

URINARY TRACT INFECTION

SESLHDPR/397

Aim:

- Early identification & treatment of life threatening causes of Urinary Tract Infection, escalation of care for patients at risk.
- Early initiation of treatment/clinical care & symptom management within benchmark time

Assessment Criteria: On assessment the patient may have one or more of the following signs / symptoms:

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|--------------------------------------|----------------------|------------------------------|
| ☞ Frequency on micturition | ☞ Urgency to urinate | ☞ Suprapubic pain/discomfort |
| ☞ Burning with micturition (Dysuria) | | ☞ Nausea and/or vomiting |

Escalation Criteria: Immediate life-threatening presentations that require exclusion and referral to a Senior Medical Officer (SMO):

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|-------------------------------------|---|--|
| ☞ Meets Sepsis Pathway * | ☞ Pregnancy with gestation \geq 19weeks | ☞ Indwelling catheter or recent instrumentation to urethra |
| ☞ Meets Trauma Criteria * | ☞ Past Hx Kidney/bladder disease | ☞ Recent abdominal / urological / genitourinary surgery |
| ☞ Haematuria (frank blood / clots) | ☞ Abdominal distension / rigidity | ☞ New onset Confusion / delirium |
| | ☞ Urine retention | ☞ Suspected sexually transmitted Infections Symptoms |

Primary Survey:

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|--|---|
| • Airway: patency | • Breathing: respiratory rate, accessory muscle use, air entry, SpO ₂ . |
| • Circulation: perfusion, BP, heart rate, temperature | • Disability: GCS, pupils, limb strength |

Notify CNUM and SMO if any of following red flags is identified from Primary Survey¹.

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|--|---|---|
| ☞ Airway - at risk | ☞ Breathing - respiratory distress | ☞ Circulation - shock / altered perfusion |
| • <i>Partial/full obstruction</i> | • <i>RR < 5 or >30 /min</i> | • <i>HR < 40bpm or > 140bpm</i> |
| | • <i>SpO₂ < 90%</i> | • <i>BP < 90mmHg or > 200mgHg</i> |
| ☞ Disability - decreased LOC | ☞ Exposure | • <i>Postural drop > 20mmHg</i> |
| • <i>GCS \leq 14 or any fall in GCS by 2 points</i> | • <i>Temperature < 35°C or > 38.5°C</i> | • <i>Capillary return >2 sec</i> |
| | • <i>BGL < 3mmol/L or > 20mmol/L</i> | |

History:

- Presenting complaint
- Allergies
- Medications: Anticoagulant Therapy, Anti-hypertensives, Diabetic meds, Analgesics, Inhalers, Chemotherapy, Non-prescription meds, any recent change to medications.
- Past medical past surgical history relevant
- Last ate / drank & last menstrual period (LMP)
- Events and environment leading to presentation i.e. Red flags ☞ — Trauma/assault to genitourinary tract, flank pain, sepsis
- Pain Assessment / Score: **PQRST** (Palliating/ provoking factors, Quality, Region/radiation, Severity, Time onset)
- Associated signs / symptoms: multiple UTIs
- History: family, trauma and travel

Systems Assessment:

Focused Genitourinary / Abdominal assessment:

- *Inspection:* Scars, masses, distention, bruising, discoloration, midline pulsations, devices and movement of patient
- *Auscultation:* Bowel sound; hyperactive, reduced or absent;
- *Palpation:* bladder distension, tenderness, guarding, rebound tenderness, masses, pulses – signs of peritonism; Identify location of pain

Notify CNUM and Senior Medical Officer (SMO) if any of following red flags is identified from History or Systems Assessment.

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|--------------------------------------|---|---|
| ☞ Referred pain - shoulder/back | ☞ Elderly > 65yrs | ☞ Vaginal / urethral purulent discharge |
| ☞ Urinary retention | ☞ Confirmed pregnancy/+ve β HCG and lower pelvic pain | ☞ Confusion / delirium |
| ☞ Flank / Loin pain | ☞ Immunosuppressed / steroids | ☞ Abdominal distension / rigidity |
| ☞ Suspected Pyelonephritis | ☞ Haematuria (frank blood /clots) | ☞ Scrotal pain / testicular torsion |
| ☞ Possible Sexual / domestic assault | | ☞ Previous hx UTI |

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<p>Investigations / Diagnostics:</p>	
<p>Bedside^{6,7,8}:</p> <ul style="list-style-type: none"> Urinalysis / βHCG (women reproductive age) / MSU (if urinary symptoms and positive for leukocytes and / or nitrites retain) 1st pass urine and MSU if suspected STI symptoms Bladder Scan (if suspected urinary retention) notify SMO if in retention +/- IDC insertion \mathcal{R} BGL: If < 3mmol/L or > 20mmol/L notify SMO \mathcal{R} ECG: [as indicated] look for Arrhythmia , AMI \mathcal{R} 	<p>Laboratory / Radiology⁹:</p> <ul style="list-style-type: none"> Pathology: Refer to local nurse initiated STOP FBC, UEC (<i>only if suspected pyelonephritis</i>) Quantitative βHCG if urine positive for same Blood Cultures (if Temp\leq35 or \geq38.5°C) Urine Culture mc&s Radiology: Not generally indicated (<i>discuss with SMO</i>)
<p>Nursing Interventions / Management Plan:</p>	
<p>Resuscitation / Stabilisation⁹:</p> <ul style="list-style-type: none"> Oxygen therapy & cardiac monitor [as indicated] IV Cannulation (16-18gauge if unstable) IV Fluids: Sodium Chloride 0.9% 1 L IV stat versus over 8 hours (<i>discuss with SMO</i>) 	<p>Symptomatic Treatment⁹:</p> <ul style="list-style-type: none"> Antiemetic: as per district standing order Analgesia: as per district standing order IV Fluids: as per district standing order Sodium Citrotartrate (Ural \mathcal{R})^{5,10}: as per local nurse initiated standing order
<p>Supportive Treatment:</p> <ul style="list-style-type: none"> Encourage oral fluids as tolerated <u>OR</u> Nil By Mouth (gross hematuria / loin pain) Monitor vital signs as clinically indicated (BP, HR, T, RR, SpO₂) Fluid Balance Chart (FBC) Monitor pain assessment / score 	
<p>Practice Tips / Hints:</p> <ul style="list-style-type: none"> Cystitis is more common in women in reproductive age, and in men usually after the age of 50yrs Check for vaginal or urethral discharge or bleeding (consistent with vaginitis/urethritis) Upper tract infection or pyelonephritis may occur in patients with UTI. Pyelonephritis refers to an infection of the upper structures of the urinary tract, specifically the ureters, renal pelvis, and renal parenchyma. Seventy-five percent of patients with pyelonephritis will have had UTI previously and these patients may require hospitalisation for intravenous antibiotics unless otherwise systemically stable. Provide a written discharge advice sheet for "Urinary Tract Infection (UTI)" from Emergency Care Institute (ECI) https://www.aci.health.nsw.gov.au/_data/assets/pdf_file/0006/332763/UTI_ED_Patient_Factsheet_Sept_2016.pdf 	
<p>Further Reading / References:</p> <ol style="list-style-type: none"> SESLHD Deteriorating Patient-Clinical Emergency Response System for the Management of Adult and Maternity Inpatients SESLHDPR/283, 2019 https://www.seslhd.health.nsw.gov.au/Deteriorating-Patients-Clinical-Emergency-Response-System-for-the-Management-of-Adult-and-Maternity-Inpatients Norris, D.L., Young, J.D. (2008) Urinary Tract Infections: Diagnosis and Management in the Emergency Department Emergency Medicine Clinics of North America 26 (2008) 413-430 http://www.emed.theclinics.com/article/S0733-8627(08)00029-1/fulltext Emergency Care Institute Urinary Symptoms Nurse Management Guidelines (2020) (Reviewed April 2021). Available Online: http://www.ecinsw.com.au/urinary-symptoms-nmg Emergency Care Institute (September 2016): (Reviewed April 2021) Urinary Tract Infection (UTI) Fact Sheet. Available Online: https://www.aci.health.nsw.gov.au/networks/eci/clinical/ed-factsheets MIMS Australia Pty Ltd. (2021) cited 2021 Ural (Sodium Citrotartrate) https://www.mimsonline.com.au.acs.hcn.com.au/Search/FullPI.aspx?ModuleName=ProductInfo&searchKeyword=Ural+Granules&PreviousPage=~/Search/QuickSearch.aspx&SearchType=&ID=7690001_2 Agency for Clinical Innovation: Bladder Scanning (Non Real Time): Clinical Guideline (2014). Available Online: https://www.aci.health.nsw.gov.au/_data/assets/pdf_file/0019/191062/ACI_Bladder_Scanning.pdf Agency for Clinical Innovation (2012) ACI Urology Network Nursing Collection of Urine Midstream Guidelines, NSW Agency for Clinical Innovation. Available online: (cited 2021) http://www.aci.health.nsw.gov.au/_data/assets/pdf_file/0005/165920/Collection-of-Urine-Midstream-Toolkit.pdf Emergency Care Institute (December 2020) STI Testing Tool NSW Health STI/HIV Testing Tool (September 2017) Available online:(cited 2021) https://aci.health.nsw.gov.au/_data/assets/pdf_file/0009/286857/STI-HIV-Testing-Tool-online.pdf SESLHD Framework for Emergency Nurse Protocols and Standing Order.2018 https://SESLHD-Framework-for-Emergency-Nurse-Protocols-and-Standing-Orders 	

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10. SESLHD Nurse/Midwife initiated medicine protocol SESLHDPR/474 Sodium Citrotartrate Granules for urinary symptom relief.2018. [Nurse/Midwife Sodium citrotartrate granules for urinary symptom relief](#)
11. SESLHD Nurse/Midwife initiated Medicine protocols: found online

Acknowledgements: *SESLHD Adult Emergency Nurse Protocols were developed & adapted with permission from:*

- Murphy, M (2007) Emergency Department Toolkits. Westmead Hospital, SWAHS
- Hodge, A (2011) Emergency Department, Clinical Pathways. Prince of Wales Hospital SESLHD.

Revision & Approval History

Date	Revision No.	Author and Approval
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