Government of Western Australia Department of Health	*Royal Perth Hospital* *Nurse Practitioner – Palliative Care* *CLINICAL PRACTICE PROTOCOL* **SYMPTOMS SUGGESTIVE OF URINARY TRACT INFECTIONS GENERALISED**	

	Scope	Outcomes
Nurse Practitioner	Symptoms associated with urinary infection – frequency, non-traumatic hematuria, dysuria, offensive odour of urine and suprapubic discomfort (lower urinary tract) [1]. Fever, chills, malaise, flank/loin/abdo pain (upper urinary tract) [1] *Treatment options should be in accordance with patients prognosis and the goals of care. Factors to consider include the patients pre-morbid health and preference status, adequacy of symptom control, disease progression and the burden versus benefit balance of investigation and intervention. Decisions should be based on the quality of life anticipated, stage of disease and reasonable likelihood of symptomatic improvement* [2]	Identify patients suitable for Palliative Care Nurse Practitioner (NP) clinical practice guideline (CPG)
Medical Practitioner +/- Nurse Practitioner	Underlying medical pathology e.g. obstruction / complex patient e.g. long term indwelling catheter Altered conscious state including effects of drugs/ ETOH Sepsis History consistent with collapse	Identify patients not suitable for NP CPG and redirect care to appropriate medical team.
	Assessment & intervention	
Primary Survey	• Airway • Breathing • Circulation • Vital Signs	Abnormal primary survey identified → exit CPG
History	• Signs and symptoms of current illness include location of pain • MIST- Mechanism, injuries sustained, signs-vitals, treatment- given pre hospital management-time • Oral intake – volume and fluid type • Urine output & frequency • Duration of infection • Risk factors[1]- previous episodes of UTI's, contraceptive practices, sexual activity, congenital, obstructions, stents, reflux, instrumentation, pregnancy and diabetes. • Allergies • Relevant past medical history / medication use • Last food/fluids	Identify patients not suitable for NP CPG → exit CPG
Focused clinical assessment	• Hemodynamics measurements and urinalysis • General examination • Abdominal assessment • Consider vaginitis in women – require genitalia examination • Consider prostatitis in men – diagnosis is on history of deep seated pain, bacteraemia + elevated white cell count and occasionally very gentle palpation will confirm acutely tender prostate.	Differential diagnosis→ exit CPG
Pain Assessment	• Pain scale [3]	Determine need for and type of analgesia

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Analgesia / Initial Management	• Administration of analgesia (see medications) • Oral fluids • S/C or IV Access if antiemetic or hydration required *Treatment options should be in accordance with patients prognosis and the goals of care*	Reduction / relief of pain. Minimise or prevention of complications
	Working diagnosis and Investigations	**Outcomes**
Imaging	Imaging required if suspicion of a ureteric stone or obstruction please refer to appropriate CPG Or as directed by the Consultant or inpatient team after consultation	
Pathology[1]	• Ward based urinalysis • MSU MC & S if suspicion other than acute simple cystitis or male gender • FBE, U & E, bicarbonate, Glucose if the patient is clinically dehydrated or systemically unwell • Blood Culture's and LFT's may be required if evidence of septicaemia *(blood cultures and MSU should be done PRIOR to commencement of antibiotics if patient is febrile or looks septic without fever)*	
	Interpretation of results (diagnostic features) and management decisions	**Outcomes**
Imaging	If taken review in conjunction with pathology and clinical assessment findings	
Pathology and clinical features		
Dysuria and frequency without presence of pyuria (often no presence of leuc's detected in samples but treat as per acute simple cystitis)[1,4]	NP R/V • Oral rehydration as tolerated • Pt education /health promotion • Medication prescribed as per formulary • Referral +/- to services etc on discharge	Patient identified as suitable for NP CPG and discharged safely
Acute simple cystitis (non pregnant women, evidence of pyuria, symptoms of lower urinary infections, no previous history of resistance organisms or symptoms lasting greater than 1 week)[1,4]	NP R/V • Monitor and maintain re-hydration • Rest • Pt education hygiene /health promotion • Medication prescribed as per formulary • Referral to services as required Follow up appointment with GP in 48 hours	Patient identified as suitable for NP CPG and discharged safely
UTI (complicated) (Past history of UTI, known obstruction or urinary abnormalities, antibiotic resistance)[1,4]	NP R/V • Monitor and maintain re-hydration • Rest • Pt education hygiene /health promotion • Medication prescribed as per formulary as per inpatient unit • Referral to services as required Follow up appointment with GP in 48 hours	Assessment by Palliative Care Medical Team.

Acute uncomplicated pyelonephritis (loin pain, febrile and urinary symptoms) [1,4]	NP R/V • Monitor and maintain re-hydration IV • Prescribe treatment regime in consultation with primary medical staff. - Medication prescribed as per formulary • Rest • Pt education hygiene /health promotion • Referral to services as required • Follow up appointment with GP in 48 hours	
Pyelonephritis with signs of septicaemia [1, 4]	NP R/V • Monitor and maintain re-hydration IV • Early referral to Palliative Care Medical team for early goal directed management of sepsis • Prescribe treatment regime in consultation with Palliative Care medical staff - Medication prescribed as per formulary • Rest • Pt education hygiene /health promotion • Referral to services	
Recurrent urinary tract infection OR Catheter-associated urinary tract infection	• The management of these patients is complex and frequently requires specialist advice or assessment. Referral to palliative care medical staff is recommended	
	Medication	**Outcomes**
Simple analgesia **Mild pain**	**Paracetamol 500mg**: 1 or 2 tablets orally 4-6 hours, not to exceed 8 tablets in 24 hrs.	Patients given analgesia appropriate to allergies, current medications and past medical history. Analgesia requirements are determined by ongoing assessment of pain. Patients with excessive pain need to be reviewed by palliative care medical team .
NSAIDS **Moderate Pain**	**Add to paracetamol if still in pain** **Naproxen** Oral 500mg then 250mg 6-8/24 to Max Dose 1000mg daily **If NSAIDS contraindicated** **Tramadol** Oral: 50-100mg 4-8/24, maximum 400mg over 24 hours OR **Tramadol** IV: 50-100mg 4-6/24, maximum 600mg over 24hours	
Narcotic Analgesia **Severe** NP will need a written /verbal order from a Medical Officer for narcotic analgesia	**Oxycodone immediate release (Oxynorm®)** Oral: 5mg PRN maximum hourly OR **Morphine S/C:** 2.5-5.0mg PRN maximum hourly as required for pain relief OR ***IF PAIN NOT CONTROLLED WITH ALL THE ABOVE REGIMEN, REFER TO PALLIATIVE CARE CONSULTANT***	

Antibiotics[5] **Dysuria, frequency and acute simple cystitis**	**Trimethoprim** Oral: 300mg nocte PO . Non-pregnant Women for 3 days and men for 14 days OR **Cephalexin** Oral: 500mg 12 hourly. Non-pregnant Women for 5 days and men for 14 days OR **Amoxycillin** + **clavulanate** 500 + 125mg 12 hourly, Non-pregnant women for 5 days and men for 14 days	Antimicrobial agents as recommended by the RPH Antimicrobial Stewardship Committee, and Therapeutic Guidelines: Antibiotic (version 13, 2006) Gentamicin dosage varies dependent on age and renal function. Gentamicin level monitoring at 2nd or 3rd dose required if treatment > 48 hours
Pregnancy associated cystitis	**Cephalexin** Oral: 500mg 12 hourly for 10 days OR **Amoxycillin + clavulanate**oral: 500 + 125mg 12 hourly treat for 10 days **OR** **Nitrofurantoin 50mg 6-hourly for 10 days**	
Acute uncomplicated pyelonephritis (mild)	**Amoxycillin + clavulanate** 875+125 mg orally, 12-hourly for 10 days OR **Cephalexin 500mg 6-hourly for 10days** **OR** **For documented cephalosporin allergy, contact a Clinical Microbiologist or Infectious Diseases physician for advice.**	
Acute uncomplicated pyelonephritis (Severe or with signs of septicaemia)	**Gentamicin** IV: 4-6mg/kg daily dose (age < 75 y.o. and Cr Cl > 20mL/min) PLUS **Amoxycillin IV:** 2 g 6-hourly Total treatment length 10 - 14 days. Switch to oral antibiotics when clinically stable. **If gentamicin is contraindicated or there is a history of non-immediate type penicillin allergy; contact a Clinical Microbiologist or Infectious Diseases physician for advice.**	
Antiemetics	Follow nausea and vomiting NP CPG	
Anti motility	**Hyoscine Butyl Bromide:** Oral 20mg 6/24 / IM 20-40mg or slow IV to max 100mg/day	
Intravenous Fluids	**0.9% Sodium Chloride Intravenous fluids:** IV 0.9% sodium chloride 1000 mls 2-4/24 titrated to patient requirements and ongoing assessment	
Patient Discharge Education		**Outcomes**

Discharge planning	• Verbal instructions from NP re signs and symptoms to monitor at home. • Referral to community palliative care services • Letter to GP	Ensure patient understands problem, treatment, follow up and is safe for discharge home
Follow-up Appointments	• Advise patients to see GP in 48 hours, letter provided for urine culture follow up instructions	
Referrals	• As appropriate to allied health team members Referrals may be made for specific patient problems or as required to - Care coordination - Social work - Continence Advisor - Aboriginal liaison officer - Drug and alcohol counsellor	
Medication Education	• Verbal instructions from NP • Contact Palliative Care/ or ward Pharmacist to provide medication education for patient when available. Written information as per the medications dispensed.	
Certificates	• Absence from work certificates as required	
Clinical Audit Evaluative strategies		
Palliative Care Outcomes Collaboration database	NP entry to national palliative care database	Quality Improvement.

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