Aged Care **CLINICAL Pathway**

Urinary Tract Infection (Cystitis)

Resident Identification Label	Allergies: *Please list*

Date	Initial	Date & initial ALL applicable boxes Blue highlighted words are detailed on page 2	Practice points
		1. TYPICAL CLINICAL PRESENTATION (Day 1) **At least one criterion between 1-3 OR 4-7 must be present**	Diagnosis of a UTI is based on the presence of a typical clinical presentation. Screening for or treatment of asymptomatic bacteruria is not recommended. Urine alkalinising agents may relieve the symptoms of a UTI.
		NO indwelling catheter (1-3) 1. Acute dysuria or acute pain, swelling or tenderness of the testes, epididymis or prostate.	
		2. Fever or *leucocytosis* & one *localised urinary tract sub-criteria.*	
		3. In the absence of *fever* or *leucocytosis*, two or more *localised urinary tract sub-criteria.*	
		Indwelling catheter (4-7) *4. Fever*, rigors or new onset hypotension, with no alternate site of infection.	
		5. Either acute change in mental status or acute functional decline, with no alternate diagnosis & *leucocytosis.*	
		6. New onset supra-pubic pain or costo-vertebral angle pain or tenderness.	
		7. Purulent discharge from around the catheter or acute pain, swelling or tenderness of the testes, epididymis or prostate.	
		2. INITIAL MANAGEMENT (Day 1)	Fluid intake is increased unless the resident is on fluid restriction. Urinary dipstick testing is only 'necessary' if there is a typical clinical presentation. The treating Doctor should be informed with an immediacy dictated by the resident's condition.
		Fluid intake increased.	
		Urinary dipstick test performed. *Results:* Blood____Leucocytes____Nitrite____PH____ Protein____SG____	
		Treating Doctor informed. Provisional diagnosis (tick one only): Cystitis ____Pyelonephritis ____ Prostatitis ____ Other ____ *For cystitis only, proceed with clinical pathway.*	
		3. MEDICAL MANAGEMENT (Day 1-2)	A MSU/ CSU should be collected BEFORE antibiotics are commenced. Specimens should be transported to Pathology within 30 minutes or if delayed, refrigerated asap.
		MSU/CSU specimen ordered.	
		MSU/CSU specimen collected.	
		Antibiotic(s) prescribed.	
		Antibiotics prescription consistent with Therapeutic Guidelines Antibiotic (TGA).	
		4. MICROBIOLOGICAL RESULT (Day 2-4)	Antibiotic therapy should be guided by susceptibility results. Early treatment failure can be due to a resistant organism. The treating Doctor should be informed if at the completion of the first antibiotic course the clinical presentation is unchanged or worse. Reassessment of the medical management (antibiotic therapy) may be required.
		Not a significant result & initial antibiotics stopped or not initiated.	
		Significant result & organism is susceptible to initial prescribed antibiotic(s).	
		Significant result & organism is not susceptible to initial prescribed antibiotic(s). Appropriate antibiotic(s) commenced.	
		UTI classified as a recurrent infection *See TGA for specific recommendations regarding recurrent infection*	
		5. REASSESSMENT (>Day 3)	
		UTI resolved without antibiotic use	
		UTI resolved and antibiotic(s) ceased. Date_____	
		UTI resolved yet prophylactic antibiotics commenced. Date_____	
		UTI NOT resolved - Typical clinical presentation still evident.	

Comments

For further information contact your Infection Control Practitioner.

ONCE COMPLETED, this form is to be filed in resident's medical record and a copy forwarded to your Infection Control Practitioner.

DEFINITIONS

Cystitis Inflammation of the bladder
Pyelonephritis Inflammation of the renal parenchyma, calyces & pelvis
Prostatitis Inflammation of the prostate gland

Asymptomatic bacteruria The presence of bacteria in the urine of residents who do not have symptoms of a urinary tract infection. It occurs frequently in women, the elderly and in those with an indwelling catheter insitu.

Clinical presentation

Fever

- Single tympanic temperature >38.1^{o}C
- Single oral temperature >37.8^{o}C
- Repeated oral temperatures >37.2^{o}C or rectal temperatures >37.5^{O}C
- Single temperature >1.1^{o}C over baseline from any site (oral, tympanic, axillary)

Leucocytosis

Increase in the number of leukocytes or white blood cells in the **blood,** not urine.

As according to full blood examination (FBE) results

- Neutrophilia (>7.5 x 10^9 g/L). Neutrophils are a common type of leucocyte.
- Left shift (>6% bands or ≥1,500 bands/mm^{3}) Left shift = increase in no. of immature leukocytes in the peripheral blood.

Localised urinary tract sub-criteria

- For residents with *No indwelling catheter* only - Acute costo-vertebral angle pain or tenderness
- Supra-pubic pain
- Gross hematuria
- New or marked increase in incontinence
- New or marked increase in urgency
- New or marked increase in frequency

Significant microbiological results

NO indwelling catheter

- At least 10^{5} cfu/**mL** or 10^{8} cfu/**L** of no more than two species of microorganism in a voided urine sample
- At least 10^{2} cfu/**mL** or 10^{5} cfu/**L** of any number of organisms in a specimen collected by in and out catheter

Indwelling catheter

- Urinary catheter specimen culture with at least 10^{5} cfu/**mL** or 10^{8} cfu/L of any organism(s)

Classification

Recurrent UTI: May be as a result of a relapse or re-infection

- >3 culture confirmed UTIs in 1 year with the same or different organisms, **or**
- >2 culture confirmed UTIs in 6 months with the same or different organisms

Relapse UTI

- Repeat infection with the same infecting organism, usually occurring within 4 weeks of previous UTI

Therapeutic Guidelines Antibiotic Recommendations: **Acute cystitis**

For **empirical therapy** of acute uncomplicated cystitis in **non-pregnant women**, use:
1. trimethoprim* 300 mg orally, daily for 3 days (first line therapy)
or Nitrofurantoin**^ 100 mg orally, 6-hourly for 5 days (second line therapy)
If trimethoprim and nitrofurantoin cannot be used, use cefalexin 500 mg orally, 12-hourly for 5 days

For **empirical therapy** of acute cystitis in **men** in whom prostatitis is unlikely use:
1. trimethoprim* 300 mg orally, daily for 7 days(first line therapy),
or 2. Nitrofurantoin**^ 100 mg orally, 6-hourly for 7 days (second line therapy)
If trimethoprim and nitrofurantoin cannot be used, use cefalexin 500 mg orally, 12-hourly for 7 days.

*If the patient has been treated with trimethoprim in the previous 3 months, or had a trimethoprim-resistant Escherichia coli isolate during this time, use an alternative antibiotic for empirical therapy.
** Do not use nitrofurantoin unless the patient is afebrile and prostatitis is considered unlikely, because therapeutic concentrations of nitrofurantoin are not reached in the prostate.
^ An alternative regimen is 100 mg 12-hourly for 5 days. This is from a study using Macrobid®, a formulation unavailable in Australia. The Macrobid product information states that urine concentrations from this product are similar to those obtained with formulations available in Australia, however no data are available to confirm this claim. .

Reference: Antibiotic Expert Group. *Therapeutic Guidelines: Antibiotic* Version 16. Melbourne: Therapeutic Guidelines Limited: 2019

Disclaimer

This clinical pathway is an acceptable basis for management of residents but there may be sound reasons for modifying therapy in certain residents or specific facilities. In complicated situations especially, this clinical pathway is not a substitute for expert advice.