalosporin is not appropriate as there will be a higher risk of *C. difficile* infection

CKD STAGE	1st Line	2nd Line (or as per sensitivities)
CKD 3a female	trimethoprim* 200mg twice daily for 3 days	cefalexin 500mg three times daily for 3 days OR pivmecillinam† 400mg three times daily for 3 days
CKD 3b female	cefalexin 500mg three times daily for 3 days OR pivmecillinam† 400mg three times daily for 3 days	trimethoprim* 200mg twice daily for 3 days OR cefalexin 500mg three times daily for 3 days (if not used first line)
CKD 4 female	cefalexin 500mg three times daily for 3 days OR pivmecillinam† 400mg three times daily for 3 days	cefalexin 500mg three times daily for 3 days (if not used first line) OR ciprofloxacin‡ 250mg twice daily for 3 days (see cautions)
CKD 5 female	cefalexin 500mg twice daily for 3 days OR pivmecillinam† 400mg three times daily for 3 days	cefalexin 500mg twice daily for 3 days (if not used first line) OR ciprofloxacin‡ 250mg twice daily for 3 days (see cautions)
CKD 3a male	trimethoprim* 200mg twice daily for 7 days	cefalexin 500mg three times daily for 7 days OR pivmecillinam† 400mg three times daily for 7 days
CKD 3b male	cefalexin 500mg three times daily for 7 days OR pivmecillinam† 400mg three times daily for 7 days	cefalexin 500mg three times daily for 7 days (if not used first line) OR ciprofloxacin‡ 500mg twice daily for 7 days (see cautions)
CKD 4 male	cefalexin 500mg three times daily for 7 days OR pivmecillinam† 400mg three times daily for 7 days	cefalexin 500mg three times daily for 7 days (if not used first line) OR ciprofloxacin‡ 250mg twice daily for 7 days (see cautions)
CKD 5 male	cefalexin 500mg twice daily for 3 days OR pivmecillinam† 400mg three times daily for 3 days	cefalexin 500mg twice daily for 7 days (if not used first line) OR ciprofloxacin‡ 250mg twice daily for 7 days (see cautions)

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At least 50% of men with recurrent UTI and over 90% of men with febrile UTI have prostate involvement.
Where prostatic involvement is known or suspected in males with UTI, a 7 day course of antibiotics is not considered appropriate – longer treatment duration is required - see Urology Infection Guidance - Prostatitis

Cautions

***** Due to the risk of hyperkalaemia, trimethoprim should be avoided

- With co-prescription of **spironolactone**
- With co-prescription of **ACEI or ARB**

It is unlikely that 3 days of trimethoprim for uncomplicated UTI in females with CKD 3a/b will cause significant problems, even with spironolactone or ACE / ARB, so may be considered as a treatment option.

†Pivmecillinam is being used in 'off label' regimens different from the manufacturers literature based on knowledge of required dose and duration of antibiotic therapy in men and knowledge of resistance patterns[1].

‡ Please consider fluoroquinolone warnings and cautions before prescribing – see MHRA warnings and link to PIL
Ciprofloxacin is not usually an appropriate empiric choice for UTI due to the significantly increased risk of *Clostridiodes difficile* infection in renal impairment. However, due to the limited options available when managing UTI in patients with CKD 4 and 5 (also 3b in men) it may be used with caution. The dose differs from that in the product literature and is based on the Renal Drug Database.

1. Søraas A, Sundsfjord A, Jørgensen SB, Liestøl K, Jenum PA. High rate of per oral mecillinam treatment failure in community-acquired urinary tract infections caused by ESBL-producing Escherichia coli. PLoS One. 2014 Jan 15;9(1):e85889. doi: 10.1371/journal.pone.0085889. eCollection 2014